```
<?xml version="1.0" encoding="UTF-8" standalone="true"?>
<?mso-application progid="Word.Document"?>
<pkg:package xmlns:pkg="http://schemas.microsoft.com/office/2006/xmlPackage">
  - <pkg:part pkg:padding="512" pkg:contentType="application/vnd.openxmlformats-package.relationships+xml" pkg:name="/_rels/.rels">
      - <pkg:xmlData>
          - <Relationships xmlns="http://schemas.openxmlformats.org/package/2006/relationships">
              <Relationship Target="docProps/app.xml" Type="http://schemas.openxmlformats.org/officeDocument/2006/relationships/extended-properties"
                  Id="rId3"/>
              <Relationship Target="docProps/core.xml" Type="http://schemas.openxmlformats.org/package/2006/relationships/metadata/core-properties"
                  Id="rId2"/>
              <Relationship Target="word/document.xml" Type="http://schemas.openxmlformats.org/officeDocument/2006/relationships/officeDocument"
                  Id="rId1"/>
              <Relationship Target="docProps/custom.xml" Type="http://schemas.openxmlformats.org/officeDocument/2006/relationships/custom-properties"
                  Id="rId4"/>
            </Relationships>
        </pkg:xmlData>
    </pkg:part>
  - <pkg:part pkg:contentType="application/vnd.openxmlformats-officedocument.wordprocessingml.document.main+xml" pkg:name="/word/document.xml">
      - <pkg:xmlData>
          - <w:document mc:Ignorable="w14 w15 w16se w16cid wp14" xmlns:wps="http://schemas.microsoft.com/office/word/2010/wordprocessingShape"
            xmlns:wne="http://schemas.microsoft.com/office/word/2006/wordml" xmlns:wpi="http://schemas.microsoft.com/office/word/2010/wordprocessingInk"
            xmlns:wpg="http://schemas.microsoft.com/office/word/2010/wordprocessingGroup"
            xmlns:w16se="http://schemas.microsoft.com/office/word/2015/wordml/symex"
            xmlns:w16cid="http://schemas.microsoft.com/office/word/2016/wordml/cid" xmlns:w15="http://schemas.microsoft.com/office/word/2012/wordml"
            xmlns:w14="http://schemas.microsoft.com/office/word/2010/wordml" xmlns:w="http://schemas.openxmlformats.org/wordprocessingml/2006/main"
            xmlns:w10="urn:schemas-microsoft-com:office:word" xmlns:wp="http://schemas.openxmlformats.org/drawingml/2006/wordprocessingDrawing"
            xmlns:wp14="http://schemas.microsoft.com/office/word/2010/wordprocessingDrawing" xmlns:v="urn:schemas-microsoft-com:vml"
            xmlns:m="http://schemas.openxmlformats.org/officeDocument/2006/math"
            xmlns:r="http://schemas.openxmlformats.org/officeDocument/2006/relationships" xmlns:o="urn:schemas-microsoft-com:office:office"
            xmlns:am3d="http://schemas.microsoft.com/office/drawing/2017/model3d" xmlns:aink="http://schemas.microsoft.com/office/drawing/2016/ink"
            xmlns:mc="http://schemas.openxmlformats.org/markup-compatibility/2006"
            xmlns:cx8="http://schemas.microsoft.com/office/drawing/2016/5/14/chartex"
            xmlns:cx7="http://schemas.microsoft.com/office/drawing/2016/5/13/chartex"
            xmlns:cx6="http://schemas.microsoft.com/office/drawing/2016/5/12/chartex"
            xmlns:cx5="http://schemas.microsoft.com/office/drawing/2016/5/11/chartex"
            xmlns:cx4="http://schemas.microsoft.com/office/drawing/2016/5/10/chartex"
            xmlns:cx3="http://schemas.microsoft.com/office/drawing/2016/5/9/chartex"
            xmlns:cx2="http://schemas.microsoft.com/office/drawing/2015/10/21/chartex"
            xmlns:cx1="http://schemas.microsoft.com/office/drawing/2015/9/8/chartex" xmlns:cx="http://schemas.microsoft.com/office/drawing/2014/chartex"
            xmlns:wpc="http://schemas.microsoft.com/office/word/2010/wordprocessingCanvas">
              - <w:body>
                  - <w:p w:rsidP="008E54F6" w:rsidRDefault="00A446D1" w:rsidRPr="005C028C" w:rsidR="007F4372" w14:textId="77777777"
                    w14:paraId="5432F019">
                      - <w:pPr>
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                          <w:ind w:right="0" w:left="235"/>
                          <w:jc w:val="left"/>
                        - <w:rPr>
                            <w:rFonts w:hAnsi="Arial Black" w:ascii="Arial Black"/>
                          </w:rPr>
                        </w:pPr>
                        <w:bookmarkStart w:name="_GoBack" w:id="0"/>
                        <w:bookmarkEnd w:id="0"/>
                      - <w:r w:rsidRPr="005C028C">
                          - <w:rPr>
                              <w:noProof/>
                              <w:sz w:val="16"/>
                              <w:szCs w:val="16"/>
                            </w:rPr>
                          - <w:drawing>
                              - <wp:anchor wp14:editId="14E6C99C" wp14:anchorId="0E274DF8" allowOverlap="1" layoutInCell="1" locked="0"
                                behindDoc="0" relativeHeight="251675136" simplePos="0" distR="114300" distL="114300" distB="0" distT="0">
                                  <wp:simplePos y="0" x="0"/>
                                - <wp:positionH relativeFrom="column">
                                    <wp:posOffset>4887600</wp:posOffset>
                                  </wp:positionH>
                                - <wp:positionV relativeFrom="paragraph">
                                    <wp:posOffset>-37465</wp:posOffset>
                                  </wp:positionV>
                                  <wp:extent cx="161290" cy="251460"/>
                                  <wp:effectExtent r="0" b="0" t="0" l="0"/>
                                  <wp:wrapNone/>
                                  <wp:docPr name="Picture 11" id="11" descr="Image result for open access"/>
                                - <wp:cNvGraphicFramePr>
                                    <a:graphicFrameLocks noChangeAspect="1" xmlns:a="http://schemas.openxmlformats.org/drawingml/2006/main"/>
                                  </wp:cNvGraphicFramePr>
                                - <a:graphic xmlns:a="http://schemas.openxmlformats.org/drawingml/2006/main">
                                  - <a:graphicData uri="http://schemas.openxmlformats.org/drawingml/2006/picture">
                                    - <pic:pic xmlns:pic="http://schemas.openxmlformats.org/drawingml/2006/picture">
                                      - <pic:nvPicPr>
                                          <pic:cNvPr name="Picture 1" id="0" descr="Image result for open access"/>
                                        - <pic:cNvPicPr>
```

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                                    <a:picLocks noChangeAspect="1" noChangeArrowheads="1"/>
                                </pic:cNvPicPr>
                            </pic:nvPicPr>
                        - <pic:blipFill>
                            - <a:blip cstate="print" r:embed="rId8">
                                - <a:duotone>
                                    - <a:schemeClr val="accent6">
                                        <a:shade val="45000"/>
                                        <a:satMod val="135000"/>
                                      </a:schemeClr>
                                      <a:prstClr val="white"/>
                                  </a:duotone>
                                - <a:extLst>
                                    - <a:ext uri="{BEBA8EAE-BF5A-486C-A8C5-ECC9F3942E4B}">
                                        - <a14:imgProps xmlns:a14="http://schemas.microsoft.com/office/drawing/2010/main">
                                            - <a14:imgLayer r:embed="rId9">
                                                - <a14:imgEffect>
                                                    <a14:sharpenSoften amount="50000"/>
                                                  </a14:imgEffect>
                                              </a14:imgLayer>
                                          </a14:imgProps>
                                      </a:ext>
                                    - <a:ext uri="{28A0092B-C50C-407E-A947-70E740481C1C}">
                                        <a14:useLocalDpi val="0"
                                            xmlns:a14="http://schemas.microsoft.com/office/drawing/2010/main"/>
                                      </a:ext>
                                  </a:extLst>
                              </a:blip>
                              <a:srcRect/>
                            - <a:stretch>
                                  <a:fillRect/>
                              </a:stretch>
                          </pic:blipFill>
                        - <pic:spPr bwMode="auto">
                            - <a:xfrm>
                                  <a:off y="0" x="0"/>
                                  <a:ext cx="161290" cy="251460"/>
                              </a:xfrm>
                            - <a:prstGeom prst="rect">
                                  <a:avLst/>
                              </a:prstGeom>
                              <a:noFill/>
                            - <a:ln>
                                  <a:noFill/>
                              </a:ln>
                          </pic:spPr>
                      </pic:pic>
                  </a:graphicData>
              </a:graphic>
          </wp:anchor>
      </w:drawing>
  </w:r>
- <w:r w:rsidRPr="005C028C" w:rsidR="0046666E">
    - <w:rPr>
          <w:rFonts w:hAnsi="Arial Black" w:ascii="Arial Black"/>
          <w:b/>
          <w:color w:val="385623" w:themeShade="80" w:themeColor="accent6"/>
          <w:spacing w:val="20"/>
          <w:sz w:val="24"/>
      </w:rPr>
      <w:t>Review</w:t></w:r>
- <w:r w:rsidRPr="005C028C" w:rsidR="002250C4">
    - <w:rPr>
          <w:rFonts w:hAnsi="Arial Black" w:ascii="Arial Black"/>
          <w:b/>
          <w:color w:val="385623" w:themeShade="80" w:themeColor="accent6"/>
          <w:spacing w:val="20"/>
          <w:sz w:val="24"/>
      </w:rPr>
      <w:t xml:space="preserve"> Article</w:t></w:r>
- <w:r w:rsidRPr="005C028C" w:rsidR="007C2B71">
    - <w:rPr>
          <w:rFonts w:hAnsi="Arial Black" w:ascii="Arial Black"/>
          <w:b/>
          <w:spacing w:val="20"/>
          <w:sz w:val="24"/>
      </w:rPr>
      <w:tab/>
      <w:t xml:space="preserve"> </w:t></w:r>
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- <w:r w:rsidRPr="005C028C" w:rsidR="002250C4">
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<w:rFonts w:hAnsi="Arial Black" w:ascii="Arial Black"/>
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<w:spacing w:val="20"/>
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- <w:r w:rsidRPr="005C028C" w:rsidR="002250C4">
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- <w:r w:rsidRPr="005C028C">
- <w:rPr>
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<w:b/>
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<w:sz w:val="16"/>
<w:szCs w:val="16"/>
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<w:tab/>
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- <w:r w:rsidRPr="005C028C">
- <w:rPr>
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<w:b/>
<w:spacing w:val="20"/>
<w:sz w:val="16"/>
<w:szCs w:val="16"/>
</w:rPr>
<w:tab/>
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- <w:r w:rsidRPr="005C028C">
- <w:rPr>
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<w:b/>
<w:spacing w:val="20"/>
<w:sz w:val="16"/>
<w:szCs w:val="16"/>
</w:rPr>
<w:tab/>
</w:r>
- <w:r w:rsidRPr="005C028C">
- <w:rPr>
<w:rFonts w:hAnsi="Arial Black" w:ascii="Arial Black"/>
<w:b/>
<w:spacing w:val="20"/>
<w:sz w:val="16"/>
<w:szCs w:val="16"/>
</w:rPr>
<w:tab/>
</w:r>
- <w:r w:rsidRPr="005C028C">
- <w:rPr>
<w:rFonts w:hAnsi="Arial Black" w:ascii="Arial Black"/>
<w:b/>
<w:spacing w:val="20"/>
<w:sz w:val="16"/>
<w:szCs w:val="16"/>
</w:rPr>
<w:tab/>
</w:r>
- <w:r w:rsidRPr="005C028C" w:rsidR="00904779">
- <w:rPr>
<w:rFonts w:hAnsi="Arial Black" w:ascii="Arial Black"/>
<w:b/>
<w:spacing w:val="20"/>
<w:sz w:val="16"/>
<w:szCs w:val="16"/>
</w:rPr>
<w:tab/>
<w:t xml:space="preserve"> OPEN</w:t>
</w:r>
- <w:r w:rsidRPr="005C028C" w:rsidR="007C2B71">
- <w:rPr>

```
                    <w:rFonts w:hAnsi="Arial Black" w:ascii="Arial Black"/>
                    <w:b/>
                    <w:spacing w:val="20"/>
                    <w:sz w:val="16"/>
                    <w:szCs w:val="16"/>
                </w:rPr>
                <w:t xml:space="preserve"> A</w:t>
            </w:r>
        - <w:r w:rsidRPr="005C028C">
            - <w:rPr>
                    <w:rFonts w:hAnsi="Arial Black" w:ascii="Arial Black"/>
                    <w:b/>
                    <w:spacing w:val="20"/>
                    <w:sz w:val="16"/>
                    <w:szCs w:val="16"/>
                </w:rPr>
                <w:t>C</w:t></w:t>
            </w:r>
        - <w:r w:rsidRPr="005C028C" w:rsidR="007C2B71">
            - <w:rPr>
                    <w:rFonts w:hAnsi="Arial Black" w:ascii="Arial Black"/>
                    <w:b/>
                    <w:spacing w:val="20"/>
                    <w:sz w:val="16"/>
                    <w:szCs w:val="16"/>
                </w:rPr>
                <w:t>CESS</w:t></w:t>
            </w:r>
        - <w:r w:rsidRPr="005C028C" w:rsidR="007C2B71">
            - <w:rPr>
                    <w:rFonts w:hAnsi="Arial Black" w:ascii="Arial Black"/>
                    <w:b/>
                    <w:spacing w:val="20"/>
                    <w:sz w:val="24"/>
                </w:rPr>
                <w:t xml:space="preserve"> </w:t></w:t>
            </w:r>
        - <w:r w:rsidRPr="005C028C" w:rsidR="00E21E71">
            - <w:rPr>
                    <w:rFonts w:hAnsi="Arial Black" w:ascii="Arial Black"/>
                    <w:color w:val="000066"/>
                </w:rPr>
                <w:t xml:space="preserve"> </w:t></w:t>
            </w:r>
    </w:p>
- <w:p w:rsidRDefault="00847784" w:rsidRPr="005C028C" w:rsidR="005C028C" w:rsidRDefault="007F4372" w14:textId="77777777" w14:paraId="4131DE80">
    - <w:pPr>
            <w:spacing w:lineRule="auto" w:line="259" w:after="161" w:before="0"/>
            <w:ind w:right="-28" w:left="212" w:firstLine="0"/>
            <w:jc w:val="left"/>
        </w:pPr>
    - <w:r w:rsidRPr="005C028C">
        - <w:rPr>
                <w:rFonts w:hAnsi="Century Gothic" w:ascii="Century Gothic"/>
                <w:b/>
                <w:noProof/>
                <w:color w:val="385623" w:themeShade="80" w:themeColor="accent6"/>
                <w:sz w:val="30"/>
                <w:szCs w:val="30"/>
            </w:rPr>
        - <mc:AlternateContent>
            - <mc:Choice Requires="wps">
                - <w:drawing>
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                    behindDoc="0" relativeHeight="251677184" simplePos="0" distR="114300" distL="114300" distB="45720"
                    distT="45720">
                        <wp:simplePos y="0" x="0"/>
                    - <wp:positionH relativeFrom="margin">
                            <wp:posOffset>5050155</wp:posOffset>
                        </wp:positionH>
                    - <wp:positionV relativeFrom="paragraph">
                            <wp:posOffset>70485</wp:posOffset>
                        </wp:positionV>
                        <wp:extent cx="1155622" cy="252442"/>
                        <wp:effectExtent r="6985" b="0" t="0" l="0"/>
                        <wp:wrapNone/>
                        <wp:docPr name="Text Box 2" id="217"/>
                    - <wp:cNvGraphicFramePr>
                            <a:graphicFrameLocks xmlns:a="http://schemas.openxmlformats.org/drawingml/2006/main"/>
                        </wp:cNvGraphicFramePr>
                    - <a:graphic xmlns:a="http://schemas.openxmlformats.org/drawingml/2006/main">
                        - <a:graphicData uri="http://schemas.microsoft.com/office/word/2010/wordprocessingShape">
```

```
- <wps:wsp>
  - <wps:cNvSpPr txBox="1">
      <a:spLocks noChangeArrowheads="1"/>
    </wps:cNvSpPr>
  - <wps:spPr bwMode="auto">
    - <a:xfrm>
        <a:off y="0" x="0"/>
        <a:ext cx="1155622" cy="252442"/>
      </a:xfrm>
    - <a:prstGeom prst="rect">
        <a:avLst/>
      </a:prstGeom>
    - <a:solidFill>
        <a:srgbClr val="FFFFFF"/>
      </a:solidFill>
    - <a:ln w="9525">
        <a:noFill/>
        <a:miter lim="800000"/>
        <a:headEnd/>
        <a:tailEnd/>
      </a:ln>
    </wps:spPr>
  - <wps:txbx>
    - <w:txbxContent>
      - <w:p w:rsidP="00847784" w:rsidRDefault="008556D5" w:rsidR="00073AAE"
        w:rsidR="008556D5" w14:textId="77777777" w14:paraId="7975FD1E">
        - <w:pPr>
            <w:spacing w:lineRule="auto" w:line="240" w:after="0" w:before="0"/>
            <w:ind w:left="11" w:hanging="11"/>
            <w:jc w:val="right"/>
          - <w:rPr>
              <w:b/>
              <w:bCs/>
              <w:color w:val="538135" w:themeShade="BF" w:themeColor="accent6"/>
              <w:lang w:val="fr-FR"/>
            </w:rPr>
          </w:pPr>
          <w:proofErr w:type="spellStart"/>
        - <w:r w:rsidR="00073AAE">
          - <w:rPr>
              <w:b/>
              <w:bCs/>
              <w:color w:val="538135" w:themeShade="BF" w:themeColor="accent6"/>
            </w:rPr>
            <w:t>eISSN</w:t>
          </w:r>
          <w:proofErr w:type="spellEnd"/>
        - <w:r w:rsidR="00073AAE">
          - <w:rPr>
              <w:b/>
              <w:bCs/>
              <w:color w:val="538135" w:themeShade="BF" w:themeColor="accent6"/>
              <w:lang w:val="fr-FR"/>
            </w:rPr>
            <w:t>: 2588-1582</w:t>
          </w:r>
        </w:p>
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    </wps:txbx>
  - <wps:bodyPr anchorCtr="0" anchor="t" bIns="45720" rIns="91440" tIns="45720" lIns="91440"
    wrap="square" vert="horz" rot="0">
      <a:noAutofit/>
    </wps:bodyPr>
  </wps:wsp>
</a:graphicData>
</a:graphic>
- <wp14:sizeRelH relativeFrom="margin">
    <wp14:pctWidth>0</wp14:pctWidth>
  </wp14:sizeRelH>
- <wp14:sizeRelV relativeFrom="margin">
    <wp14:pctHeight>0</wp14:pctHeight>
  </wp14:sizeRelV>
</wp:anchor>
</w:drawing>
</mc:Choice>
- <mc:Fallback>
  - <w:pict>
    - <v:shapetype id="_x0000_t202" w14:anchorId="74D12715" path="m,l,21600r21600,l21600,xe" o:spt="202"
      coordsize="21600,21600">
        <v:stroke joinstyle="miter"/>
        <v:path o:connecttype="rect" gradientshapeok="t"/>
      </v:shapetype>
```

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- <v:shape id="Text Box 2" type="#_x0000_t202" stroked="f"
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  90jcwfIWJU67QAgl6YK0S0CoHGBkTxKLZGx5TGhvj5O2G0SRWNoz/78nu9wcxkFMGNg6quQqL6RA
  0s5Y6ir5vt9lD1JwBDIwOMJKHpHlpr69KfdHjyxSmriSfYz+USnWPY7AufNIadK6MEJMx9ApD/oD
  OlTrorhX2lFEilmcO2RdNtjC5xDF9pCuTyYBB5bi6bQ4syoJ3g9WQ0ymaiLzg5KdCXlKLjvcW893
  SUOqXwnz5DrgnHtJTxOsQfEKIT7DmDSUCaxw7Rqn8787ZsmRM9e2VmPeBN4uqYvTtW7jvijg9N/y
  JsXecLq0q+WD6m8AAAD//wMAUEsDBBQABgAIAAAAIQA4/SH/1gAAAJQBAAALAAAAX3JlbHMvLnJl
  bHOkkMFqwzAMhu+DvYPRfXGawxijTi+j0GvpHsDYimMaW0Yy2fr2M4PBMnrbUb/Q94l/f/hMi1qR
  JVI2sOt6UJgd+ZiDgffL8ekFlFSbvV0oo4EbChzGx4f9GRdb25HMsYhqlCwG5lrLq9biZkxWOiqY
  22YiTra2kYMu1l1tQD30/bPm3wwYN0x18gb45AdQl1tp5j/sFB2T0FQ7R0nTNEV3j6o9feQzro1i
  OWA14Fm+Q8a1a8+Bvu/d/dMb2JY5uiPbhG/ktn4cqGU/er3pcvwCAAD//wMAUEsDBBQABgAIAAAA
  IQAD/VnRIAIAAB0EAAAOAAAAZHJzL2Uyb0RvYy54bWysU11v2yAUfZ+0/4B4XxbcT+sOFWXLtOk
  rpvU9gdgjGM04DIgsbNfvwtO06h7m+oHxPW9HM4997C8GbUie+G8BFPTfDanRBgOrTTbmj4/bT5d
  UeIDMy1TYERND8LTm9XHD8vBVqKAHlQrHEEQ46vB1rQPwVZZ5nkvNPMzsMJgsgOnWcDQbbPWsQHR
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  cUhPYgzkM4ykiPoM1ldY9mixMIz4G+ecevX2HvgvTwyse2a24tY5GHrBWuSXx5PZ2dEJx0eQZvgO
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AC8BAABfcmVscy8ucmVsc1BLAQItABQABgAIAAAAIQAjCv4gNwIAACgFAAAOAAAAAAAAAAAAAAAA
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style="position:absolute;left:0;text-align:left;margin-left:12.5pt;margin-top:3.05pt;width:470.95pt;height:.95pt;z-index:251671040;visibility:visible;mso-wrap-style:square;mso-wrap-distance-left:9pt;mso-wrap-distance-top:0;mso-wrap-distance-right:9pt;mso-wrap-distance-bottom:0;mso-position-horizontal:absolute;mso-position-horizontal-relative:text;mso-position-vertical:absolute;mso-position-vertical-relative:text;v-text-anchor:top" o:spid="_x0000_s1026" strokeweight="0" fillcolor="black">
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<v:path textboxrect="0,0,5981426,12192" arrowok="t"/>
</v:shape>
</w:pict>
</mc:Fallback>

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- <w:r w:rsidRPr="005C028C" w:rsidR="00E21E71">
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  - <mc:AlternateContent>
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            <wp:docPr name="Group 10991" id="10991"/>
            <wp:cNvGraphicFramePr/>
          - <a:graphic xmlns:a="http://schemas.openxmlformats.org/drawingml/2006/main">
            - <a:graphicData uri="http://schemas.microsoft.com/office/word/2010/wordprocessingGroup">
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                - <wpg:grpSpPr>
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                      <a:chExt cx="5988055" cy="1122214"/>
                    </a:xfrm>
                  </wpg:grpSpPr>
                - <wps:wsp>
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                        <a:avLst/>
                      </a:prstGeom>
                    - <a:ln>
                        <a:noFill/>
                      </a:ln>
                    </wps:spPr>
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                    - <w:txbxContent>
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                        w14:paraId="45E07D1F">
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                            <w:ind w:right="0" w:left="0" w:firstLine="0"/>
                            <w:jc w:val="left"/>
                          </w:pPr>
                        - <w:r>
                          - <w:rPr>
                              <w:sz w:val="22"/>
                            </w:rPr>
                            <w:t xml:space="preserve"> </w:t>
                          </w:r>
                        </w:p>
                      </w:txbxContent>
                    </wps:txbx>
                  - <wps:bodyPr bIns="0" rIns="0" tIns="0" lIns="0" vert="horz" rtlCol="0"
                    horzOverflow="overflow">
                      <a:noAutofit/>
                    </wps:bodyPr>
                  </wps:wsp>
                - <wps:wsp>
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                    <wps:cNvSpPr/>
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                    - <a:prstGeom prst="rect">
                        <a:avLst/>
                      </a:prstGeom>
                    - <a:ln>
                        <a:noFill/>
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                    </wps:spPr>
                  - <wps:txbx>
                    - <w:txbxContent>
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- <w:p w:rsidRDefault="008556D5" w:rsidR="008556D5" w14:textId="77777777"
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  - <w:r>
    - <w:rPr>
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      <w:t xml:space="preserve"> </w:t>
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  </w:p>
</w:txbxContent>
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- <wps:bodyPr bIns="0" rIns="0" tIns="0" lIns="0" vert="horz" rtlCol="0"
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        <a:noFill/>
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</wps:spPr>
  - <wps:txbx>
    - <w:txbxContent>
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            <w:jc w:val="left"/>
          </w:pPr>
        - <w:r>
          - <w:rPr>
              <w:sz w:val="22"/>
            </w:rPr>
            <w:t xml:space="preserve"> </w:t>
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        </w:p>
      </w:txbxContent>
</wps:txbx>
- <wps:bodyPr bIns="0" rIns="0" tIns="0" lIns="0" vert="horz" rtlCol="0"
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</wps:bodyPr>
</wps:wsp>
- <wps:wsp>
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    <wps:cNvSpPr/>
  - <wps:spPr>
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    - <a:prstGeom prst="rect">
        <a:avLst/>
      </a:prstGeom>
    - <a:ln>
        <a:noFill/>
      </a:ln>
</wps:spPr>
  - <wps:txbx>
    - <w:txbxContent>
      - <w:p w:rsidRDefault="005053E3" w:rsidR="008556D5" w:rsidRPr="00B409E3"
        w:rsidRDefault="008556D5" w14:textId="77777777" w14:paraId="41544C9D">
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            <w:ind w:right="0" w:left="0" w:firstLine="0"/>
            <w:jc w:val="center"/>
```

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                    - <w:rPr>
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                      </w:rPr>
                    </w:pPr>
                  - <w:r w:rsidRPr="00B409E3">
                    - <w:rPr>
                        <w:rFonts w:hAnsi="Tw Cen MT" w:ascii="Tw Cen MT"/>
                      </w:rPr>
                      <w:t>Contents lists available at</w:t>
                    </w:r>
                  </w:p>
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            - <wps:bodyPr bIns="0" rIns="0" tIns="0" lIns="0" vert="horz" rtlCol="0"
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                  <a:avLst/>
                </a:prstGeom>
              - <a:ln>
                  <a:noFill/>
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              </wps:spPr>
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              - <w:txbxContent>
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                      <w:jc w:val="left"/>
                    </w:pPr>
                  - <w:r>
                      <w:t xml:space="preserve"> </w:t>
                    </w:r>
                  </w:p>
                </w:txbxContent>
              </wps:txbx>
            - <wps:bodyPr bIns="0" rIns="0" tIns="0" lIns="0" vert="horz" rtlCol="0"
              horzOverflow="overflow">
                <a:noAutofit/>
              </wps:bodyPr>
            </wps:wsp>
          - <wps:wsp>
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            - <wps:spPr>
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                </a:xfrm>
              - <a:custGeom>
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                  <a:gdLst/>
                  <a:ahLst/>
                  <a:cxnLst/>
                  <a:rect r="0" b="0" t="0" l="0"/>
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                  - <a:path w="5467472" h="365760">
                    - <a:moveTo>
                        <a:pt y="0" x="0"/>
                      </a:moveTo>
                    - <a:lnTo>
                        <a:pt y="0" x="5467472"/>
                      </a:lnTo>
                    - <a:lnTo>
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                    - <a:lnTo>
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                      </a:lnTo>
                    - <a:lnTo>
```

```
                                    <a:pt y="0" x="0"/>
                                </a:lnTo>
                            </a:path>
                        </a:pathLst>
                    </a:custGeom>
                - <a:solidFill>
                    - <a:schemeClr val="accent6">
                            <a:lumMod val="40000"/>
                            <a:lumOff val="60000"/>
                        </a:schemeClr>
                    </a:solidFill>
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                            <a:alpha val="0"/>
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                    </a:lnRef>
                - <a:fillRef idx="1">
                        <a:srgbClr val="F2F2F2"/>
                    </a:fillRef>
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                    </a:effectRef>
                    <a:fontRef idx="none"/>
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            - <wps:spPr>
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                - <a:prstGeom prst="rect">
                        <a:avLst/>
                    </a:prstGeom>
                - <a:ln>
                        <a:noFill/>
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                </wps:spPr>
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                - <w:txbxContent>
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                        w:rsidR="008556D5" w14:textId="77777777" w14:paraId="3D1049EE">
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                            <w:jc w:val="left"/>
                        - <w:rPr>
                                <w:rFonts w:hAnsi="Tw Cen MT" w:ascii="Tw Cen MT"/>
                            </w:rPr>
                        </w:pPr>
                        - <w:r w:rsidRPr="00B409E3">
                            - <w:rPr>
                                <w:rFonts w:hAnsi="Tw Cen MT" w:ascii="Tw Cen MT"/>
                            </w:rPr>
                            <w:t xml:space="preserve">Journal homepage: </w:t>
                        </w:r>
                        - <w:hyperlink r:id="rId11" w:history="1">
                            - <w:r w:rsidRPr="00B409E3">
                                - <w:rPr>
                                    <w:rStyle w:val="Hyperlink"/>
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                                </w:rPr>
                                <w:t>https://www.najfnr.org</w:t>
                            </w:r>
                        </w:hyperlink>
                        - <w:r w:rsidRPr="00B409E3">
                            - <w:rPr>
                                <w:rFonts w:hAnsi="Tw Cen MT" w:ascii="Tw Cen MT"/>
                            </w:rPr>
                            <w:t xml:space="preserve"> </w:t>
                        </w:r>
                    </w:p>
                </w:txbxContent>
            </wps:txbx>
```

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- <wps:bodyPr bIns="0" rIns="0" tIns="0" lIns="0" vert="horz" rtlCol="0"
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- <wps:wsp>
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- <wps:spPr>
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        </w:pPr>
      - <w:r>
          <w:t xml:space="preserve"> </w:t>
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      </w:p>
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- <wps:bodyPr bIns="0" rIns="0" tIns="0" lIns="0" vert="horz" rtlCol="0"
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- <wps:spPr>
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          <w:jc w:val="left"/>
        </w:pPr>
      - <w:r>
        - <w:rPr>
            <w:sz w:val="22"/>
          </w:rPr>
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        </w:r>
      </w:p>
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  </wps:txbx>
- <wps:bodyPr bIns="0" rIns="0" tIns="0" lIns="0" vert="horz" rtlCol="0"
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  </wps:bodyPr>
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</wpg:wgp>
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- <mc:Fallback>
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      0s5Y6ir5vt9lD1JwBDIwOMJKHpHlpr69KfdHjyxSmriSfYz+USnWPY7AufNIadK6MEJMx9ApD/oD
      OITrorhX2lFEilmcO2RdNtjC5xDF9pCuTyYBB5bi6bQ4syoJ3g9WQ0ymaiLzg5KdCXlKLjvcW893
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      JsXecLq0q+WD6m8AAAD//wMAUEsDBBQABgAIAAAAIQA4/SH/1gAAAJQBAAALAAAAX3JlbHMvLnJl
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A R
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I N F O
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Background
:
Growing evidence suggests that metabolic syndrome (
MetS
) could be linked with the incidence of colorectal adenoma and cancer (CRA and CRC).
Aims
:
Conducting a meta-analysis to assess the association of
MetS
with both CRA and CRC.
Methods and Material
:
Relevant studies were identified by systematically searching PubMed database for articles published in the last ten years. A random effect analysis model and Mantel-
Haenszel
statistical method were used to obtain pooled risk ratios (RRs) and their 95% confidence intervals (CIs) for dichotomous data. The analyses were assessed for heterogeneity and publication bias.
Results
:
35 studies were included in the meta-analysis involving approximately 1300000 participants. A significant high risk for CRA was observed among patients with
MetS
compared to those without (RR = 1.43; 95% CI = 1.31, 1.57). The pooled RRs of CRC were 1.46 (95% CI = 1.36, 1.56). The risk estimates varied according to the type of the study (cohorts and non-cohorts), gender (men and women),
MetS
definition (NCEP-ATPIII, IDF, harmonized and others), populations (Asia, Europe, and the USA), and cancer location (colon and rectum).
Conclusions
:
MetS
is associated with an increased risk of CRA and CRC. The risk was higher for advanced adenomas. Taking into consideration
MetS
patients in the secondary prevention programs and the management of this condition in the aim of the primary prevention is highly recommended.

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Introduction

Colorectal cancer (CRC) is a true public health burden recording more than 1.3 million cases (9.7% of all cancers), and approximately 0.7 million deaths (8.5% of all cancers) worldwide [

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balanced diet associated with exercise, could globally reduce CRC risk. The present review aims to address the current knowledge on CRC, taking into consideration the common molecular alterations upon different environmental and non-environmental factors, current and promising treatment interventions, and how all these factors may interact to positively or negatively influence CRC risk.","DOI":"10.1016/j.clcc.2016.02.008","ISSN":"1533-0028","shortTitle":"Colorectal Cancer","journalAbbreviation":"Clinical Colorectal Cancer","author":[{"family":"Aran","given":"Veronica"},{"family":"Victorino","given":"Ana Paula"},{"family":"Thuler","given":"Luiz Claudio"},{"family":"Ferreira","given":"Carlos Gil"}],"issued":{"date-parts":[["2016",9]]}},{"id":342,"uris":["http://zotero.org/users/2724931/items/C59IRSMA"],"uri":["http://zotero.org/users/2724931/items/C59IRSMA"],"itemData":{"id":342,"type":"chapter","title":"Molecular Parameters for Prognostic and Predictive Assessment in Colorectal Cancer","container-title":"Rectal Cancer","publisher":"Springer Milan","publisher-place":"Milano","page":"41-62","source":"CrossRef","event-place":"Milano","URL":"http://link.springer.com/10.1007/978-88-470-2670-4_4","ISBN":"978-88-470-2669-8","note":"DOI: 10.1007/978-88-470-2670-4_4","editor":[{"family":"Manzini","given":"Nicolò","non-dropping-particle":"de"}],"author":[{"family":"Carrer","given":"Alessandro"},{"family":"Giacca","given":"Massimo"},{"family":"Giacca","given":"Mauro"}],"issued":{"date-parts":[["2013"]]},"accessed":{"date-parts":[["2017",1,30]]}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
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] play an essential role in CRC pathophysiology along with other risk factors including diet [
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{"id":91,"type":"article-journal","title":"Foods and beverages and colorectal cancer risk: a systematic review and meta-analysis of cohort studies, an update of the evidence of the WCRF-AICR Continuous Update Project.","container-title":"Annals of oncology : official journal of the European Society for Medical Oncology","abstract":"Objective: As part of the World Cancer Research Fund International Continuous Update Project, we updated the systematic review and meta-analysis of prospective studies to quantify the dose-response between foods and beverages intake and colorectal cancer risk. Data Sources: PubMed and several databases up to May 31 st 2015. Study selection: Prospective studies reporting adjusted relative risk estimates for the association of specific food groups and beverages and risk of colorectal, colon and rectal cancer. Data synthesis: Dose-response meta-analyses using random effect models to estimate summary relative risks (RRs). Results: Results: 400 individual study estimates from 111 unique cohort studies were included. Overall, the risk increase of colorectal cancer is 12% for each 100g/day increase of red and processed meat intake (95%CI=4-21%, I2 =70%, pheterogeneity (ph)<0.01) and 7% for 10 g/day increase of ethanol intake in alcoholic drinks (95%CI=5-9%, I2 =25%, ph = 0.21). Colorectal cancer risk decrease in 17% for each 90g/day increase of whole grains (95%CI=11-21%, I2 =0%, ph = 0.30, 6 studies). For each 400 g/day increase of dairy products intake (95%CI=10-17%, I2 =18%, ph = 0.27, 10 studies). Inverse associations were also observed for vegetables intake (RR per 100 g/day =0.98 (95%CI=0.96-0.99, I2 =0%, ph = 0.48, 11 studies) and for fish intake (RR for 100g/day=0.89(95%CI=0.80-0.99, I2 =0%, ph = 0.52, 11 studies), that were weak for vegetables and driven by one study for fish. Intakes of fruits, coffee, tea, cheese, poultry and legumes were not associated with colorectal cancer risk. Conclusions: Our results reinforce the evidence that high intake of red and processed meat and alcohol increase the risk of colorectal cancer. Milk and whole grains may have a protective role against colorectal cancer. The evidence for vegetables and fish was less convincing.","DOI":"10.1093/annonc/mdx171","ISSN":"1569-8041 0923-7534","note":"PMID: 28407090","journalAbbreviation":"Ann Oncol","language":"eng","author":[{"family":"Vieira","given":"A. R."},{"family":"Abar","given":"L."},{"family":"Chan","given":"Dsm"},{"family":"Vingeliene","given":"S."},{"family":"Polemiti","given":"E."},{"family":"Stevens","given":"C."},{"family":"Greenwood","given":"D."},{"family":"Norat","given":"T."}],"issued":{"date-parts":[["2017",4,12]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
9–11
], smoking [
ADDIN ZOTERO_ITEM CSL_CITATION {"citationID":"a6erg8l6ni","properties":{"formattedCitation":"{\\rtf \\super 12 \\nosupersub{}}","plainCitation":"12"},"citationItems":[{"id":72,"uris":["http://zotero.org/users/2724931/items/NAI5BBRR"],"uri":["http://zotero.org/users/2724931/items/NAI5BBRR"],"itemData":{"id":72,"type":"article-journal","title":"Cigarette Smoking and the Risk of Colorectal Cancer: A Meta-analysis of Prospective Cohort Studies","container-title":"Clinical Gastroenterology and Hepatology","page":"682-688.e5","volume":"7","issue":"6","abstract":"Background & Aims\nSmoking has been implicated in many malignant diseases, but its association with colorectal cancer (CRC) is controversial. We quantitatively evaluated the relation between smoking and incidence of CRC in a meta-analysis of cohort studies.\nMethods\nFull publications of prospective cohort studies were identified in MEDLINE and EMBASE from 1950 to 2008. Subjects were classified as current smokers, former smokers, or never smokers. The quantity of smoking was assessed by number of cigarettes per day, years of smoking, and pack-years. The reported relative risks of CRC were pooled by random-effects model. Sensitivity analysis was conducted, and publication bias was evaluated.\nResults\nA total of 1,463,796 subjects were recruited in 28 prospective cohorts from America, Europe, and Asia, with median follow-up of 13 years (range, 4–30 years). Current smokers showed a modestly higher risk of CRC (relative risk [RR], 1.20; 95% confidence interval [CI], 1.10–1.30) than never smokers. The risk of CRC among male smokers (RR, 1.38; 95% CI, 1.22–1.56) was more significant than among female smokers (RR, 1.06; 95% CI, 0.95–1.19). Rectal cancer was more closely related to smoking (RR, 1.36; 95% CI, 1.15–1.61) than colonic cancer. Former smokers still carried a higher CRC risk than never smokers. The increased risk of CRC was related to cigarettes per day, longer years of smoking, or larger pack-years.\nConclusions\nSmoking was associated with a significantly increased risk of CRC. The associated risk was higher for men and for rectal cancers. The association of tobacco consumption and CRC risk appeared to be dose-related.","DOI":"10.1016/j.cgh.2009.02.016","ISSN":"1542-3565","journalAbbreviation":"Clinical Gastroenterology and Hepatology","author":[{"family":"Tsoi","given":"Kelvin K.F."},{"family":"Pau","given":"Carol Y.Y."},{"family":"Wu","given":"William K.K."},{"family":"Chan","given":"Francis K.L."},{"family":"Griffiths","given":"Sian"},{"family":"Sung","given":"Joseph J.Y."}],"issued":{"date-parts":[["2009",6]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
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], physical inactivity [
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13
], diabetes [
ADDIN ZOTERO_ITEM CSL_CITATION {"citationID":"a1vb5loggab","properties":{"formattedCitation":"{\\rtf \\super 14 \\nosupersub{}}","plainCitation":"14"},"citationItems":[{"id":202,"uris":["http://zotero.org/users/2724931/items/UESI3VJU"],"uri":["http://zotero.org/users/2724931/items/UESI3VJU"],"itemData":{"id":202,"type":"article-journal","title":"Higher risk of colorectal cancer in patients with newly diagnosed diabetes mellitus before the age of colorectal cancer screening initiation","container-title":"Scientific Reports","page":"46527","volume":"7","abstract":"Type 2 diabetes mellitus (T2DM) is associated with greater risk for colorectal cancer (CRC). The age of onset of T2DM is decreasing worldwide. An increased CRC risk in young T2DM patients could be relevant for the age at which to initiate CRC screening. We report on CRC risk in T2DM patients with attention to age of

diagnosis. We used pharmacy data (from 1998 to 2010) from the PHARMO Database Network linked to the Eindhoven Cancer Registry. Multivariable time-dependent Cox regression analyses were conducted to calculate hazard ratios (HR) for developing CRC comparing T2DM with non-T2DM. During 2,599,925 years of follow-up, 394 CRC cases among 41,716 diabetes patients (mean age 64.0 yr, 48% men) and 1,939 CRC cases among 325,054 non-diabetic patients (mean age 51.2 yr, 46% men) were identified. Diabetes was associated with an increased CRC risk in both men and women (HR 1.3, 95% CI 1.2–1.5), particularly in the first 6 months after T2DM diagnosis and pronounced in the proximal colon. This risk was even higher in men younger than 55 years (HR 2.0, 95% CI 1.0–3.8). T2DM was associated with a time-varying and subsite-specific increased CRC risk, which was even higher in men aged <55 years.","DOI":"10.1038/srep46527","ISSN":"2045-2322","journalAbbreviation":"Scientific Reports","author":[{"family":"Kort","given":"Sander","dropping-particle":"de"},{"family":"Masclee","given":"Ad A. M."},{"family":"Sanduleanu","given":"Silvia"},{"family":"Weijenberg","given":"Matty P."},{"family":"Herk-Sukel","given":"Myrthe P. P.","dropping-particle":"van"},{"family":"Oldenhof","given":"Nico J. J."},{"family":"Bergh","given":"Joop P. W.","dropping-particle":"van den"},{"family":"Haak","given":"Harm R."},{"family":"Janssen-Heijnen","given":"Maryska L."}],"issued":{"date-parts":[["2017"]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}

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MetS

has

become a growing public health and a clinical challenge too. 20-25% of world’s adult population has

MetS

according to the International Diabetes Federation (IDF) [

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MetS

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defined by a cluster of correlated physiological, biochemical, clinical, and metabolic factors reflecting a cohesive pathophysiology. Those factors include visceral obesity, dyslipidemia, hyperglycemia, and hypertension that increase the risk of developing type 2 diabetes mellitus and cardiovascular diseases [

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["http://zotero.org/users/2724931/items/3UC6ICN6"],"itemData":{"id":20,"type":"book","title":"Controversies in Treating Diabetes","collection-title":"Contemporary Endocrinology","publisher":"Humana Press","publisher-place":"Totowa, NJ","source":"CrossRef","event-place":"Totowa, NJ","URL":"http://link.springer.com/10.1007/978-1-59745-572-5","ISBN":"978-1-58829-708-2","note":"DOI: 10.1007/978-1-59745-572-5","language":"en","editor":[{"family":"LeRoith","given":"Derek"},{"family":"Vinik","given":"Aaron I."}],"issued":{"date-parts":[["2008"]]}}},"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
17–19
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The association between
MetS
and CRC has been previously addressed in several studies, although the unavailability of evidence linking
MetS
with the precancerous lesions (adenomas, adenomatous polyps). Additionally, CRC is supposed to develop following the adenoma-carcinoma sequence [
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], and those adenomas precede the cancer stage by several years which could allow for its prevention by targeting those precancerous lesions in the screening programs. Hence, understanding the correlation between CRA and
MetS
is crucial in clinical practice.
Results from studies that addressed the association linking
MetS
and colorectal neoplasms (CRN) (CRA (colorectal adenoma) and CRC) were inconsistent [
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K"},{"family":"Brancati","given":"Frederick L"},{"family":"Pollak","given":"Michael N"},{"family":"Rifai","given":"Nader"},{"family":"Clipp","given":"Sandra L"},{"family":"Hoffman-Bolton","given":"Judy"},{"family":"Helzlsouer","given":"Kathy J"},{"family":"Platz","given":"Elizabeth A"}],"issued":{"date-parts":[["2010",1]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
20, 21
]. In the present meta-analysis, we aimed to tackle this issue, focusing especially on the effect of the full syndrome on CRC and CRA incidence.

methods

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Search strategy

The meta-analysis was carried out following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines [

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The literature search was independently undertaken by two authors (S.E and Y.T). The author (
MB.K
) made the final decision in case of any discrepancy.

Key terms according to the Medical subject headings (
MeSh
) were used to identify relevant studies on the relationship between colorectal neoplasm and
MetS
in PubMed database. Full English studies, published during the past 10 years until 2017/08/01, were systematically searched and the terms used were: "colorectal neoplasms", "colorectal cancer", and "metabolic syndrome".

Study selection

Study eligibility was independently assessed by two reviewers (S.E and Y.T), and resolutions, in case of disagreements, were achieved by the author (
MB.K
).

Cohort, case-control, and cross-sectional studies with
MetS
as well as CRA and/or CRC incidence were eligible for the analysis. Studies were included if they met the following criteria: (a) CRA and/or CRC as the outcomes considered in the study, (b)
MetS
as the exposure, (c) the study must provide sufficient data to calculate the RRs and their 95% CIs, (d) the study must state the definition of
MetS
used.

Furthermore, reviews, meta-analyses, articles not published in English, articles not published as full text (case reports, letters to editors, editorials, comments, news etc.), and in vitro or studies where the subjects were organisms other than humans were excluded. The selection of
any
article was primarily based on title and abstract in order to exclude irrelevant studies. Subsequently, the full texts were strictly analyzed to determine the relevancy of any retrieved study.

Data extraction

Data extracted from each included study were: the first author’s name, the year of publication, the country where the study was undertaken, duration of the study, type of lesions, number of subjects, number of events, and the definition of
MetS
used. Two authors (S.E and Y.T) independently gathered the relevant data.

Statistical analysis

Summary measures

A random effect meta-analysis model, which represents the assumption that there is a distribution of true effect sizes and aims to estimate the mean of this distribution [

ADDIN ZOTERO_ITEM CSL_CITATION {"citationID":"3784NP01","properties":{"formattedCitation":"{\\rtf \\super 23 \\nosupersub{}}","plainCitation":"23"},"citationItems":[{"id":890,"uris":["http://zotero.org/users/2724931/items/29DLFVEG"],"uri":["http://zotero.org/users/2724931/items/29DLFVEG"],"itemData":{"id":890,"type":"article-journal","title":"A basic introduction to fixed-effect and random-effects models for meta-analysis","container-title":"Research Synthesis Methods","page":"97-111","volume":"1","issue":"2","abstract":"There are two popular statistical models for meta-analysis, the fixed-effect model and the random-effects model. The fact that these two models employ similar sets of formulas to compute statistics, and sometimes yield similar estimates for the various parameters, may lead people to believe that the models are interchangeable. In fact, though, the models represent fundamentally different assumptions about the data. The selection of the appropriate model is important to ensure that the various statistics are estimated correctly. Additionally, and more fundamentally, the model serves to place the analysis in context. It provides a framework for the goals of the analysis as well as for the interpretation of the statistics. In this paper we explain the key assumptions of each model, and then outline the differences between the models. We conclude with a discussion of factors to consider when choosing between the two models. Copyright © 2010 John Wiley & Sons, Ltd.","DOI":"10.1002/jrsm.12","ISSN":"1759-2887","journalAbbreviation":"Res. Synth. Method","author":[{"family":"Borenstein","given":"Michael"},{"family":"Hedges","given":"Larry V."},{"family":"Higgins","given":"Julian P.T."},{"family":"Rothstein","given":"Hannah

R."}],"issued":{"date-parts":[["2010",4,1]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
23
], was used in our main meta-analysis to assess the relative risks (RRs) and their 95% confidence intervals (CIs) for dichotomous data. Mantel-
Haenszel
method was used to estimate the amount of the between-study variation. The between-study variance was assessed using the Tau-squared (
T
2
) statistic. Z-test of the null hypothesis was calculated and
$P < 0.05$
was considered statistically significant.
Synthesis of results
Cochran's test or Q-test (
X
2
) was used to indicate the extent of heterogeneity and
$P < 0.05$
was considered statistically significant. The I
2
statistic, which measures the degree of inconsistency across studies in a meta-analysis and which describes the percentage of total variation across studies that is due to heterogeneity rather than chance [
ADDIN ZOTERO_ITEM CSL_CITATION {"citationID":"a25da7p9cvj","properties":{"formattedCitation":"{\\rtf \\super 24 \\nosupersub{}}","plainCitation":"24"},"citationItems":[{"id":34,"uris":["http://zotero.org/users/2724931/items/5I4QCEPE"],"uri":["http://zotero.org/users/2724931/items/5I4QCEPE"],"itemData":{"id":34,"type":"article-journal","title":"Measuring inconsistency in meta-analyses","container-title":"BMJ","page":"557","volume":"327","issue":"7414","abstract":"Cochrane Reviews have recently started including the quantity I2 to help readers assess the consistency of the results of studies in meta-analyses. What does this new quantity mean, and why is assessment of heterogeneity so important to clinical practice? Systematic reviews and meta-analyses can provide convincing and reliable evidence relevant to many aspects of medicine and health care.1 Their value is especially clear when the results of the studies they include show clinically important effects of similar magnitude. However, the conclusions are less clear when the included studies have differing results. In an attempt to establish whether studies are consistent, reports of meta-analyses commonly present a statistical test of heterogeneity. The test seeks to determine whether there are genuine differences underlying the results of the studies (heterogeneity), or whether the variation in findings is compatible with chance alone (homogeneity). However, the test is susceptible to the number of trials included in the meta-analysis. We have developed a new quantity, I2, which we believe gives a better measure of the consistency between trials in a meta-analysis. Assessment of the consistency of effects across studies is an essential part of meta-analysis. Unless we know how consistent the results of studies are, we cannot determine the generalisability of the findings of the meta-analysis. Indeed, several hierarchical systems for grading evidence state that the results of studies must be consistent or homogeneous to obtain the highest grading.2–4 Tests for heterogeneity are commonly used to decide on methods for combining studies and for concluding consistency or inconsistency of findings.5 6 But what does the test achieve in practice, and how should the resulting P values be interpreted? A test for heterogeneity examines the null hypothesis that all studies are evaluating the same effect. The usual test statistic …","DOI":"10.1136/bmj.327.7414.557","journalAbbreviation":"BMJ","author":[{"family":"Higgins","given":"Julian P T"},{"family":"Thompson","given":"Simon G"},{"family":"Deeks","given":"Jonathan J"},{"family":"Altman","given":"Douglas G"}],"issued":{"date-parts":[["2003",9,4]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
24
], was as well obtained. A value of 40% suggests low heterogeneity, 40-70% indicates moderate heterogeneity, and a value of > 70% may suggest high heterogeneity. Funnel plots were obtained and visually assessed for risk of publication bias.
Subgroup analysis
Subgroup analysis was undertaken to explore source of heterogeneity according to study design (cohort, case-control, and cross-sectional), gender (men and women),
MetS
definition (NCEP-ATPIII, IDF, the harmonized
definition, and other definitions), geography (the USA, Asia, and Europe), cance
r site (colon or rectal cancer).
Results
161925
19050
0
0
Study selection
The process of selecting studies is displayed in the flowchart on
Figure
1. 263 studies were identified through a database search. 179 studies unrelated to the topic and studies unpublished as full text or in the English language were excluded. 84 eligible studies reported
MetS
and CRA/CRC were retrieved and scanned carefully. 49 studies providing inadequate exposures, outcomes, or data and studies unfitting inclusion criteria were excluded out of the eligible studies. Eventually, 35 studies fulfilled the inclusion criteria comprised the meta-analysis.
Study characteristics
Table 1 summarizes properties of the included studies. Our meta-analysis comprised nine cohort studies [
ADDIN ZOTERO_ITEM CSL_CITATION {"citationID":"a2apf5akv8g","properties":{"formattedCitation":"{\\rtf \\super 20,21,25\\uc0\\u8211{}31\\nosupersub{}}","plainCitation":"20,21,25–31"},"citationItems":[{"id":177,"uris":["http://zotero.org/users/2724931/items/E2HN5VWH"],"uri":["http://zotero.org/users/2724931/items/E2HN5VWH"],"itemData":{"id":177,"type":"article-journal","title":"Metabolic Predispositions and Increased Risk of Colorectal Adenocarcinoma by Anatomical Location: A Large Population-Based Cohort Study in Norway","container-title":"American Journal of Epidemiology","page":"883-893","volume":"182","issue":"10","abstract":"Whether different definitions of metabolic syndrome (MetS) are differently associated with colorectal adenocarcinoma (CA) by anatomical location is unclear. A population-based cohort study, the Cohort of Norway (CONOR) Study, was conducted in Norway from 1995 to 2010. Anthropometric measurements, blood samples, and lifestyle data were collected at recruitment. CAs were identified through linkage to the

Norwegian Cancer Register. A composite index of MetS as defined by the International Diabetes Federation (IDF) or/and the National Cholesterol Education Program's Adult Treatment Panel III (ATP III) and single components of MetS, including anthropometric factors, blood pressure, lipids, triglycerides, and glucose, were analyzed. Cox proportional hazards regression was performed to estimate hazard ratios and 95% confidence intervals. Significant associations between single MetS components and CA, except for reduced high-density lipoprotein cholesterol and nonfasting glucose levels, were observed. MetS defined by 2 criteria separately showed a similar association with CA in general, and MetS defined by both the IDF and ATP III showed consistent results. Stronger associations were observed in the proximal colon among men (IDF: hazard ratio (HR) = 1.51, 95% confidence interval (CI): 1.24, 1.84; ATP III: HR = 1.40, 95% CI: 1.15, 1.70) and in the rectum among women (IDF: HR = 1.42, 95% CI: 1.07, 1.89; ATP III: HR = 1.43, 95% CI: 1.08, 1.90).","DOI":"10.1093/aje/kwv141","ISSN":"0002-9262","journalAbbreviation":"American Journal of Epidemiology","author":[{"family":"Lu","given":"Yunxia"},{"family":"Ness-Jensen","given":"Eivind"},{"family":"Hveem","given":"Kristian"},{"family":"Martling","given":"Anna"}],"issued":{"date-parts":[["2015",11,15]]}}},{"id":172,"uris":["http://zotero.org/users/2724931/items/Z38D9WWB"],"uri":["http://zotero.org/users/2724931/items/Z38D9WWB"],"itemData":{"id":172,"type":"article-journal","title":"Effects of Metabolic Syndrome and Findings From Baseline Colonoscopies on Occurrence of Colorectal Neoplasms","container-title":"Clinical Gastroenterology and Hepatology","page":"1134-1142.e8","volume":"13","issue":"6","abstract":"Background & Aims\nMetabolic syndrome is associated with increased risk of colorectal neoplasm, but little is known about its effects on the occurrence of neoplasm after colonoscopy. We investigated the effects of metabolic syndrome on the risk of advanced neoplasm after colonoscopy.\nMethods\nWe performed a prospective study of 4483 subjects age 50 years and older who underwent screening and surveillance colonoscopies as part of an annual health check-up at National Taiwan University Hospital. Baseline demographic data and colonoscopic findings were recorded. Subjects with either advanced adenoma or 3 or more adenomas detected at baseline were classified as high risk; those with fewer than 3 nonadvanced adenomas were classified as low risk; and those without any neoplastic lesions were classified as normal. The cumulative risk of detecting an advanced neoplasm during surveillance colonoscopies (3 and 5 years later) was correlated with risk group and metabolic syndrome. Hazard ratios (HRs) were calculated for occurrence of neoplasm according to baseline colonoscopic findings and clinical risk factors, including metabolic syndrome.\nResults\nAdvanced neoplasms were detected during the surveillance colonoscopies in 1.3% of subjects in the normal group and in 2.4% of those in the low-risk group at 5 years, and in 8.5% of subjects in the high-risk group at 3 years. Subjects with metabolic syndrome had a significantly higher risk for subsequent advanced neoplasms (P < .0001). After stratification based on findings from baseline colonoscopies, the risk for neoplasm was significant in the normal (P < .001) and low-risk groups (P = .04), but not in the high-risk group (P = .48). In Cox regression analysis, metabolic syndrome had significant effects on the risk for advanced neoplasms in the normal (HR, 2.07; 95% confidence interval, 1.13–3.81) and low-risk groups (HR, 2.34; 95% confidence interval, 1.01–5.41), but not in the high-risk group.\nConclusions\nMetabolic syndrome is a significant risk factor for occurrence of an advanced adenoma after a negative or low-risk finding from a baseline colonoscopy. Metabolic syndrome should be considered in risk stratification for surveillance intervals.","DOI":"10.1016/j.cgh.2014.10.022","ISSN":"1542-3565","journalAbbreviation":"Clinical Gastroenterology and Hepatology","author":[{"family":"Chiu","given":"Han-Mo"},{"family":"Lee","given":"Yi-Chia"},{"family":"Tu","given":"Chia-Hung"},{"family":"Chang","given":"Li-Chun"},{"family":"Hsu","given":"Wen-Feng"},{"family":"Chou","given":"Chu-Kuang"},{"family":"Tsai","given":"Kun-Feng"},{"family":"Liang","given":"Jin-Tung"},{"family":"Shun","given":"Chia-Tung"},{"family":"Wu","given":"Ming-Shiang"}],"issued":{"date-parts":[["2015",6]]}}},{"id":83,"uris":["http://zotero.org/users/2724931/items/33PI99M5"],"uri":["http://zotero.org/users/2724931/items/33PI99M5"],"itemData":{"id":83,"type":"article-journal","title":"Increased risk of colorectal malignant neoplasm in patients with nonalcoholic fatty liver disease: a large study","container-title":"Molecular Biology Reports","page":"2989-2997","volume":"41","issue":"5","abstract":"Nonalcoholic fatty liver disease (NAFLD) has been suggested to be a strong risk factor of colorectal benign adenomas and advanced neoplasms. The aim of this large cohort study was to further investigate the prevalence of colorectal malignant neoplasm (CRMN) in patients with NAFLD and determine whether association between NAFLD and CRMN exists. 2,315 community subjects (1,370 males and 945 females) who underwent a routine colonoscopy according to international colorectal cancer screening guideline were recruited. Nature of colorectal lesions determined by biopsy and NAFLD was diagnosed by ultrasound. Binary logistic regression analysis was applied to explore the related associations. Prevalence of CRMN was 29.3 % (77/263) in patients with NAFLD, which was significantly higher than 18.0 % (369/2,052) in the control group (P < 0.05). In addition, malignant neoplasm in NAFLD group occurred more frequently at sigmoid colon than in control group (14.3 vs. 11.9 %). The incidence of highly-differentiated colorectal adenocarcinoma in NAFLD group was significantly higher than control group (62.3 vs. 9.8 %). Univariate analysis showed that NAFLD had strong association with CRMN (OR 2.043; 95 % CI 1.512–2.761; P < 0.05). After adjusting for metabolic and other confounding factors, NAFLD remained as an independent risk factor for CRMN (OR 1.868; 95 % CI 1.360–2.567; P < 0.05). NAFLD was an independent risk factor for CRMN. Sigmoid carcinoma and highly differentiated colorectal adenocarcinoma were more commonly found in NAFLD. (ClinicalTrials.gov number, NCT01657773, website: http://clinicaltrials.gov/ct2/show/NCT01657773?term=zheng+minghua&rank=1).","DOI":"10.1007/s11033-014-3157-y","ISSN":"1573-4978","journalAbbreviation":"Molecular Biology Reports","author":[{"family":"Lin","given":"Xian-Feng"},{"family":"Shi","given":"Ke-Qing"},{"family":"You","given":"Jie"},{"family":"Liu","given":"Wen-Yue"},{"family":"Luo","given":"Ying-Wan"},{"family":"Wu","given":"Fa-Ling"},{"family":"Chen","given":"Yong-Ping"},{"family":"Wong","given":"Danny Ka-Ho"},{"family":"Yuen","given":"Man-Fung"},{"family":"Zheng","given":"Ming-Hua"}],"issued":{"date-parts":[["2014"]]}}},{"id":4,"uris":["http://zotero.org/users/2724931/items/C7S4WQSB"],"uri":["http://zotero.org/users/2724931/items/C7S4WQSB"],"itemData":{"id":4,"type":"article-journal","title":"Cancer Risk in Patients with Manifest Vascular Disease: Effects of Smoking, Obesity, and Metabolic Syndrome","container-title":"Cancer Epidemiology and Prevention Biomarkers","page":"1267-1277","volume":"22","issue":"7","source":"cebp.aacrjournals.org","abstract":"Background: Patients with vascular disease may be at increased risk of cancer because of shared risk factors and common pathogenesis.\nMethods: Patients with vascular disease (n = 6,172) were prospectively followed for cancer incidence. Standardized incidence ratios (SIRs) were calculated to compare the cancer incidence of the study population with that of the general population. Multivariable-adjusted hazard ratio's (HRs) of cancer were estimated for smoking status, pack-years, body mass index, waist circumference and visceral adipose tissue (VAT), and metabolic syndrome (MetS).\nResults: During a median follow-up of 5.5 years, 563 patients were diagnosed with cancer. Patients with vascular disease were at increased risk of cancer [SIR = 1.19; 95% confidence interval (CI), 1.10–1.29]. Specifically, risk of lung cancer (SIR = 1.56; 95% CI, 1.31–1.83), as well as bladder cancer (SIR = 1.60; 95% CI, 1.11–2.24) and cancer of the lip, oral cavity, or pharynx in men (SIR = 1.51; 95% CI, 0.89–2.39), and colorectal (SIR = 1.71; 95% CI, 1.11–2.53) and kidney cancer (SIR = 2.92; 95% CI, 1.05–6.38) in women was increased. A relation between smoking and cancer risk was observed (HR for current smokers = 1.37; 95% CI, 1.05–1.73), whereas an increase in VAT was associated with higher breast cancer risk in women (HR = 1.42; 95% CI, 1.03–1.96). No relation between MetS and cancer risk was found.\nConclusions: Patients with vascular disease have a 19% higher cancer risk compared to the general population. Smoking increased cancer risk and abdominal obesity is a risk factor for breast cancer in female patients with vascular disease.\nImpact: These results call for awareness of the increased cancer risk in patients with vascular disease among physicians and underline the necessity of lifestyle improvement not only for reducing cardiovascular risk. Cancer Epidemiol Biomarkers Prev; 22(7); 1267–77. ©2013 AACR.","DOI":"10.1158/1055-9965.EPI-13-0090","ISSN":"1055-9965, 1538-7755","note":"PMID: 23677576","shortTitle":"Cancer Risk in Patients with Manifest Vascular Disease","journalAbbreviation":"Cancer Epidemiol

Biomarkers Prev","language":"en","author":[{"family":"Kruijsdijk","given":"Rob C. M.","dropping-particle":"van"},{"family":"Graaf","given":"Yolanda","dropping-particle":"van der"},{"family":"Peeters","given":"Petra H. M."},{"family":"Visseren","given":"Frank L. J."},{"family":"Group","given":"on behalf of the Second Manifestations of ARTerial disease (SMART)","dropping-particle":"study"}],"issued":{"date-parts":[["2013",7,1]]}}},{"id":82,"uris":["http://zotero.org/users/2724931/items/K9AVA46D"],"uri":["http://zotero.org/users/2724931/items/K9AVA46D"],"itemData":{"id":82,"type":"article-journal","title":"Patients with nonalcoholic fatty liver disease have higher risk of colorectal adenoma after negative baseline colonoscopy.","container-title":"Colorectal disease : the official journal of the Association of Coloproctology of Great Britain and Ireland","page":"830-835","volume":"15","issue":"7","abstract":"AIM: The study aimed to determine whether nonalcoholic fatty liver disease (NAFLD) is an independent risk factor of adenoma after negative baseline colonoscopy. METHOD: A retrospective cohort study was conducted on 1522 health-check individuals who underwent two consecutive colonoscopies at Taipei Veterans General Hospital between 2003 and 2010. Those developing an adenoma after an initial negative baseline colonoscopy (adenoma group) were compared with those in whom the second colonoscopy was negative (nonadenoma group). Anthropometric measurements, biochemical tests and the presence of NAFLD were compared between the two groups. RESULTS: The adenoma group had a higher prevalence of NAFLD than the nonadenoma group (55.6% vs 38.8%; P < 0.05). On multivariate logistic regression analysis, NAFLD was an independent risk factor (OR = 1.45, 95% CI: 1.07-1.98) for adenoma formation after a negative baseline colonoscopy. The risk of colorectal adenoma increased when NAFLD patients had other morbidities including metabolic syndrome, hypertension or smoking (OR = 2.85, 4.03 and 4.17). CONCLUSION: NAFLD is an independent risk factor for colorectal adenoma formation after a negative baseline colonoscopy. The risk is higher in individuals with NAFLD and other comorbidities, such as hypertension, smoking or metabolic syndrome.","DOI":"10.1111/codi.12172","ISSN":"1463-1318 1462-8910","note":"PMID: 23398678","journalAbbreviation":"Colorectal Dis","language":"eng","author":[{"family":"Huang","given":"K.-W."},{"family":"Leu","given":"H.-B."},{"family":"Wang","given":"Y.-J."},{"family":"Luo","given":"J.-C."},{"family":"Lin","given":"H.-C."},{"family":"Lee","given":"F.-Y."},{"family":"Chan","given":"W.-L."},{"family":"Lin","given":"J.-K."},{"family":"Chang","given":"F.-Y."}],"issued":{"date-parts":[["2013",7]]}}},{"id":81,"uris":["http://zotero.org/users/2724931/items/7FAPCFIV"],"uri":["http://zotero.org/users/2724931/items/7FAPCFIV"],"itemData":{"id":81,"type":"article-journal","title":"Association of colorectal adenoma with components of metabolic syndrome.","container-title":"Cancer causes & control : CCC","page":"727-735","volume":"23","issue":"5","abstract":"PURPOSE: Recently, some studies have shown that diabetes mellitus and metabolic syndrome increase the risk of colorectal neoplasms. Although the mechanism is not known, those have been proposed to contribute to this phenomenon, including insulin resistance, oxidative stress, and adipokine production. The objective of this study was to assess the association between metabolic risk factors and colorectal neoplasm. METHODS: Study participants visited the National Cancer Center, Korea, for screening (2007-2009). A total of 1,771 diagnosed adenoma patients and 4,667 polyp-free controls were included. The association between risk factors and colorectal neoplasm was evaluated using logistic regression models. RESULTS: High waist circumference, blood pressure, and serum triglyceride levels were associated with an increased risk of colorectal adenoma. Metabolic syndrome (MS) was associated with an increased risk of adenoma (OR = 1.44, 95 % CI = 1.23-1.70). The association between MS and colorectal adenoma was observed regardless of advanced/low-risk adenoma, and multiplicity. MS affected right colon adenomas (OR = 1.50, 95 % CI = 1.22-1.85), left colon adenomas (OR = 1.36, 95 % CI = 1.05-1.76), and adenomas in multiple anatomical locations (OR = 1.59, 95 % CI = 1.19-2.12), but was not associated with rectum. CONCLUSION: Central obesity, triglyceride level, and MS are risk factors for colorectal adenoma including advanced adenoma and multiplicity.","DOI":"10.1007/s10552-012-9942-9","ISSN":"1573-7225 0957-5243","note":"PMID: 22450737","journalAbbreviation":"Cancer Causes Control","language":"eng","author":[{"family":"Kim","given":"Byung Chang"},{"family":"Shin","given":"Aesun"},{"family":"Hong","given":"Chang Won"},{"family":"Sohn","given":"Dae Kyung"},{"family":"Han","given":"Kyung Su"},{"family":"Ryu","given":"Kum Hei"},{"family":"Park","given":"Bum Joon"},{"family":"Nam","given":"Ji Hyung"},{"family":"Park","given":"Ji Won"},{"family":"Chang","given":"Hee Jin"},{"family":"Choi","given":"Hyo Seong"},{"family":"Kim","given":"Jeongseon"},{"family":"Oh","given":"Jae Hwan"}],"issued":{"date-parts":[["2012",5]]}}},{"id":36,"uris":["http://zotero.org/users/2724931/items/437ZFQED"],"uri":["http://zotero.org/users/2724931/items/437ZFQED"],"itemData":{"id":36,"type":"article-journal","title":"Clinico-epidemiologic study of the metabolic syndrome and lifestyle factors associated with the risk of colon adenoma and adenocarcinoma.","container-title":"Asian Pacific journal of cancer prevention : APJCP","page":"975-983","volume":"11","issue":"4","abstract":"BACKGROUND: The numbers of patients with colorectal cancer and associated deaths have been increasing in Japan, probably due to rapid lifestyle changes. Prevention is clearly important and the present study aimed to clarify risk factors and to promote colon cancer screening. METHODS: We investigated lifestyle factors, biochemical data, and pathological features of 727 individuals who underwent colonoscopy. Data were subjected to statistical analysis using SPSS software. RESULTS: Low-grade adenoma was more frequent among the elderly and in men. All of the men and 87.5% of the women with high-grade adenoma or adenocarcinoma were aged>/=45 and>/=50 years, respectively. In women, a larger waist circumference (=80 cm) increased the odds ratio for colon adenoma or adenocarcinoma (colon tumors) by 1.033 (95% confidence index (CI), 1.001-1.066; p=0.040). Metabolic syndrome significantly increased the odds ratio of colon tumors in men, but not in women. Cigarette smoking, drinking alcohol, and increased physical activity were significant risk factors for colon tumors in men, with odds ratios of 1.001 (95% CI, 1.000-1.002; p=0.001), 1.001 (95% CI, 1.000-1.003; p=0.047), and 1.406 (95% CI 1.038-1.904; p=0.028), respectively. CONCLUSIONS: Colon tumors have a high prevalence in the elderly. A larger waist circumference in women and metabolic syndrome in both men and women elevate the risk of colon tumors. In addition, smoking, drinking, and excessive physical activity are risk factors for adenoma and adenocarcinoma in men. For early detection of colorectal cancer, men older than 45 years and women older than 50 years with these risk factors are recommended to undergo colonoscopy.","ISSN":"2476-762X 1513-7368","note":"PMID: 21133610","journalAbbreviation":"Asian Pac J Cancer Prev","language":"eng","author":[{"family":"Kaneko","given":"Rena"},{"family":"Sato","given":"Yuzuru"},{"family":"An","given":"Yasuyosi"},{"family":"Nakagawa","given":"Motoki"},{"family":"Kusayanagi","given":"Satoshi"},{"family":"Kamisago","given":"Satoshi"},{"family":"Umeda","given":"Tomoyuki"},{"family":"Ogawa","given":"Masazumi"},{"family":"Munakata","given":"Kazuo"},{"family":"Mizuno","given":"Kyoichi"}],"issued":{"date-parts":[["2010"]]}}},{"id":161,"uris":["http://zotero.org/users/2724931/items/Q4DM498H"],"uri":["http://zotero.org/users/2724931/items/Q4DM498H"],"itemData":{"id":161,"type":"article-journal","title":"Central obesity and atherogenic dyslipidemia in metabolic syndrome are associated with increased risk for colorectal adenoma in a Chinese population","container-title":"BMC Gastroenterology","page":"51","volume":"10","source":"BioMed Central","abstract":"Metabolic syndrome (MetS) is composed of cardiovascular risk factors including insulin resistance, obesity, dyslipidemia, and hypertension. Most of the components of MetS have been linked to the development of neoplasm. The purpose of this study was to evaluate the relationship between individual components of MetS and colorectal adenoma.","DOI":"10.1186/1471-230X-10-51","ISSN":"1471-230X","journalAbbreviation":"BMC Gastroenterology","author":[{"family":"Liu","given":"Chiu-Shong"},{"family":"Hsu","given":"Hua-Shui"},{"family":"Li","given":"Chia-Ing"},{"family":"Jan","given":"Chia-Ing"},{"family":"Li","given":"Tsai-Chung"},{"family":"Lin","given":"Wen-Yuan"},{"family":"Lin","given":"Tsann"},{"family":"Chen","given":"Ya-Chien"},{"family":"Lee","given":"Cheng-Chun"},{"family":"Lin","given":"Cheng-Chieh"}],"issued":{"date-parts":[["2010"]]}}},{"id":282,"uris":["http://zotero.org/users/2724931/items/83RDVNWE"],"uri":["http://zotero.org/users/2724931/items/83RDVNWE"],"itemData":{"id":282,"type":"article-journal","title":"Metabolic syndrome components and colorectal adenoma in the CLUE II

cohort","container-title":"Cancer causes & control : CCC","page":"1-10","volume":"21","issue":"1","source":"PubMed Central","abstract":"Background\nMetabolic syndrome components have been associated with colorectal cancer in several studies; however, the evidence for colorectal adenomas is limited. Thus, we evaluated the association between markers of the metabolic syndrome with colorectal adenoma development in a nested case-control study.\n\nMethods\nColorectal adenoma cases (n= 132) and matched controls who had had a negative sigmoidoscopy or a colonoscopy (n=260) were identified between baseline in 1989 and 2000 among participants in the CLUE II cohort of Washington County, Maryland. Concentrations of C-peptide, insulin-like growth factor binding protein-1, glycosylated hemoglobin, total cholesterol, high density lipoprotein-cholesterol, and triglycerides were measured in baseline blood specimens. Body mass index was calculated using baseline height and weight. Use of medications to treat diabetes mellitus was self-reported at baseline. Blood pressure was measured at baseline. Distributional cutpoints of the latter markers were used to define the metabolic syndrome components (hyperinsulinemia, hyperglycemia, obesity, dyslipidemia, and hypertension) present at baseline.\n\nResults\nNo statistically significant associations with adenomas were observed for the markers of the metabolic syndrome, with the exception of a strong positive association for use of diabetes medications (OR, 8.00; 95% CI, 1.70 – 37.67), albeit based on small numbers.\n\nConclusion\nOur findings do not support that components of the metabolic syndrome influence risk of colorectal adenomas, except possibly for severe diabetes mellitus warranting medical treatment.","DOI":"10.1007/s10552-009-9428-6","ISSN":"0957-5243","note":"PMID: 19774471 \nPMCID: PMC3010872","journalAbbreviation":"Cancer Causes Control","author":[{"family":"Tsilidis","given":"Konstantinos K"},{"family":"Brancati","given":"Frederick L"},{"family":"Pollak","given":"Michael N"},{"family":"Rifai","given":"Nader"},{"family":"Clipp","given":"Sandra L"},{"family":"Hoffman-Bolton","given":"Judy"},{"family":"Helzlsouer","given":"Kathy J"},{"family":"Platz","given":"Elizabeth A"}],"issued":{"date-parts":[["2010",1]]}}},"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
20, 21, 25–31
], 13 case-control studies [
ADDIN ZOTERO_ITEM CSL_CITATION {"citationID":"a2ajne76tdd","properties":{"formattedCitation":"{\\rtf \\super 32\\uc0\\u8211{}44\\nosupersub{}}","plainCitation":"32–44"},"citationItems":[{"id":49,"uris":["http://zotero.org/users/2724931/items/JZMISB9P"],"uri":["http://zotero.org/users/2724931/items/JZMISB9P"],"itemData":{"id":49,"type":"article-journal","title":"The Metabolic Syndrome, Inflammation, and Colorectal Cancer Risk: An Evaluation of Large Panels of Plasma Protein Markers Using Repeated, Prediagnostic Samples","container-title":"Mediators of Inflammation","page":"4803156","volume":"2017","archive":"PMC","archive_location":"PMC5381203","abstract":"Metabolic syndrome (MetS), a set of metabolic risk factors including obesity, dysglycemia, and dyslipidemia, is associated with increased colorectal cancer (CRC) risk. A putative biological mechanism is chronic, low-grade inflammation, both a feature of MetS and a CRC risk factor. However, excess body fat also induces a proinflammatory state and increases CRC risk. In order to explore the relationship between MetS, body size, inflammation, and CRC, we studied large panels of inflammatory and cancer biomarkers. We included 138 participants from the Västerbotten Intervention Programme with repeated sampling occasions, 10 years apart. Plasma samples were analyzed for 178 protein markers by proximity extension assay. To identify associations between plasma protein levels and MetS components, linear mixed models were fitted for each protein. Twelve proteins were associated with at least one MetS component, six of which were associated with MetS score. MetS alone was not related to any protein. Instead, BMI displayed by far the strongest associations with the biomarkers. One of the 12 MetS score-related proteins (FGF-21), also associated with BMI, was associated with an increased CRC risk (OR 1.71, 95% CI 1.19–2.47). We conclude that overweight and obesity, acting through both inflammation and other mechanisms, likely explain the MetS-CRC connection.","DOI":"10.1155/2017/4803156","ISSN":"0962-9351","author":[{"family":"Harlid","given":"Sophia"},{"family":"Myte","given":"Robin"},{"family":"Van Guelpen","given":"Bethany"}],"issued":{"date-parts":[["2017"]]}}},{"id":5,"uris":["http://zotero.org/users/2724931/items/QHPCVRZ8"],"uri":["http://zotero.org/users/2724931/items/QHPCVRZ8"],"itemData":{"id":5,"type":"article-journal","title":"Evaluation of the risk factors associated with rectal neuroendocrine tumors: a big data analytic study from a health screening center","container-title":"Journal of Gastroenterology","page":"1112-1121","volume":"51","issue":"12","abstract":"Rectal neuroendocrine tumor (NET) is the most common NET in Asia. The risk factors associated with rectal NETs are unclear because of the overall low incidence rate of these tumors and the associated difficulty in conducting large epidemiological studies on rare cases. The aim of this study was to exploit the benefits of big data analytics to assess the risk factors associated with rectal NET.","DOI":"10.1007/s00535-016-1198-9","ISSN":"1435-5922","journalAbbreviation":"Journal of Gastroenterology","author":[{"family":"Pyo","given":"Jeung Hui"},{"family":"Hong","given":"Sung Noh"},{"family":"Min","given":"Byung-Hoon"},{"family":"Lee","given":"Jun Haeng"},{"family":"Chang","given":"Dong Kyung"},{"family":"Rhee","given":"Poong-Lyul"},{"family":"Kim","given":"Jae Jun"},{"family":"Choi","given":"Sun Kyu"},{"family":"Jung","given":"Sin-Ho"},{"family":"Son","given":"Hee Jung"},{"family":"Kim","given":"Young-Ho"}],"issued":{"date-parts":[["2016",12,1]]}}},{"id":86,"uris":["http://zotero.org/users/2724931/items/HH3ENCP2"],"uri":["http://zotero.org/users/2724931/items/HH3ENCP2"],"itemData":{"id":86,"type":"article-journal","title":"Is height a risk factor for colorectal adenoma?","container-title":"The Korean Journal of Internal Medicine","page":"653-659","volume":"31","issue":"4","archive":"PMC","archive_location":"PMC4939489","abstract":"BACKGROUND/AIMS:: Although it is generally known that the risk for all types of cancer increases with adult height, combined and for several common site-specific cancers (including colon and rectal), evidence is limited for adenomas, which are precursors to colorectal cancer. We evaluated the association between height and risk of colorectal adenoma at various stages of the adenoma-carcinoma pathway. METHODS:: We conducted a retrospective study using data from patients who had undergone a complete colonoscopy as part of a health examination at the Health Promotion Center of Samsung Medical Center between October 13, 2009 and December 31, 2011. A total of 1,347 male subjects were included in our study. Multivariate logistic regression analysis was used to evaluate the association between height and colorectal adenoma. RESULTS:: Each 5-cm increase in height was associated with 1.6% and 5.3% higher risks of advanced colorectal adenoma and high-risk colorectal adenoma, respectively, but associations were not significant after adjusting for age, body mass index, metabolic syndrome, alcohol intake, smoking, family history of colorectal cancer, and regular aspirin use (p = 0.840 and p = 0.472, respectively). CONCLUSIONS:: No clear association was found between colorectal adenoma risk and height. Unlike other site-specific tumors reported to have a consistent relationship with height, the association between colorectal tumor and height remains controversial.","DOI":"10.3904/kjim.2014.313","ISSN":"1226-3303","author":[{"family":"Pyo","given":"Jeung Hui"},{"family":"Hong","given":"Sung Noh"},{"family":"Min","given":"Byung-Hoon"},{"family":"Chang","given":"Dong Kyung"},{"family":"Son","given":"Hee Jung"},{"family":"Rhee","given":"Poong-Lyul"},{"family":"Kim","given":"Jae J"},{"family":"Kim","given":"Young-Ho"}],"issued":{"date-parts":[["2016",7]]}}},{"id":13,"uris":["http://zotero.org/users/2724931/items/7IV5ACIY"],"uri":["http://zotero.org/users/2724931/items/7IV5ACIY"],"itemData":{"id":13,"type":"article-journal","title":"The Risk of Colorectal Neoplasia in Patients with Gallbladder Diseases","container-title":"Journal of Korean Medical Science","page":"1288-1294","volume":"30","issue":"9","archive":"PMC","archive_location":"PMC4553676","abstract":"Cholecystectomy is associated with an increased risk of colorectal cancer, but little is known about the relationship between gallbladder disease and colorectal adenoma. Gallbladder polyps and colorectal neoplasia (CRN) share several risk factors such as obesity, diabetes and metabolic syndrome, which might account for their association. In this study, we investigated whether asymptomatic patients with gallbladder disease are at increased risk of CRN and identified the factors to their association. The study population consisted of 4,626 consecutive, asymptomatic individuals drawn from a prospective health check-up cohort who underwent both

ultrasonography and colonoscopy screening. The prevalence of CRNs in patients with gallbladder polyps or gallstones was significantly higher than that in the control group (32.1% vs. 26.8%; P = 0.032, 35.8% vs. 26.9%; P = 0.020). A multivariate regression analysis showed that gallbladder polyps were an independent risk factor for CRN [adjusted odds ratio (OR): 1.29; 95% confidence interval (CI); 1.03-1.62] whereas gallstones were not (adjusted OR: 1.14; 95% CI: 0.79-1.63). The adjusted OR for the risk of CRN was 1.12 for gallbladder polyps < 5 mm (95% CI, 0.85-1.46) and 1.79 for gallbladder polyps ≥ 5 mm (95% CI, 1.15-2.77). The prevalence of CRN increased with increasing polyp size (P trend = 0.022). Our results suggest that colorectal neoplasia is significantly related to gallbladder polyps, especially those ≥ 5 mm. GRAPHICAL ABSTRACT:","DOI":"10.3346/jkms.2015.30.9.1288","ISSN":"1011-8934","author":[{"family":"Hong","given":"Sung Noh"},{"family":"Lee","given":"Tae Yoon"},{"family":"Yun","given":"Sung-Cheol"}],"issued":{"date-parts":[["2015",9]]}}},{"id":175,"uris":["http://zotero.org/users/2724931/items/SMIADFP7"],"uri":["http://zotero.org/users/2724931/items/SMIADFP7"],"itemData":{"id":175,"type":"article-journal","title":"Metabolic syndrome and colorectal neoplasms: An ominous association","container-title":"World Journal of Gastroenterology","page":"5320","volume":"21","issue":"17","source":"CrossRef","DOI":"10.3748/wjg.v21.i17.5320","ISSN":"19327","shortTitle":"Metabolic syndrome and colorectal neoplasms","language":"en","author":[{"family":"Trabulo","given":"Daniel"}],"issued":{"date-parts":[["2015"]]}}},{"id":85,"uris":["http://zotero.org/users/2724931/items/ENWMID8V"],"uri":["http://zotero.org/users/2724931/items/ENWMID8V"],"itemData":{"id":85,"type":"article-journal","title":"Interplay between 3′-UTR polymorphisms in the vascular endothelial growth factor (VEGF) gene and metabolic syndrome in determining the risk of colorectal cancer in Koreans","container-title":"BMC Cancer","page":"881","volume":"14","archive":"PMC","archive_location":"PMC4289193","abstract":"BACKGROUND: Polymorphisms in angiogenesis-related genes and metabolic syndrome (MetS) risk factors play important roles in cancer development. Moreover, recent studies have reported associations between a number of 3′-UTR polymorphisms and a variety of cancers. The aim of this study was to investigate the associations of three VEGF 3′-UTR polymorphisms (1451C

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T [rs3025040], 1612G

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A [rs10434], and 1725G

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A [rs3025053]) and MetS with colorectal cancer (CRC) susceptibility in Koreans. METHODS: A total of 850 participants (450 CRC patients and 400 controls) were enrolled in the study. The genotyping of VEGF polymorphisms was performed by TaqMan allelic discrimination assays. Cancer risks of genetic variations and gene-environment interactions were assessed by adjusted odds ratios (AORs) and 95% confidence intervals (CIs) of multivariate logistic regression analyses. RESULTS: VEGF 1451C

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T was significantly associated with rectal cancer risk (Dominant model; AOR =1.58; 95% CI = 1.09 - 2.28; p = 0.015) whereas VEGF 1725G

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A correlated with MetS risk (Dominant model; AOR =1.61; 95% CI =1.06 - 2.46; p = 0.026). Of the gene-environment combined effects, the interaction of VEGF 1451C

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T and MetS contributed to increased rectal cancer risk (AOR = 3.15; 95% CI = 1.74 - 5.70; p <

.001) whereas the combination of VEGF 1725G

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A and MetS was involved with elevated colon cancer risk (AOR = 2.68; 95% CI = 1.30 - 1.55; p =0.008). CONCLUSIONS: Our results implicate that VEGF 1451C

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T and 1725G

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A may predispose to CRC susceptibility and the genetic contributions may be varied with the presence of MetS. ELECTRONIC SUPPLEMENTARY MATERIAL: The online version of this article (doi:10.1186/1471-2407-14-881) contains supplementary material, which is available to authorized users.","DOI":"10.1186/1471-2407-14-881","ISSN":"1471-2407","author":[{"family":"Jeon","given":"Young Joo"},{"family":"Kim","given":"Jong Woo"},{"family":"Park","given":"Hye Mi"},{"family":"Jang","given":"Hyo Geun"},{"family":"Kim","given":"Jung O"},{"family":"Oh","given":"Jisu"},{"family":"Chong","given":"So Young"},{"family":"Kwon","given":"Sung Won"},{"family":"Kim","given":"Eo Jin"},{"family":"Oh","given":"Doyeun"},{"family":"Kim","given":"Nam Keun"}],"issued":{"date-parts":[["2014"]]}}},{"id":37,"uris":["http://zotero.org/users/2724931/items/B468CSCB"],"uri":["http://zotero.org/users/2724931/items/B468CSCB"],"itemData":{"id":37,"type":"article-journal","title":"Colorectal cancer and its association with the metabolic syndrome: a Malaysian multi-centric case-control study.","container-title":"Asian Pacific journal of cancer prevention : APJCP","page":"3873-3877","volume":"13","issue":"8","abstract":"OBJECTIVE: Colorectal cancer (CRC) and the metabolic syndrome (MetS) are both on the rise in Malaysia. A multi-centric case-control study was

conducted from December 2009 to January 2011 to determine any relationship between the two. METHODS: Patients with confirmed CRC based on colonoscopy findings and cancer free controls from five local hospitals were assessed for MetS according to the International Diabetes Federation (IDF) definition. Each index case was matched for age, gender and ethnicity with two controls (140: 280). RESULTS: MetS among cases was highly prevalent (70.7%), especially among women (68.7%). MetS as an entity increased CRC risk by almost three fold independently (OR=2.61, 95%CI=1.53-4.47). In men MetS increased the risk of CRC by two fold (OR=2.01, 95%CI, 1.43-4.56), demonstrating an increasing trend in risk with the number of Mets components observed. CONCLUSION: This study provides evidence for a positive association between the metabolic syndrome and colorectal cancer. A prospective study on the Malaysian population is a high priority to confirm these findings.","ISSN":"2476-762X 1513-7368","note":"PMID: 23098486","journalAbbreviation":"Asian Pac J Cancer Prev","language":"eng","author":[{"family":"Ulaganathan","given":"V."},{"family":"Kandiah","given":"M."},{"family":"Zalilah","given":"M. S."},{"family":"Faizal","given":"J. A."},{"family":"Fijeraid","given":"H."},{"family":"Normayah","given":"K."},{"family":"Gooi","given":"B. H."},{"family":"Othman","given":"R."}],"issued":{"date-parts":[["2012"]]}}},{"id":80,"uris":["http://zotero.org/users/2724931/items/UJ5VD5FU"],"uri":["http://zotero.org/users/2724931/items/UJ5VD5FU"],"itemData":{"id":80,"type":"article-journal","title":"The role of resistin in colorectal cancer.","container-title":"Clinica chimica acta; international journal of clinical chemistry","page":"760-764","volume":"413","issue":"7-8","abstract":"BACKGROUND: To date the role of resistin in colorectal cancer (CRC) is far from being elucidated. The aim of this study was to investigate the association between serum resistin levels and CRC in relation to known risk/protective factors including anthropometric, metabolic, inflammatory parameters as well as lifestyle individual characteristics. METHODS: 40 CRC patients and 40 controls were enrolled. Body weight, height, waist circumference and blood pressure were recorded. Fasting plasma glucose, lipids, C-reactive protein (CRP) and resistin levels were measured. Metabolic Syndrome (MS) was defined according to the harmonized definition. RESULTS: Resistin levels were significantly higher in CRC patients than in controls (p=0.028) and gradually increased with tumor stage progression (p=0.042). A high resistin level was statistically significant determinant of CRC after adjusting for age, sex, body mass index and lifestyle parameters (p=0.029). Resistin showed a strong association with CRP levels (p </= 0.0001). In stepwise regression analysis CRP remained the only independent predictor of both resistin levels (p=0.001) and CRC risk (p=0.021). CONCLUSIONS: These results clarify the nature of the association between resistin and CRC risk suggesting that the proinflammatory state of cancer, rather than the clinical diagnosis of CRC itself or its link with obesity and MS, may govern this association.","DOI":"10.1016/j.cca.2012.01.019","ISSN":"1873-3492 0009-8981","note":"PMID: 22296675","journalAbbreviation":"Clin Chim Acta","language":"eng","author":[{"family":"Danese","given":"Elisa"},{"family":"Montagnana","given":"Martina"},{"family":"Minicozzi","given":"Anna Maria"},{"family":"Bonafini","given":"Sara"},{"family":"Ruzzenente","given":"Orazio"},{"family":"Gelati","given":"Matteo"},{"family":"De Manzoni","given":"Giovanni"},{"family":"Lippi","given":"Giuseppe"},{"family":"Guidi","given":"Gian Cesare"}],"issued":{"date-parts":[["2012",4,11]]}}},{"id":79,"uris":["http://zotero.org/users/2724931/items/S9F263MP"],"uri":["http://zotero.org/users/2724931/items/S9F263MP"],"itemData":{"id":79,"type":"article-journal","title":"Metabolic syndrome and colorectal cancer: the protective role of Mediterranean diet--a case-control study.","container-title":"Angiology","page":"390-396","volume":"63","issue":"5","abstract":"The effect of Mediterranean diet on colorectal cancer, in the presence of the metabolic syndrome, was evaluated in 250 patients with first developed cancer (63 +/- 12 years, 59% males) and 250 age-gender-matched controls. Adherence to the Mediterranean diet was evaluated with the modified-MedDietScore (theoretical range 0-75), while assessment of the metabolic syndrome (MetS) was based on the third Adult Treatment Panel ([ATP III] National Cholesterol Education Program) criteria. Presence of MetS (1.66, 95% confidence interval [CI] 1.02, 2.69), age (4.25, 95% CI 2.33, 7.77), smoking (1.85, 95% CI 1.27, 2.70), and family history of colorectal cancer (3.37, 95% CI 1.69, 6.75) had a detrimental effect, whereas adherence to the Mediterranean diet (0.88, 95% CI 0.84, 0.92) and body mass index (0.93, 95%CI 0.89, 0.98) had a protective role regarding colorectal cancer. Mediterranean diet had the same effect in relation to colorectal cancer, in both participants with (0.84, 95% CI 0.76, 0.93) and without MetS (0.89, 95% CI 0.85, 0.94).","DOI":"10.1177/0003319711421164","ISSN":"1940-1574 0003-3197","note":"PMID: 22267847","journalAbbreviation":"Angiology","language":"eng","author":[{"family":"Kontou","given":"Niki"},{"family":"Psaltopoulou","given":"Theodora"},{"family":"Soupos","given":"Nick"},{"family":"Polychronopoulos","given":"Evangelos"},{"family":"Xinopoulos","given":"Dimitrios"},{"family":"Linos","given":"Athena"},{"family":"Panagiotakos","given":"Demosthenes B."}],"issued":{"date-parts":[["2012",7]]}}},{"id":164,"uris":["http://zotero.org/users/2724931/items/9WXARXXK"],"uri":["http://zotero.org/users/2724931/items/9WXARXXK"],"itemData":{"id":164,"type":"article-journal","title":"Metabolic Syndrome and Risks of Colon and Rectal Cancer: The European Prospective Investigation into Cancer and Nutrition Study","container-title":"Cancer Prevention Research","page":"1873","volume":"4","issue":"11","abstract":"Metabolic syndrome (MetS) is purportedly related to risk of developing colorectal cancer; however, the association of MetS, as defined according to recent international criteria, and colorectal cancer has not been yet evaluated. In particular, it remains unclear to what extent the MetS components individually account for such an association. We addressed these issues in a nested case–control study that included 1,093 incident cases matched (1:1) to controls by using incidence density sampling. Conditional logistic regression was used to estimate relative risks (RR) and 95% CIs. MetS was defined according to the criteria of the National Cholesterol Education Program/Adult Treatment Panel III (NCEP/ATPIII), the International Diabetes Federation (IDF), and the 2009 harmonized definition. Among individual components, abdominal obesity (RR = 1.51; 95% CI: 1.16–1.96) was associated with colon cancer, whereas abnormal glucose metabolism was associated with both colon (RR = 2.05; 95% CI: 1.57–2.68) and rectal cancer (RR = 2.07; 95% CI: 1.45–2.96). MetS, as defined by each of the definitions, was similarly associated with colon cancer (e.g., RR = 1.91; 95% CI: 1.47–2.42 for MetS by NCEP/ATPIII), whereas MetS by NCEP/ATPIII, but not IDF or harmonized definition, was associated with rectal cancer (RR = 1.45; 95% CI: 1.02–2.06). Overall, these associations were stronger in women than in men. However, the association between MetS and colorectal cancer was accounted for by abdominal obesity and abnormal glucose metabolism such that MetS did not provide risk information beyond these components (likelihood ratio test P = 0.10 for MetS by NCEP/ATPIII). These data suggest that simple assessment of abnormal glucose metabolism and/or abdominal obesity to identify individuals at colorectal cancer risk may have higher clinical utility than applying more complex MetS definitions. Cancer Prev Res; 4(11); 1873–83. ©2011 AACR.","DOI":"10.1158/1940-6207.CAPR-11-0218","journalAbbreviation":"Cancer Prev Res (Phila)","author":[{"family":"Aleksandrova","given":"Krasimira"},{"family":"Boeing","given":"Heiner"},{"family":"Jenab","given":"Mazda"},{"family":"Bas Bueno-de-Mesquita","given":"H."},{"family":"Jansen","given":"Eugene"},{"family":"Duijnhoven","given":"Fränzel J.B.","non-dropping-particle":"van"},{"family":"Fedirko","given":"Veronika"},{"family":"Rinaldi","given":"Sabina"},{"family":"Romieu","given":"Isabelle"},{"family":"Riboli","given":"Elio"},{"family":"Romaguera","given":"Dora"},{"family":"Overvad","given":"Kim"},{"family":"Østergaard","given":"Jane Nautrup"},{"family":"Olsen","given":"Anja"},{"family":"Tjønneland","given":"Anne"},{"family":"Boutron-Ruault","given":"Marie-Christine"},{"family":"Clavel-Chapelon","given":"Françoise"},{"family":"Morois","given":"Sophie"},{"family":"Masala","given":"Giovanna"},{"family":"Agnoli","given":"Claudia"},{"family":"Panico","given":"Salvatore"},{"family":"Tumino","given":"Rosario"},{"family":"Vineis","given":"Paolo"},{"family":"Kaaks","given":"Rudolf"},{"family":"Lukanova","given":"Annekatrin"},{"family":"Trichopoulou","given":"Antonia"},{"family":"Naska","given":"Androniki"},{"family":"Bamia","given":"Christina"},{"family":"Peeters","given":"Petra H."},{"family":"Rodríguez","given":"Laudina"},{"family":"Buckland","given":"Genevieve"},{"family":"Sánchez","given":"María-José"},

{"family":"Dorronsoro","given":"Miren"},{"family":"Huerta","given":"Jose-María"},{"family":"Barricarte","given":"Aurelio"},{"family":"Hallmans","given":"Göran"},{"family":"Palmqvist","given":"Richard"},{"family":"Khaw","given":"Kay-Tee"},{"family":"Wareham","given":"Nicholas"},{"family":"Allen","given":"Naomi E."},{"family":"Tsilidis","given":"Konstantinos K"},{"family":"Pischon","given":"Tobias"}],"issued":{"date-parts":[["2011",11,2]]}}},{"id":162,"uris":["http://zotero.org/users/2724931/items/R3KQJIJK"],"uri":["http://zotero.org/users/2724931/items/R3KQJIJK"],"itemData":{"id":162,"type":"article-journal","title":"Clinical study on the correlation between metabolic syndrome and colorectal carcinoma","container-title":"ANZ Journal of Surgery","page":"331-336","volume":"80","issue":"5","abstract":"Background: Although metabolic syndrome (MS) has received a lot of attention in recent years, the correlation between MS and colorectal carcinoma is still not very clear. This study aims at exploring the relationship between MS and colorectal carcinoma. Methods: Data was collected from 507 cases of colorectal carcinoma and 507 cases of healthy patients between January 2002 and March 2007 to establish the database. The patients with colorectal cancer were divided into two groups based on the presence of MS. Multivariate analysis of these data for the overall survival and recurrence was performed with the Cox proportional hazard model. Variables examined by multivariate analysis were sex , age, location, histotype, differentiation, tumour, node, metastasis (TNM) stage, the number of lymph nodes detected, etc. Results: The existence of MS in the colorectal carcinoma group was clearly more than that in the control group. The existence of two to four types of abnormal metabolic diseases was significantly more in the colorectal cancer group than in the control group. MS is one of the important elements that can independently influence the survival (odds ratio (OR) = 1.501, 95% confidence interval (CI) = 1.057–2.131) and have the highest risk with worse survival compared with other parameters. Conclusion: There is a close relationship between MS and colorectal carcinoma, and MS is a significantly independent element that influences the survival of the colorectal carcinoma. Decreasing the incidence of MS maybe play a role in improving therapeutic efficacy and prognosis of the cancer.","DOI":"10.1111/j.1445-2197.2009.05084.x","ISSN":"1445-2197","author":[{"family":"Shen","given":"Zhanlong"},{"family":"Wang","given":"Shan"},{"family":"Ye","given":"Yingjiang"},{"family":"Yin","given":"Mujun"},{"family":"Yang","given":"Xiaodong"},{"family":"Jiang","given":"Kewei"},{"family":"Liu","given":"Yan"}],"issued":{"date-parts":[["2010",5,1]]}}},{"id":160,"uris":["http://zotero.org/users/2724931/items/6XNHFT4N"],"uri":["http://zotero.org/users/2724931/items/6XNHFT4N"],"itemData":{"id":160,"type":"article-journal","title":"Metabolic syndrome is associated with colorectal cancer in men","container-title":"European Journal of Cancer","page":"1866-1872","volume":"46","issue":"10","abstract":"Aim of the study\nWe assessed the relation between metabolic syndrome (MetS) and its components and colorectal cancer.\nMethods\nWe analysed data from a multicentre case–control study conducted in Italy and Switzerland, including 1378 cases of colon cancer, 878 cases of rectal cancer and 4661 controls. All cases were incident and histologically confirmed. Controls were subjects admitted to the same hospitals as cases with acute non-malignant conditions. MetS was defined according to the International Diabetes Federation criteria. Odds ratios (ORs) and the corresponding 95% confidence intervals (CIs) were estimated by multiple logistic regression models, including terms for major identified confounding factors for colorectal cancer.\nResults\nWith reference to each component of the MetS, the ORs of colorectal cancer in men were 1.27 (95% CI, 0.95–1.69) for diabetes, 1.24 (95% CI, 1.03–1.48) for hypertension, 1.14 (95% CI, 0.93–1.40) for hypercholesterolaemia and 1.26 (95% CI, 1.08–1.48) for overweight at age 30. The corresponding ORs in women were 1.20 (95% CI, 0.82–1.75), 0.87 (95% CI, 0.71–1.06), 0.83 (95% CI, 0.66–1.03) and 1.06 (95% CI, 0.86–1.30). Colorectal cancer risk was increased in men (OR = 1.86; 95% CI, 1.21–2.86), but not in women (OR = 1.13; 95% CI, 0.66–1.93), with MetS. The ORs were 2.09 (95% CI, 1.38–3.18) in men and 1.15 (95% CI, 0.68–1.94) in women with
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3 components of the MetS, as compared to no component. Results were similar for colon and rectal cancers.\nConclusion\nThis study supports a direct association between MetS and both colon and rectal cancers in men, but not in women.","DOI":"10.1016/j.ejca.2010.03.010","ISSN":"0959-8049","journalAbbreviation":"European Journal of Cancer","author":[{"family":"Pelucchi","given":"Claudio"},{"family":"Negri","given":"Eva"},{"family":"Talamini","given":"Renato"},{"family":"Levi","given":"Fabio"},{"family":"Giacosa","given":"Attilio"},{"family":"Crispo","given":"Anna"},{"family":"Bidoli","given":"Ettore"},{"family":"Montella","given":"Maurizio"},{"family":"Franceschi","given":"Silvia"},{"family":"La Vecchia","given":"Carlo"}],"issued":{"date-parts":[["2010",7]]}}},{"id":100,"uris":["http://zotero.org/users/2724931/items/XN37VDV8"],"uri":["http://zotero.org/users/2724931/items/XN37VDV8"],"itemData":{"id":100,"type":"article-journal","title":"Visceral Obesity and Insulin Resistance as Risk Factors for Colorectal Adenoma: A Cross-Sectional, Case–Control Study","container-title":"The American Journal of Gastroenterology","page":"178-187","volume":"105","issue":"1","source":"www.nature.com","abstract":"OBJECTIVES: Colorectal adenoma is known to be associated with obesity, but the association between colorectal adenoma and visceral adipose tissue (VAT) area measured by abdominal computed tomography (CT) has not been documented clearly. In addition, the relationship between insulin resistance and colorectal adenomas, which underlies the mechanism that links obesity and colorectal adenoma, has not been studied extensively. The aim of this study was to examine VAT area and insulin resistance as risk factors of colorectal adenoma.\nMETHODS: A cross-sectional, case–control study was conducted in Koreans that presented for health check-ups. Subjects underwent various laboratory tests, abdominal CT, and colonoscopy. VAT, subcutaneous adipose tissue (SAT), and homeostatic metabolic assessment (HOMA) index were evaluated as potential risk factors of colorectal adenoma in 2,244 age- and sex-matched subjects.\nRESULTS: According to univariate analysis, the prevalences of smoking, hypertension, metabolic syndrome, and family history of colorectal cancer were higher in the adenoma group than in the normal control group. In addition, body mass index, waist circumference, triglyceride, high-density lipoprotein cholesterol, and VAT and SAT areas were significantly different in the two groups. According to the multivariate analysis adjusted for multiple confounders, VAT area was independently associated with the risk of colorectal adenoma (odds ratio (OR)=3.09, 95% confidence interval (CI): 2.19–4.36, highest quintile vs. lowest quintile). Mean HOMA index was higher in the adenoma group than in the control group (OR=1.99, 95% CI: 1.35–2.92, highest vs. lowest quintile).\nCONCLUSIONS: Visceral obesity was found to be an independent risk factor of colorectal adenoma, and insulin resistance was associated with the presence of colorectal adenoma.","DOI":"10.1038/ajg.2009.541","ISSN":"0002-9270","shortTitle":"Visceral Obesity and Insulin Resistance as Risk Factors for Colorectal Adenoma","journalAbbreviation":"Am J Gastroenterol","language":"en","author":[{"family":"Kang","given":"Hyoun Woo"},{"family":"Kim","given":"Donghee"},{"family":"Kim","given":"Hwa Jung"},{"family":"Kim","given":"Chung Hyeon"},{"family":"Kim","given":"Young Sun"},{"family":"Park","given":"Min Jung"},{"family":"Kim","given":"Joo Sung"},{"family":"Cho","given":"Sang-Heon"},{"family":"Sung","given":"Myung-Whun"},{"family":"Jung","given":"Hyun Chae"},{"family":"Lee","given":"Hyo-Suk"},{"family":"Song","given":"In Sung"}],"issued":{"date-parts":[["2009",9,15]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
32–44
], and 13 cross-sectional studies [
ADDIN ZOTERO_ITEM CSL_CITATION {"citationID":"do1rrtov","properties":{"formattedCitation":"{\\rtf \\super 45\\uc0\\u8211{}57\\nosupersub{}}","plainCitation":"45–57"},"citationItems":[{"id":87,"uris":["http://zotero.org/users/2724931/items/VESC9IC5"],"uri":["http://zotero.org/users/2724931/items/VESC9IC5"],"itemData":{"id":87,"type":"article-journal","title":"The relationship of nonalcoholic fatty liver disease and metabolic syndrome for colonoscopy colorectal neoplasm","container-title":"Medicine","page":"e5809","volume":"96","issue":"2","archive":"PMC","archive_location":"PMC5266168","abstract":"Col
neoplasm is considered to have a strong association with nonalcoholic fatty liver disease (NAFLD) and metabolic syndrome

(MetS), respectively. The relationship among NAFLD, MetS, and colorectal neoplasm was assessed in 1793 participants. Participants were divided into 4 groups based on the status of NAFLD and MetS. Relative excess risks of interaction (RERI), attributable proportion (AP), and synergy index (SI) were applied to evaluate the additive interaction. NAFLD and MetS were significantly correlated with colorectal neoplasm and colorectal cancer (CRC), respectively. The incidence of CRC in NAFLD (+) MetS (+) group was significantly higher than other 3 groups. The result of RERI, AP, and SI indicated the significant additive interaction of NAFLD and MetS on the development of CRC. NAFLD and MetS are risk factors for colorectal neoplasm and CRC, respectively. And NAFLD and MetS have an additive effect on the development of CRC.","DOI":"10.1097/MD.0000000000005809","ISSN":"0025-7974","author":[{"family":"Pan","given":"Shuang"},{"family":"Hong","given":"Wandong"},{"family":"Wu","given":"Wenzhi"},{"family":"Chen","given":"Qinfen"},{"family":"Zhao","given":"Qian"},{"family":"Wu","given":"Jiansheng"},{"family":"Jin","given":"Yin"}],"editor":[{"family":"Žarko.","given":"Babi
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years of age","container-title":"Journal of Gastroenterology and Hepatology","page":"98-105","volume":"32","issue":"1","source":"PubMed","abstract":"BACKGROUND AND AIM: Current guidelines recommend colon cancer screening for persons aged over 50

years. However, there are few data on colorectal cancer screening in 40- to 49-year-olds. This study assessed the prevalence and risk factors of colorectal neoplasms in 40- to 49-year-old Koreans.\nMETHODS: We analyzed the results of screening colonoscopies of 6680 persons 40-59

years of age (2206 aged 40-49 and 4474 aged 50-59

years).\nRESULTS: The prevalence of overall and advanced neoplasms in the 40- to 49-year age group was lower than in the 50- to 59-year age group (26.7% and 2.4% vs 37.8% and 3.5%, respectively). However, the prevalence of overall and advanced neoplasms increased to 39.1% and 5.4%, respectively, in 45- to 49-year-old individuals with metabolic syndrome. In the 40- to 49-year age group, age, current smoking, and metabolic syndrome were associated with an increased risk of advanced neoplasms (odds ratio [OR] 1.16, 95% confidence interval [CI] 1.04-1.30; OR 3.12, 95% CI 1.20-8.12; and OR 2.00, 95% CI 1.09-3.67, respectively).\nCONCLUSIONS: Individuals aged 40-49

years had a lower prevalence of colorectal neoplasms than those aged 50-59

years, but some 40- to 49-year-olds showed a similar prevalence to those aged 50-59

years. Age, current smoking habits, and metabolic syndrome are associated with an increased risk of advanced neoplasms in subjects aged 40-49

years. Further studies are needed to stratify the risks of colon cancer and guide targeted screening in persons younger than 50

years old.","DOI":"10.1111/jgh.13454","ISSN":"1440-1746","note":"PMID: 27197805","journalAbbreviation":"J. Gastroenterol. Hepatol.","language":"eng","author":[{"family":"Koo","given":"Ja Eun"},{"family":"Kim","given":"Kyung-Jo"},{"family":"Park","given":"Hye Won"},{"family":"Kim","given":"Hong-Kyu"},{"family":"Choe","given":"Jae Won"},{"family":"Chang","given":"Hye-Sook"},{"family":"Lee","given":"Ji Young"},{"family":"Myung","given":"Seung-Jae"},{"family":"Yang","given":"Suk-Kyun"},{"family":"Kim","given":"Jin-Ho"}],"issued":{"date-parts":[["2017",1]]}}},{"id":176,"uris":["http://zotero.org/users/2724931/items/G5JJS8K5"],"uri":["http://zotero.org/users/2724931/items/G5JJS8K5"],"itemData":{"id":176,"type":"article-journal","title":"Uric Acid Is a Risk Indicator for Metabolic Syndrome-related Colorectal Adenoma: Results in a Korean Population Receiving Screening Colonoscopy","container-title":"The Korean Journal of Gastroenterology = Taehan Sohwagi Hakhoe Chi","page":"202-208","volume":"66","issue":"4","source":"PubMed","abstract":"BACKGROUND/AIMS: An association between serum uric acid and cancer risk has been noted over the past few decades. There is ongoing debate about whether hyperuricemia represents an independent risk factor for colorectal neoplasm. We investigated the association between serum uric acid and prevalence of colorectal adenoma considering numerous confounding factors.\nMETHODS: A cross-sectional study was performed with individuals who underwent a routine health check-up examination, including a screening colonoscopy and blood chemistry. The association between serum uric acid and prevalence of colorectal adenoma was estimated from the results of a logistic regression analysis.\nRESULTS: Of the 1,066 participants, 402 had colorectal adenoma (37.7%). In univariate models, the prevalence of colorectal adenoma was higher in participants in the fourth quartile uric acid level, compared to those in the first quartile uric acid level (OR, 1.67; 95% CI, 1.17-2.42; p=0.004). However, no significant association was detected between serum uric acid and prevalence of colorectal adenoma in multiple logistic regression analysis. A number of metabolic syndrome components exhibited a strong association with the prevalence of colorectal adenoma in the multivariate model (OR, 3.46 for highest vs. lowest; 95% CI, 1.30-9.20; p=0.021). Moreover, serum uric acid was strongly associated with metabolic syndrome-associated variables, including waist circumference, fasting blood glucose, systolic blood pressure, diastolic blood pressure, triglyceride, and high-density lipoprotein.\nCONCLUSIONS: Uric acid is not an independent risk factor for colorectal adenoma but is a risk indicator for metabolic syndrome-related colorectal adenoma.","DOI":"10.4166/kjg.2015.66.4.202","ISSN":"2233-6869","note":"PMID: 26493505","shortTitle":"Uric Acid Is a Risk Indicator for Metabolic Syndrome-related Colorectal Adenoma","journalAbbreviation":"Korean J Gastroenterol","language":"eng","author":[{"family":"Kim","given":"Hyo Jin"},{"family":"Kim","given":"Jee Eun"},{"family":"Jung","given":"Ji Hye"},{"family":"Kim","given":"Eun Ran"},{"family":"Hong","given":"Sung Noh"},{"family":"Chang","given":"Dong Kyung"},{"family":"Son","given":"Hee Jung"},{"family":"Rhee","given":"Poong Lyul"},{"family":"Kim","given":"Jae J."},{"family":"Kim","given":"Young Ho"}],"issued":{"date-parts":[["2015",10]]}}},{"id":170,"uris":["http://zotero.org/users/2724931/items/2S89J5KW"],"uri":["http://zotero.org/users/2724931/items/2S89J5KW"],"itemData":{"id":170,"type":"article-journal","title":"Risk factors associated with rectal neuroendocrine tumors: a cross-sectional study.","container-title":"Cancer epidemiology, biomarkers & prevention : a publication of the American Association for Cancer Research, cosponsored by the American Society of Preventive Oncology","page":"1406-1413","volume":"23","issue":"7","abstract":"BACKGROUND: The incidence of rectal neuroendocrine tumors (NET) has been increasing since the implementation of the screening colonoscopy. However, very little is known about risk factors associated with rectal NETs. We examined the prevalence of and the risk factors for rectal NETs in a Korean population. METHODS: A cross-sectional study was performed on 62,171 Koreans who underwent screening colonoscopy. The clinical characteristics and serum biochemical parameters of subjects with rectal NET were compared with those of subjects without rectal NET using multivariate logistic regression. RESULTS: Of a total of 57,819 participants, 101 [OR, 0.17%; 95% confidence interval (CI), 0.14-0.20] had a rectal NET. Young age (<50 years; OR, 2.09; 95% CI, 1.06-4.15), male gender (OR,

1.92; 95% CI, 1.15-3.20), alcohol drinking [adjusted OR (AOR), 1.56; 95% CI, 1.01-2.42], and a low high-density lipoprotein-cholesterol (HDL-C) level (AOR, 1.85; 95% CI, 1.10-3.11) were independent risk factors for rectal NETs. Cigarette smoking, fatty liver, metabolic syndrome, higher triglyceride level (>/=150 mg/dL), and higher homeostasis model assessment of insulin resistance (>/=2.5) were not independently associated with rectal NETs, although these factors were more common in individuals with rectal NETs in the univariate analysis. CONCLUSIONS: Young age (<50 years), male gender, alcohol drinking, and a low","DOI":"10.1158/1055-9965.EPI-14-0132","ISSN":"1538-7755 1055-9965","note":"PMID: 24813818","journalAbbreviation":"Cancer Epidemiol Biomarkers Prev","language":"eng","author":[{"family":"Jung","given":"Yoon Suk"},{"family":"Yun","given":"Kyung Eun"},{"family":"Chang","given":"Yoosoo"},{"family":"Ryu","given":"Seungho"},{"family":"Park","given":"Jung Ho"},{"family":"Kim","given":"Hong Joo"},{"family":"Cho","given":"Yong Kyun"},{"family":"Sohn","given":"Chong Il"},{"family":"Jeon","given":"Woo Kyu"},{"family":"Kim","given":"Byung Ik"},{"family":"Park","given":"Dong Il"}],"issued":{"date-parts":[["2014",7]]}}},{"id":169,"uris":["http://zotero.org/users/2724931/items/M9QUET6C"],"uri":["http://zotero.org/users/2724931/items/M9QUET6C"],"itemData":{"id":169,"type":"article-journal","title":"Metabolic syndrome and smoking may justify earlier colorectal cancer screening in men","container-title":"Gastrointestinal Endoscopy","page":"961-969","volume":"79","issue":"6","abstract":"Background\nGender, smoking, and metabolic syndrome (MetS) are important risk factors of colorectal neoplasm. Whether presence of these factors may warrant earlier screening remains unclear.\nObjective\nTo compare age- and gender-specific risk of colorectal neoplasms in association with smoking and MetS under endoscopic or stool-based screening.\nDesign\nCross-sectional observational study.\nSetting\nScreening center in a university hospital in Taiwan.\nPatients\nA cohort of 10,884 average-risk individuals who received concurrent screening colonoscopy and fecal immunochemical testing (FIT).\nMain Outcome Measurements\nFirst, the prevalence of colorectal neoplasms and positive predictive value of FIT relative to age, gender, smoking, and MetS. Second, the number of colonoscopies needed to detect 1 advanced neoplasm with different strategies.\nResults\nMale smokers aged 40 to 49 years had a significantly higher prevalence of advanced neoplasms and positive predictive value of stool tests than nonsmoking counterparts. The prevalence of advanced neoplasms in concurrent MetS and smoking (6.2%) or smoking alone (3.8%) men aged 40 to 49 years was higher than that of average-risk women aged 50 to 59 years (2.1%) (P = .03 and .04, respectively). The number of colonoscopies needed to detect 1 advanced neoplasm in men aged 40 to 49 years with concurrent MetS and smoking, smoking, MetS, and women aged 50 to 59 years was, respectively, 14.6, 24.8, 39.8, and 47.4 in the colonoscopy scenario and 1.7, 4.6, 5.7, and 8.3 in the FIT scenario.\nLimitation\nSelf-selective bias may exist for subjects voluntarily submitted to health check-ups.\nConclusions\nMetS and smoking significantly impact both the prevalence of colorectal neoplasms and the diagnostic yields of screening tests in men aged 40 to 49 years. Whether our findings justify earlier screening in this subgroup requires further study.","DOI":"10.1016/j.gie.2013.11.035","ISSN":"0016-5107","journalAbbreviation":"Gastrointestinal Endoscopy","author":[{"family":"Chang","given":"Li-Chun"},{"family":"Wu","given":"Ming-Shiang"},{"family":"Tu","given":"Chia-Hung"},{"family":"Lee","given":"Yi-Chia"},{"family":"Shun","given":"Chia-Tung"},{"family":"Chiu","given":"Han-Mo"}],"issued":{"date-parts":[["2014",6]]}}},{"id":168,"uris":["http://zotero.org/users/2724931/items/HXJHWUI6"],"uri":["http://zotero.org/users/2724931/items/HXJHWUI6"],"itemData":{"id":168,"type":"article-journal","title":"Vegetarianism as a Protective Factor for Colorectal Adenoma and Advanced Adenoma in Asians","container-title":"Digestive Diseases and Sciences","page":"1025-1035","volume":"59","issue":"5","abstract":"Although epidemiologic and animal studies suggest a vegetarian diet protects against the development of colorectal cancer, the relationship between vegetarian diet and incidence of colorectal adenoma is not yet conclusive, especially for Asians.","DOI":"10.1007/s10620-013-2974-5","ISSN":"1573-2568","journalAbbreviation":"Digestive Diseases and Sciences","author":[{"family":"Lee","given":"Chang Geun"},{"family":"Hahn","given":"Suk Jae"},{"family":"Song","given":"Min Keun"},{"family":"Lee","given":"Jun Kyu"},{"family":"Kim","given":"Jae Hak"},{"family":"Lim","given":"Yun Jeong"},{"family":"Koh","given":"Moon-Soo"},{"family":"Lee","given":"Jin Ho"},{"family":"Kang","given":"Hyoun Woo"}],"issued":{"date-parts":[["2014"]]}}},{"id":78,"uris":["http://zotero.org/users/2724931/items/TSAINUMV"],"uri":["http://zotero.org/users/2724931/items/TSAINUMV"],"itemData":{"id":78,"type":"article-journal","title":"Increased homeostasis model assessment-insulin resistance is a risk factor for colorectal adenoma in Japanese males.","container-title":"The Tohoku journal of experimental medicine","page":"297-303","volume":"223","issue":"4","abstract":"Many previous reports have documented a relationship between metabolic syndrome, in terms of insulin resistance, and colorectal cancer. However, the association of insulin resistance with colorectal adenoma has not been investigated in detail. To elucidate the association of metabolic syndrome components and insulin resistance with adenoma, we investigated homeostasis model assessment insulin resistance (HOMA-IR) in individuals with adenoma. A cross-sectional study was conducted involving individuals who underwent scheduled health examinations using total colonoscopy. Restricting the subjects to males, 261 with adenoma and 702 without adenoma were investigated. HOMA-IR was categorized into three groups: normal (< 1.6), intermediate (>/= 1.6 - < 2.5), and insulin resistance (2.5 </=). Metabolic syndrome was defined by a combination of any three of the following components: central obesity (waist circumference >/= 90 cm); elevated blood pressure (systolic blood pressure >/= 130 mmHg and/or diastolic blood pressure 85 mmHg); elevated fasting plasma glucose (>/= 100 mg/dL); reduced high-density lipoprotein-cholesterol (< 40 mg/dL); and elevated triglyceride (>/= 150 mg/dL). Multivariate analysis of HOMA-IR showed that the intermediate and insulin resistance groups had a significantly increased risk for colorectal adenoma, even after adjustment for waist circumference (odds ratio, 1.62 and 2.23; 95% confidence interval, 1.07-2.45 and 1.31-3.79, respectively). Accumulation of any metabolic syndrome components increased the risk of colorectal adenoma (P trend = 0.001). However, none of the components alone demonstrated a significant risk for colorectal adenoma. Our data indicate that an increased level of HOMA-IR is a risk factor for colorectal adenoma in Japanese males.","ISSN":"1349-3329 0040-8727","note":"PMID: 21478654","journalAbbreviation":"Tohoku J Exp Med","language":"eng","author":[{"family":"Sato","given":"Takeshi"},{"family":"Takeda","given":"Hiroaki"},{"family":"Sasaki","given":"Yu"},{"family":"Kawata","given":"Sumio"}],"issued":{"date-parts":[["2011",4]]}}},{"id":310,"uris":["http://zotero.org/users/2724931/items/9BZ8ICKP"],"uri":["http://zotero.org/users/2724931/items/9BZ8ICKP"],"itemData":{"id":310,"type":"article-journal","title":"Stepwise Relationship Between Components of Metabolic Syndrome and Risk of Colorectal Adenoma in a Taiwanese Population Receiving Screening Colonoscopy","container-title":"Journal of the Formosan Medical Association","page":"100-108","volume":"110","issue":"2","source":"CrossRef","DOI":"10.1016/S0929-6646(11)60016-8","ISSN":"09296646","language":"en","author":[{"family":"Hu","given":"Nien-Chih"},{"family":"Chen","given":"Jong-Dar"},{"family":"Lin","given":"Yu-Min"},{"family":"Chang","given":"Jun-Yih"},{"family":"Chen","given":"Yu-Hung"}],"issued":{"date-parts":[["2011",2]]}}},{"id":77,"uris":["http://zotero.org/users/2724931/items/QQRBWQMX"],"uri":["http://zotero.org/users/2724931/items/QQRBWQMX"],"itemData":{"id":77,"type":"article-journal","title":"Association between colorectal adenoma and coronary atherosclerosis detected by CT coronary angiography in Korean men; a cross-sectional study.","container-title":"Journal of gastroenterology and hepatology","page":"1795-1799","volume":"25","issue":"11","abstract":"BACKGROUND: Colorectal adenoma and coronary artery disease (CAD) appear to share common risk factors, such as male gender, diabetes mellitus, smoking, and obesity. We investigated the relationship between colorectal adenoma and coronary atherosclerosis, as a risk factor for colorectal adenoma. METHODS: A cross-sectional study was conducted on Korean men who presented for a health check-up. The subjects were 488 men (217 colorectal adenoma and 271 normal colonoscopic findings) who underwent colonoscopy and coronary computed tomography angiography (CTA) on the same day as a screening examination. Advanced colonic lesion was defined as a presence of adenoma with villous component, high-grade dysplasia, and/or with size of >/=1 cm. CTA findings were classified as normal, mild (low-grade

atherosclerosis or <50% stenosis), and significant CAD (>/=50% stenosis). Abnormal CTA findings included mild and significant CAD. RESULTS: Patients with abnormal CTA findings were more likely to have colorectal adenoma compared with those with normal CTA findings (P < 0.005). Furthermore, presence of advanced adenoma was significantly associated with significant CAD (P < 0.01). On multivariate analyses, abnormal CTA findings (OR = 1.66, 95% CI: 1.14-2.41, P < 0.01) and significant CAD (OR = 1.96, 95% CI: 1.15-3.35, P < 0.05) were found to be independent risk factors for colorectal adenoma after adjusting for age, current smoking, and metabolic syndrome. CONCLUSIONS: In this study, in the population who underwent CTA and colonoscopy for health check-up, prevalence of colorectal adenoma was greater in subjects with low-grade coronary atherosclerosis or significant CAD. The presence of advanced adenoma was significantly associated with significant CAD.","DOI":"10.1111/j.1440-1746.2010.06330.x","ISSN":"1440-1746 0815-9319","note":"PMID: 21039843","journalAbbreviation":"J Gastroenterol Hepatol","language":"eng","author":[{"family":"Yang","given":"Sun Young"},{"family":"Kim","given":"Young Sun"},{"family":"Chung","given":"Su Jin"},{"family":"Song","given":"Ji Hyun"},{"family":"Choi","given":"Su Yeon"},{"family":"Park","given":"Min Jung"},{"family":"Yim","given":"Jeong Yoon"},{"family":"Lim","given":"Seon Hee"},{"family":"Kim","given":"Donghee"},{"family":"Kim","given":"Chung Hyun"},{"family":"Kim","given":"Ju Sung"},{"family":"Song","given":"In Sung"}],"issued":{"date-parts":[["2010",11]]}}},{"id":163,"uris":["http://zotero.org/users/2724931/items/FX77VBWZ"],"uri":["http://zotero.org/users/2724931/items/FX77VBWZ"],"itemData":{"id":163,"type":"article-journal","title":"Prevalence and risk of colorectal neoplasms in asymptomatic, average-risk screenees 40 to 49 years of age","container-title":"Gastrointestinal Endoscopy","page":"480-489","volume":"72","issue":"3","abstract":"Background\nA paucity of information exists regarding colorectal neoplasm in asymptomatic, average-risk individuals 40 to 49 years of age.\nObjective\nTo evaluate the prevalence and risk factors of colorectal neoplasms in those in their 40s.\nDesign\nCross-sectional study.\nSetting\nResults offered to subjects of a health care provider that offers screening services as part of an employer-provided wellness program.\nPatients\nA consecutive series of 1761 asymptomatic, average-risk screenees 40 to 59 years of age.\nIntervention\nFirst screening colonoscopy.\nResults\nThe prevalence of overall colorectal neoplasm in subjects of ages 40 to 44 years, 45 to 49 years, 50 to 54 years, and 55 to 59 years increased significantly with increasing age (13.7%, 20.2%, 21.0%, and 23.8%, respectively; P < .001). The prevalence of advanced adenomas in subjects of ages 40 to 44 years, 45 to 49 years, 50 to 54 years, and 55 to 59 years increased significantly with age (1.9%, 3.0%, 3.2%, and 5.9%, respectively; P = .004). Multivariate analysis of data from the 40- to 49-year age group identified an increased risk of colorectal neoplasm associated with ages 45 years and older (odds ratio [OR], 1.68; 95% CI, 1.20-2.35), male sex (OR, 1.76; 95% CI, 1.15-2.69), presence of abdominal obesity (OR, 1.57; 95% CI, 1.12-2.21), and metabolic syndrome (OR, 1.56; 95% CI, 1.03-2.35), whereas for advanced adenomas, abdominal obesity (OR, 2.37; 95% CI, 1.06-5.27) and metabolic syndrome (OR, 2.83; 95% CI, 1.23-6.53) were the independent risk factors.\nLimitations\nSingle-center study and the cohort composed of ethnic Korean subjects who lived in the same geographic region.\nConclusion\nIn average-risk individuals 40 to 49 years of age, men with abdominal obesity or metabolic syndrome might benefit from screening colonoscopy starting at 45 years of age to detect colorectal neoplasm.","DOI":"10.1016/j.gie.2010.06.022","ISSN":"0016-5107","journalAbbreviation":"Gastrointestinal Endoscopy","author":[{"family":"Hong","given":"Sung Noh"},{"family":"Kim","given":"Jeong Hwan"},{"family":"Choe","given":"Won Hyeok"},{"family":"Han","given":"Hye Seung"},{"family":"Sung","given":"In Kyung"},{"family":"Park","given":"Hyung Seok"},{"family":"Shim","given":"Chan Sup"}],"issued":{"date-parts":[["2010",9]]}}},{"id":76,"uris":["http://zotero.org/users/2724931/items/3DEUV37V"],"uri":["http://zotero.org/users/2724931/items/3DEUV37V"],"itemData":{"id":76,"type":"article-journal","title":"Relationship of non-alcoholic fatty liver disease to colorectal adenomatous polyps.","container-title":"Journal of gastroenterology and hepatology","page":"562-567","volume":"25","issue":"3","abstract":"BACKGROUND AND AIMS: Metabolic syndrome and insulin resistance are associated with a higher risk of colon cancer. Non-alcoholic fatty liver disease (NAFLD) is regarded as a manifestation of metabolic syndrome in the liver. This investigation was initiated to determine whether NAFLD has a relationship to colorectal adenomatous polyps. METHODS: We examined the 2917 participants who underwent a routine colonoscopy at Kangbuk Samsung Hospital in 2007. We divided the 2917 subjects into the adenomatous polyp group (n = 556) and the normal group (n = 2361). Anthropometric measurements, biochemical tests for liver and metabolic function, and abdominal ultrasonographs were assessed. RESULTS: The prevalence of NAFLD was 41.5% in the adenomatous polyp group and 30.2% in the control group. By multiple logistic regression analysis, NAFLD was found to be associated with an increased risk of colorectal adenomatous polyps (odds ratio, 1.28; 95% confidence interval, 1.03-1.60). An increased risk for NAFLD was more evident in patients with a greater number of adenomatous polyps. CONCLUSION: NAFLD was associated with colorectal adenomatous polyps. Further studies are needed to confirm whether NAFLD is a predictor for the development of colorectal adenomatous polyps and cancer.","DOI":"10.1111/j.1440-1746.2009.06117.x","ISSN":"1440-1746 0815-9319","note":"PMID: 20074156","journalAbbreviation":"J Gastroenterol Hepatol","language":"eng","author":[{"family":"Hwang","given":"Sang Tae"},{"family":"Cho","given":"Yong Kyun"},{"family":"Park","given":"Jung Ho"},{"family":"Kim","given":"Hong Joo"},{"family":"Park","given":"Dong Il"},{"family":"Sohn","given":"Chong Il"},{"family":"Jeon","given":"Woo Kyu"},{"family":"Kim","given":"Byung Ik"},{"family":"Won","given":"Kyoung Hee"},{"family":"Jin","given":"Wook"}],"issued":{"date-parts":[["2010",3]]}}},{"id":97,"uris":["http://zotero.org/users/2724931/items/566MKVT3"],"uri":["http://zotero.org/users/2724931/items/566MKVT3"],"itemData":{"id":97,"type":"article-journal","title":"Visceral obesity as a risk factor for colorectal neoplasm","container-title":"Journal of Gastroenterology and Hepatology","page":"411-417","volume":"23","issue":"3","abstract":"Background and Aim: Obesity as a risk factor for colorectal neoplasm (CRN) is controversial. In the present study, we evaluated visceral obesity as a risk factor for CRN. Methods: We prospectively enrolled 200 consecutive, asymptomatic adults (male : female = 133:67, mean age, 50.9 ± 8.5 years) undergoing both colonoscopy and abdominopelvic computed tomography (CT) scan for routine health evaluations. The presence or absence and the characteristics of CRN were determined during colonoscopy. The amount of visceral adipose tissue (VAT) and subcutaneous adipose tissue was measured by an abdominopelvic CT scan. Body mass index, waist circumference, and percentage of body fat were measured. Blood pressure and other blood markers for assessing the metabolic syndrome were also investigated. Results: Of the 200 patients, 53 (26.5%) had CRN. Old age, smoking, metabolic syndrome, and a high fasting plasma glucose level were associated with an increased risk of CRN. VAT (P < 0.01) and waist circumference (P = 0.01) were significantly higher in those with CRN. A multivariate analysis of the risks of CRN showed an odds ratio of 4.07 (95% confidence interval: 1.01–16.43, P = 0.03) for those with VAT over 136.61 cm2 relative to those with VAT under 67.23 cm2. Waist circumference, metabolic syndrome, and fasting plasma glucose levels were not independent risk factors for CRN in the multivariate analysis. Conclusion: Increased VAT is an independent risk factor for CRN. Further large scale studies are needed to clarify the causal relationship between VAT and CRN.","DOI":"10.1111/j.1440-1746.2007.05125.x","ISSN":"1440-1746","author":[{"family":"Oh","given":"Tae-Hoon"},{"family":"Byeon","given":"Jeong-Sik"},{"family":"Myung","given":"Seung-Jae"},{"family":"Yang","given":"Suk-Kyun"},{"family":"Choi","given":"Kwi-Sook"},{"family":"Chung","given":"Jun-Won"},{"family":"Kim","given":"Benjamin"},{"family":"Lee","given":"Don"},{"family":"Byun","given":"Jae Ho"},{"family":"Jang","given":"Se Jin"},{"family":"Kim","given":"Jin-Ho"}],"issued":{"date-parts":[["2008",3,1]]}}},{"id":306,"uris":["http://zotero.org/users/2724931/items/FP3DWZMH"],"uri":["http://zotero.org/users/2724931/items/FP3DWZMH"],"itemData":{"id":306,"type":"article-journal","title":"Is Metabolic Syndrome A Risk Factor for Colorectal Adenoma?","container-title":"Cancer Epidemiology and Prevention Biomarkers","page":"1543-1546","volume":"16","issue":"8","journalAbbreviation":"Cancer Epidemiol Biomarkers Prev","author":[{"family":"Kim","given":"Jeong Hwan"},{"family":"Lim","given":"Yun Jeong"},{"family":"Kim","given":"Young-Ho"},{"family":"Sung","given":"In-Kyung"},{"family":"Shim","given":"Sang Goon"},

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Metabolic Syndrome and Findings From Baseline Colonoscopies on Occurrence of Colorectal Neoplasms","container-
title":"Clinical Gastroenterology and Hepatology","page":"1134-1142.e8","volume":"13","issue":"6","abstract":"Background
& Aims\nMetabolic syndrome is associated with increased risk of colorectal neoplasm, but little is known about its effects
on the occurrence of neoplasm after colonoscopy. We investigated the effects of metabolic syndrome on the risk of advanced
neoplasm after colonoscopy.\nMethods\nWe performed a prospective study of 4483 subjects age 50 years and older who
underwent screening and surveillance colonoscopies as part of an annual health check-up at National Taiwan University Hospital.
Baseline demographic data and colonoscopic findings were recorded. Subjects with either advanced adenoma or 3 or more
adenomas detected at baseline were classified as high risk; those with fewer than 3 nonadvanced adenomas were classified as low
risk; and those without any neoplastic lesions were classified as normal. The cumulative risk of detecting an advanced neoplasm
during surveillance colonoscopies (3 and 5 years later) was correlated with risk group and metabolic syndrome. Hazard ratios
(HRs) were calculated for occurrence of neoplasm according to baseline colonoscopic findings and clinical risk factors, including
metabolic syndrome.\nResults\nAdvanced neoplasms were detected during the surveillance colonoscopies in 1.3% of subjects in
the normal group and in 2.4% of those in the low-risk group at 5 years, and in 8.5% of subjects in the high-risk group at 3 years.
Subjects with metabolic syndrome had a significantly higher risk for subsequent advanced neoplasms (P < .0001). After
stratification based on findings from baseline colonoscopies, the risk for neoplasm was significant in the normal (P < .001) and
low-risk groups (P = .04), but not in the high-risk group (P = .48). In Cox regression analysis, metabolic syndrome had
significant effects on the risk for advanced neoplasms in the normal (HR, 2.07; 95% confidence interval, 1.13–3.81) and low-risk
groups (HR, 2.34; 95% confidence interval, 1.01–5.41), but not in the high-risk group.\nConclusions\nMetabolic syndrome is a
significant risk factor for occurrence of an advanced adenoma after a negative or low-risk finding from a baseline colonoscopy.
Metabolic syndrome should be considered in risk stratification for surveillance
intervals.","DOI":"10.1016/j.cgh.2014.10.022","ISSN":"1542-3565","journalAbbreviation":"Clinical Gastroenterology and
Hepatology","author":[{"family":"Chiu","given":"Han-Mo"},{"family":"Lee","given":"Yi-Chia"},{"family":"Tu","given":"Chia-
Hung"},{"family":"Chang","given":"Li-Chun"},{"family":"Hsu","given":"Wen-Feng"},{"family":"Chou","given":"Chu-
Kuang"},{"family":"Tsai","given":"Kun-Feng"},{"family":"Liang","given":"Jin-Tung"},{"family":"Shun","given":"Chia-
Tung"},{"family":"Wu","given":"Ming-Shiang"}],"issued":{"date-parts":[["2015",6]]}}},{"id":83,"uris":
["http://zotero.org/users/2724931/items/33PI99M5"],"uri":["http://zotero.org/users/2724931/items/33PI99M5"],"itemData":
{"id":83,"type":"article-journal","title":"Increased risk of colorectal malignant neoplasm in patients with nonalcoholic fatty liver
disease: a large study","container-title":"Molecular Biology Reports","page":"2989-
2997","volume":"41","issue":"5","abstract":"Nonalcoholic fatty liver disease (NAFLD) has been suggested to be a strong risk
factor of colorectal benign adenomas and advanced neoplasms. The aim of this large cohort study was to further investigate the
prevalence of colorectal malignant neoplasm (CRMN) in patients with NAFLD and determine whether association between
NAFLD and CRMN exists. 2,315 community subjects (1,370 males and 945 females) who underwent a routine colonoscopy
according to international colorectal cancer screening guideline were recruited. Nature of colorectal lesions determined by biopsy
and NAFLD was diagnosed by ultrasound. Binary logistic regression analysis was applied to explore the related associations.
Prevalence of CRMN was 29.3 % (77/263) in patients with NAFLD, which was significantly higher than 18.0 % (369/2,052) in
the control group (P < 0.05). In addition, malignant neoplasm in NAFLD group occurred more frequently at sigmoid colon than
in control group (14.3 vs. 11.9 %). The incidence of highly-differentiated colorectal adenocarcinoma in NAFLD group was
significantly higher than control group (62.3 vs. 9.8 %). Univariate analysis showed that NAFLD had strong association with
CRMN (OR 2.043; 95 % CI 1.512–2.761; P < 0.05). After adjusting for metabolic and other confounding factors, NAFLD
remained as an independent risk factor for CRMN (OR 1.868; 95 % CI 1.360–2.567; P < 0.05). NAFLD was an independent risk
factor for CRMN. Sigmoid carcinoma and highly differentiated colorectal adenocarcinoma were more commonly found in
NAFLD. (ClinicalTrials.gov number, NCT01657773, website: http://clinicaltrials.gov/ct2/show/NCT01657773?
term=zheng+minghua&rank=1).","DOI":"10.1007/s11033-014-3157-y","ISSN":"1573-4978","journalAbbreviation":"Molecular
Biology Reports","author":[{"family":"Lin","given":"Xian-Feng"},{"family":"Shi","given":"Ke-Qing"},
{"family":"You","given":"Jie"},{"family":"Liu","given":"Wen-Yue"},{"family":"Luo","given":"Ying-Wan"},
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nonalcoholic fatty liver disease have higher risk of colorectal adenoma after negative baseline colonoscopy.","container-
title":"Colorectal disease : the official journal of the Association of Coloproctology of Great Britain and Ireland","page":"830-
835","volume":"15","issue":"7","abstract":"AIM: The study aimed to determine whether nonalcoholic fatty liver disease
(NAFLD) is an independent risk factor of adenoma after negative baseline colonoscopy. METHOD: A retrospective cohort study

was conducted on 1522 health-check individuals who underwent two consecutive colonoscopies at Taipei Veterans General Hospital between 2003 and 2010. Those developing an adenoma after an initial negative baseline colonoscopy (adenoma group) were compared with those in whom the second colonoscopy was negative (nonadenoma group). Anthropometric measurements, biochemical tests and the presence of NAFLD were compared between the two groups. RESULTS: The adenoma group had a higher prevalence of NAFLD than the nonadenoma group (55.6% vs 38.8%; P < 0.05). On multivariate logistic regression analysis, NAFLD was an independent risk factor (OR = 1.45, 95% CI: 1.07-1.98) for adenoma formation after a negative baseline colonoscopy. The risk of colorectal adenoma increased when NAFLD patients had other morbidities including metabolic syndrome, hypertension or smoking (OR = 2.85, 4.03 and 4.17). CONCLUSION: NAFLD is an independent risk factor for colorectal adenoma formation after a negative baseline colonoscopy. The risk is higher in individuals with NAFLD and other comorbidities, such as hypertension, smoking or metabolic syndrome.","DOI":"10.1111/codi.12172","ISSN":"1463-1318 1462-8910","note":"PMID: 23398678","journalAbbreviation":"Colorectal Dis","language":"eng","author":[{"family":"Huang","given":"K.-W."},{"family":"Leu","given":"H.-B."},{"family":"Wang","given":"Y.-J."},{"family":"Luo","given":"J.-C."},{"family":"Lin","given":"H.-C."},{"family":"Lee","given":"F.-Y."},{"family":"Chan","given":"W.-L."},{"family":"Lin","given":"J.-K."},{"family":"Chang","given":"F.-Y."}],"issued":{"date-parts":[["2013",7]]}}},{"id":81,"uris":["http://zotero.org/users/2724931/items/7FAPCFIV"],"uri":["http://zotero.org/users/2724931/items/7FAPCFIV"],"itemData":{"id":81,"type":"article-journal","title":"Association of colorectal adenoma with components of metabolic syndrome.","container-title":"Cancer causes & control : CCC","page":"727-735","volume":"23","issue":"5","abstract":"PURPOSE: Recently, some studies have shown that diabetes mellitus and metabolic syndrome increase the risk of colorectal neoplasms. Although the mechanism is not known, those have been proposed to contribute to this phenomenon, including insulin resistance, oxidative stress, and adipokine production. The objective of this study was to assess the association between metabolic risk factors and colorectal neoplasm. METHODS: Study participants visited the National Cancer Center, Korea, for screening (2007-2009). A total of 1,771 diagnosed adenoma patients and 4,667 polyp-free controls were included. The association between risk factors and colorectal neoplasm was evaluated using logistic regression models. RESULTS: High waist circumference, blood pressure, and serum triglyceride levels were associated with an increased risk of colorectal adenoma. Metabolic syndrome (MS) was associated with an increased risk of adenoma (OR = 1.44, 95 % CI = 1.23-1.70). The association between MS and colorectal adenoma was observed regardless of advanced/low-risk adenoma, and multiplicity. MS affected right colon adenomas (OR = 1.50, 95 % CI = 1.22-1.85), left colon adenomas (OR = 1.36, 95 % CI = 1.05-1.76), and adenomas in multiple anatomical locations (OR = 1.59, 95 % CI = 1.19-2.12), but was not associated with rectum. CONCLUSION: Central obesity, triglyceride level, and MS are risk factors for colorectal adenoma including advanced adenoma and multiplicity.","DOI":"10.1007/s10552-012-9942-9","ISSN":"1573-7225 0957-5243","note":"PMID: 22450737","journalAbbreviation":"Cancer Causes Control","language":"eng","author":[{"family":"Kim","given":"Byung Chang"},{"family":"Shin","given":"Aesun"},{"family":"Hong","given":"Chang Won"},{"family":"Sohn","given":"Dae Kyung"},{"family":"Han","given":"Kyung Su"},{"family":"Ryu","given":"Kum Hei"},{"family":"Park","given":"Bum Joon"},{"family":"Nam","given":"Ji Hyung"},{"family":"Park","given":"Ji Won"},{"family":"Chang","given":"Hee Jin"},{"family":"Choi","given":"Hyo Seong"},{"family":"Kim","given":"Jeongseon"},{"family":"Oh","given":"Jae Hwan"}],"issued":{"date-parts":[["2012",5]]}}},{"id":36,"uris":["http://zotero.org/users/2724931/items/437ZFQED"],"uri":["http://zotero.org/users/2724931/items/437ZFQED"],"itemData":{"id":36,"type":"article-journal","title":"Clinico-epidemiologic study of the metabolic syndrome and lifestyle factors associated with the risk of colon adenoma and adenocarcinoma.","container-title":"Asian Pacific journal of cancer prevention : APJCP","page":"975-983","volume":"11","issue":"4","abstract":"BACKGROUND: The numbers of patients with colorectal cancer and associated deaths have been increasing in Japan, probably due to rapid lifestyle changes. Prevention is clearly important and the present study aimed to clarify risk factors and to promote colon cancer screening. METHODS: We investigated lifestyle factors, biochemical data, and pathological features of 727 individuals who underwent colonoscopy. Data were subjected to statistical analysis using SPSS software. RESULTS: Low-grade adenoma was more frequent among the elderly and in men. All of the men and 87.5% of the women with high-grade adenoma or adenocarcinoma were aged>/=45 and>/=50 years, respectively. In women, a larger waist circumference (=80 cm) increased the odds ratio for colon adenoma or adenocarcinoma (colon tumors) by 1.033 (95% confidence index (CI), 1.001-1.066; p=0.040). Metabolic syndrome significantly increased the odds ratio of colon tumors in men, but not in women. Cigarette smoking, drinking alcohol, and increased physical activity were significant risk factors for colon tumors in men, with odds ratios of 1.001 (95% CI, 1.000-1.002; p=0.001), 1.001 (95% CI, 1.000-1.003; p=0.047), and 1.406 (95% CI 1.038-1.904; p=0.028), respectively. CONCLUSIONS: Colon tumors have a high prevalence in the elderly. A larger waist circumference in women and metabolic syndrome in both men and women elevate the risk of colon tumors. In addition, smoking, drinking, and excessive physical activity are risk factors for adenoma and adenocarcinoma in men. For early detection of colorectal cancer, men older than 45 years and women older than 50 years with these risk factors are recommended to undergo colonoscopy.","ISSN":"2476-762X 1513-7368","note":"PMID: 21133610","journalAbbreviation":"Asian Pac J Cancer Prev","language":"eng","author":[{"family":"Kaneko","given":"Rena"},{"family":"Sato","given":"Yuzuru"},{"family":"An","given":"Yasuyosi"},{"family":"Nakagawa","given":"Motoki"},{"family":"Kusayanagi","given":"Satoshi"},{"family":"Kamisago","given":"Satoshi"},{"family":"Umeda","given":"Tomoyuki"},{"family":"Ogawa","given":"Masazumi"},{"family":"Munakata","given":"Kazuo"},{"family":"Mizuno","given":"Kyoichi"}],"issued":{"date-parts":[["2010"]]}}},{"id":161,"uris":["http://zotero.org/users/2724931/items/Q4DM498H"],"uri":["http://zotero.org/users/2724931/items/Q4DM498H"],"itemData":{"id":161,"type":"article-journal","title":"Central obesity and atherogenic dyslipidemia in metabolic syndrome are associated with increased risk for colorectal adenoma in a Chinese population","container-title":"BMC Gastroenterology","page":"51","volume":"10","source":"BioMed Central","abstract":"Metabolic syndrome (MetS) is composed of cardiovascular risk factors including insulin resistance, obesity, dyslipidemia, and hypertension. Most of the components of MetS have been linked to the development of neoplasm. The purpose of this study was to evaluate the relationship between individual components of MetS and colorectal adenoma.","DOI":"10.1186/1471-230X-10-51","ISSN":"1471-230X","journalAbbreviation":"BMC Gastroenterology","author":[{"family":"Liu","given":"Chiu-Shong"},{"family":"Hsu","given":"Hua-Shui"},{"family":"Li","given":"Chia-Ing"},{"family":"Jan","given":"Chia-Ing"},{"family":"Li","given":"Tsai-Chung"},{"family":"Lin","given":"Wen-Yuan"},{"family":"Lin","given":"Tsann"},{"family":"Chen","given":"Ya-Chien"},{"family":"Lee","given":"Cheng-Chun"},{"family":"Lin","given":"Cheng-Chieh"}],"issued":{"date-parts":[["2010"]]}}},{"id":5,"uris":["http://zotero.org/users/2724931/items/QHPCVRZ8"],"uri":["http://zotero.org/users/2724931/items/QHPCVRZ8"],"itemData":{"id":5,"type":"article-journal","title":"Evaluation of the risk factors associated with rectal neuroendocrine tumors: a big data analytic study from a health screening center","container-title":"Journal of Gastroenterology","page":"1112-1121","volume":"51","issue":"12","abstract":"Rectal neuroendocrine tumor (NET) is the most common NET in Asia. The risk factors associated with rectal NETs are unclear because of the overall low incidence rate of these tumors and the associated difficulty in conducting large epidemiological studies on rare cases. The aim of this study was to exploit the benefits of big data analytics to assess the risk factors associated with rectal NET.","DOI":"10.1007/s00535-016-1198-9","ISSN":"1435-5922","journalAbbreviation":"Journal of Gastroenterology","author":[{"family":"Pyo","given":"Jeung Hui"},{"family":"Hong","given":"Sung Noh"},{"family":"Min","given":"Byung-Hoon"},{"family":"Lee","given":"Jun Haeng"},{"family":"Chang","given":"Dong Kyung"},{"family":"Rhee","given":"Poong-Lyul"},{"family":"Kim","given":"Jae Jun"},{"family":"Choi","given":"Sun Kyu"},{"family":"Jung","given":"Sin-Ho"},{"family":"Son","given":"Hee Jung"},{"family":"Kim","given":"Young-Ho"}],"issued":{"date-parts":[["2016",12,1]]}}},

{"id":86,"uris":["http://zotero.org/users/2724931/items/HH3ENCP2"],"uri":["http://zotero.org/users/2724931/items/HH3ENCP2"],"itemData":{"id":86,"type":"article-journal","title":"Is height a risk factor for colorectal adenoma?","container-title":"The Korean Journal of Internal Medicine","page":"653-659","volume":"31","issue":"4","archive":"PMC","archive_location":"PMC4939489","abstract":"BACKGROUND/AIMS:: Although it is generally known that the risk for all types of cancer increases with adult height, combined and for several common site-specific cancers (including colon and rectal), evidence is limited for adenomas, which are precursors to colorectal cancer. We evaluated the association between height and risk of colorectal adenoma at various stages of the adenoma-carcinoma pathway. METHODS:: We conducted a retrospective study using data from patients who had undergone a complete colonoscopy as part of a health examination at the Health Promotion Center of Samsung Medical Center between October 13, 2009 and December 31, 2011. A total of 1,347 male subjects were included in our study. Multivariate logistic regression analysis was used to evaluate the association between height and colorectal adenoma. RESULTS:: Each 5-cm increase in height was associated with 1.6% and 5.3% higher risks of advanced colorectal adenoma and high-risk colorectal adenoma, respectively, but associations were not significant after adjusting for age, body mass index, metabolic syndrome, alcohol intake, smoking, family history of colorectal cancer, and regular aspirin use (p = 0.840 and p = 0.472, respectively). CONCLUSIONS:: No clear association was found between colorectal adenoma risk and height. Unlike other site-specific tumors reported to have a consistent relationship with height, the association between colorectal tumor and height remains controversial.","DOI":"10.3904/kjim.2014.313","ISSN":"1226-3303","author":[{"family":"Pyo","given":"Jeung Hui"},{"family":"Hong","given":"Sung Noh"},{"family":"Min","given":"Byung-Hoon"},{"family":"Chang","given":"Dong Kyung"},{"family":"Son","given":"Hee Jung"},{"family":"Rhee","given":"Poong-Lyul"},{"family":"Kim","given":"Jae J"},{"family":"Kim","given":"Young-Ho"}],"issued":{"date-parts":[["2016",7]]}},{"id":13,"uris":["http://zotero.org/users/2724931/items/7IV5ACIY"],"uri":["http://zotero.org/users/2724931/items/7IV5ACIY"],"itemData":{"id":13,"type":"article-journal","title":"The Risk of Colorectal Neoplasia in Patients with Gallbladder Diseases","container-title":"Journal of Korean Medical Science","page":"1288-1294","volume":"30","issue":"9","archive":"PMC","archive_location":"PMC4553676","abstract":"Cholecystectomy is associated with an increased risk of colorectal cancer, but little is known about the relationship between gallbladder disease and colorectal adenoma. Gallbladder polyps and colorectal neoplasia (CRN) share several risk factors such as obesity, diabetes and metabolic syndrome, which might account for their association. In this study, we investigated whether asymptomatic patients with gallbladder disease are at increased risk of CRN and identified the factors to their association. The study population consisted of 4,626 consecutive, asymptomatic individuals drawn from a prospective health check-up cohort who underwent both ultrasonography and colonoscopy screening. The prevalence of CRNs in patients with gallbladder polyps or gallstones was significantly higher than that in the control group (32.1% vs. 26.8%; P = 0.032, 35.8% vs. 26.9%; P = 0.020). A multivariate regression analysis showed that gallbladder polyps were an independent risk factor for CRN [adjusted odds ratio (OR): 1.29; 95% confidence interval (CI); 1.03-1.62] whereas gallstones were not (adjusted OR: 1.14; 95% CI: 0.79-1.63). The adjusted OR for the risk of CRN was 1.12 for gallbladder polyps < 5 mm (95% CI, 0.85-1.46) and 1.79 for gallbladder polyps ≥ 5 mm (95% CI, 1.15-2.77). The prevalence of CRN increased with increasing polyp size (P trend = 0.022). Our results suggest that colorectal neoplasia is significantly related to gallbladder polyps, especially those ≥ 5 mm. GRAPHICAL ABSTRACT:","DOI":"10.3346/jkms.2015.30.9.1288","ISSN":"1011-8934","author":[{"family":"Hong","given":"Sung Noh"},{"family":"Lee","given":"Tae Yoon"},{"family":"Yun","given":"Sung-Cheol"}],"issued":{"date-parts":[["2015",9]]}}},{"id":85,"uris":["http://zotero.org/users/2724931/items/ENWMID8V"],"uri":["http://zotero.org/users/2724931/items/ENWMID8V"],"itemData":{"id":85,"type":"article-journal","title":"Interplay between 3′-UTR polymorphisms in the vascular endothelial growth factor (VEGF) gene and metabolic syndrome in determining the risk of colorectal cancer in Koreans","container-title":"BMC Cancer","page":"881","volume":"14","archive":"PMC","archive_location":"PMC4289193","abstract":"BACKGROUND: Polymorphisms in angiogenesis-related genes and metabolic syndrome (MetS) risk factors play important roles in cancer development. Moreover, recent studies have reported associations between a number of 3′-UTR polymorphisms and a variety of cancers. The aim of this study was to investigate the associations of three VEGF 3′-UTR polymorphisms (1451C

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T [rs3025040], 1612G

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A [rs10434], and 1725G

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A [rs3025053]) and MetS with colorectal cancer (CRC) susceptibility in Koreans. METHODS: A total of 850 participants (450 CRC patients and 400 controls) were enrolled in the study. The genotyping of VEGF polymorphisms was performed by TaqMan allelic discrimination assays. Cancer risks of genetic variations and gene-environment interactions were assessed by adjusted odds ratios (AORs) and 95% confidence intervals (CIs) of multivariate logistic regression analyses. RESULTS: VEGF 1451C

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T was significantly associated with rectal cancer risk (Dominant model; AOR =1.58; 95% CI = 1.09 - 2.28; p = 0.015) whereas VEGF 1725G

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A correlated with MetS risk (Dominant model; AOR =1.61; 95% CI =1.06 - 2.46; p = 0.026). Of the gene-environment combined effects, the interaction of VEGF 1451C

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T and MetS contributed to increased rectal cancer risk (AOR = 3.15; 95% CI = 1.74 - 5.70; p <

.001) whereas the combination of VEGF 1725G

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A and MetS was involved with elevated colon cancer risk (AOR = 2.68; 95% CI = 1.30 - 1.55; p =0.008). CONCLUSIONS: Our results implicate that VEGF 1451C

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T and 1725G

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A may predispose to CRC susceptibility and the genetic contributions may be varied with the presence of MetS. ELECTRONIC SUPPLEMENTARY MATERIAL: The online version of this article (doi:10.1186/1471-2407-14-881) contains supplementary material, which is available to authorized users.","DOI":"10.1186/1471-2407-14-881","ISSN":"1471-2407","author":[{"family":"Jeon","given":"Young Joo"},{"family":"Kim","given":"Jong Woo"},{"family":"Park","given":"Hye Mi"},{"family":"Jang","given":"Hyo Geun"},{"family":"Kim","given":"Jung O"},{"family":"Oh","given":"Jisu"},{"family":"Chong","given":"So Young"},{"family":"Kwon","given":"Sung Won"},{"family":"Kim","given":"Eo Jin"},{"family":"Oh","given":"Doyeun"},{"family":"Kim","given":"Nam Keun"}],"issued":{"date-parts":[["2014"]]}}},{"id":37,"uris":["http://zotero.org/users/2724931/items/B468CSCB"],"uri":["http://zotero.org/users/2724931/items/B468CSCB"],"itemData":{"id":37,"type":"article-journal","title":"Colorectal cancer and its association with the metabolic syndrome: a Malaysian multi-centric case-control study.","container-title":"Asian Pacific journal of cancer prevention : APJCP","page":"3873-3877","volume":"13","issue":"8","abstract":"OBJECTIVE: Colorectal cancer (CRC) and the metabolic syndrome (MetS) are both on the rise in Malaysia. A multi-centric case-control study was conducted from December 2009 to January 2011 to determine any relationship between the two. METHODS: Patients with confirmed CRC based on colonoscopy findings and cancer free controls from five local hospitals were assessed for MetS according to the International Diabetes Federation (IDF) definition. Each index case was matched for age, gender and ethnicity with two controls (140: 280). RESULTS: MetS among cases was highly prevalent (70.7%), especially among women (68.7%). MetS as an entity increased CRC risk by almost three fold independently (OR=2.61, 95%CI=1.53-4.47). In men MetS increased the risk of CRC by two fold (OR=2.01, 95%CI, 1.43-4.56), demonstrating an increasing trend in risk with the number of Mets components observed. CONCLUSION: This study provides evidence for a positive association between the metabolic syndrome and colorectal cancer. A prospective study on the Malaysian population is a high priority to confirm these findings.","ISSN":"2476-762X 1513-7368","note":"PMID: 23098486","journalAbbreviation":"Asian Pac J Cancer Prev","language":"eng","author":[{"family":"Ulaganathan","given":"V."},{"family":"Kandiah","given":"M."},{"family":"Zalilah","given":"M. S."},{"family":"Faizal","given":"J. A."},{"family":"Fijeraid","given":"H."},{"family":"Normayah","given":"K."},{"family":"Gooi","given":"B. H."},{"family":"Othman","given":"R."}],"issued":{"date-parts":[["2012"]]}}},{"id":162,"uris":["http://zotero.org/users/2724931/items/R3KQJIJK"],"uri":["http://zotero.org/users/2724931/items/R3KQJIJK"],"itemData":{"id":162,"type":"article-journal","title":"Clinical study on the correlation between metabolic syndrome and colorectal carcinoma","container-title":"ANZ Journal of Surgery","page":"331-336","volume":"80","issue":"5","abstract":"Background: Although metabolic syndrome (MS) has received a lot of attention in recent years, the correlation between MS and colorectal carcinoma is still not very clear. This study aims at exploring the relationship between MS and colorectal carcinoma. Methods: Data was collected from 507 cases of colorectal carcinoma and 507 cases of healthy patients between January 2002 and March 2007 to establish the database. The patients with colorectal cancer were divided into two groups based on the presence of MS. Multivariate analysis of these data for the overall survival and recurrence was performed with the Cox proportional hazard model. Variables examined by multivariate analysis were sex , age, location, histotype, differentiation, tumour, node, metastasis (TNM) stage, the number of lymph nodes detected, etc. Results: The existence of MS in the colorectal carcinoma group was clearly more than that in the control group. The existence of two to four types of abnormal metabolic diseases was significantly more in the colorectal cancer group than in the control group. MS is one of the important elements that can independently influence the survival (odds ratio (OR) = 1.501, 95% confidence interval (CI) = 1.057–2.131) and have the highest risk with worse survival compared with other parameters. Conclusion: There is a close relationship between MS and colorectal carcinoma, and MS is a significantly independent element that influences the survival of the colorectal carcinoma. Decreasing the incidence of MS maybe play a role in improving therapeutic efficacy and prognosis of the cancer.","DOI":"10.1111/j.1445-2197.2009.05084.x","ISSN":"1445-2197","author":[{"family":"Shen","given":"Zhanlong"},{"family":"Wang","given":"Shan"},{"family":"Ye","given":"Yingjiang"},{"family":"Yin","given":"Mujun"},{"family":"Yang","given":"Xiaodong"},{"family":"Jiang","given":"Kewei"},{"family":"Liu","given":"Yan"}],"issued":{"date-parts":[["2010",5,1]]}}},{"id":100,"uris":["http://zotero.org/users/2724931/items/XN37VDV8"],"uri":["http://zotero.org/users/2724931/items/XN37VDV8"],"itemData":{"id":100,"type":"article-journal","title":"Visceral Obesity and Insulin Resistance as Risk Factors for Colorectal Adenoma: A Cross-Sectional, Case–Control Study","container-title":"The American Journal of Gastroenterology","page":"178-187","volume":"105","issue":"1","source":"www.nature.com","abstract":"OBJECTIVES: Colorectal adenoma is known to be associated with obesity, but the association between colorectal adenoma and visceral adipose tissue (VAT) area measured by abdominal computed tomography (CT) has not been documented clearly. In addition, the relationship between insulin resistance and colorectal adenomas, which underlies the mechanism that links obesity and colorectal adenoma, has not been studied extensively. The aim of this study was to examine VAT area and insulin resistance as risk factors of colorectal adenoma.\nMETHODS: A cross-sectional, case–control study was conducted in Koreans that presented for health check-ups. Subjects underwent various laboratory tests, abdominal CT, and colonoscopy. VAT, subcutaneous adipose tissue (SAT), and homeostatic metabolic assessment (HOMA) index were evaluated as potential risk factors of colorectal adenoma in 2,244 age- and sex-matched subjects.\nRESULTS: According to univariate analysis, the prevalences of smoking, hypertension, metabolic syndrome, and family history of colorectal cancer were higher in the adenoma group than in the normal control group. In addition, body mass index, waist circumference, triglyceride, high-density lipoprotein cholesterol, and VAT and SAT areas were significantly different in the two groups. According to the multivariate analysis adjusted for multiple confounders, VAT area was independently associated with the risk of colorectal adenoma (odds ratio (OR)=3.09, 95% confidence interval (CI): 2.19–4.36, highest quintile vs. lowest quintile). Mean HOMA index was higher in the adenoma group than in the control group (OR=1.99, 95% CI: 1.35–2.92, highest vs. lowest quintile).\nCONCLUSIONS: Visceral obesity was found to be an independent risk factor of colorectal adenoma, and insulin resistance was associated with the presence of colorectal adenoma.","DOI":"10.1038/ajg.2009.541","ISSN":"0002-9270","shortTitle":"Visceral Obesity and Insulin Resistance as Risk Factors for Colorectal Adenoma","journalAbbreviation":"Am J Gastroenterol","language":"en","author":[{"family":"Kang","given":"Hyoun Woo"},{"family":"Kim","given":"Donghee"},{"family":"Kim","given":"Hwa Jung"},{"family":"Kim","given":"Chung Hyeon"},{"family":"Kim","given":"Young Sun"},{"family":"Park","given":"Min Jung"},{"family":"Kim","given":"Joo Sung"},{"family":"Cho","given":"Sang-Heon"},{"family":"Sung","given":"Myung-Whun"},{"family":"Jung","given":"Hyun Chae"},{"family":"Lee","given":"Hyo-Suk"},{"family":"Song","given":"In Sung"}],"issued":{"date-parts":[["2009",9,15]]}}},{"id":87,"uris":["http://zotero.org/users/2724931/items/VESC9IC5"],"uri":["http://zotero.org/users/2724931/items/VESC9IC5"],"itemData":{"id":87,"type":"article-journal","title":"The relationship of

nonalcoholic fatty liver disease and metabolic syndrome for colonoscopy colorectal neoplasm","container-title":"Medicine","page":"e5809","volume":"96","issue":"2","archive":"PMC","archive_location":"PMC5266168","abstract":"Col neoplasm is considered to have a strong association with nonalcoholic fatty liver disease (NAFLD) and metabolic syndrome (MetS), respectively. The relationship among NAFLD, MetS, and colorectal neoplasm was assessed in 1793 participants. Participants were divided into 4 groups based on the status of NAFLD and MetS. Relative excess risks of interaction (RERI), attributable proportion (AP), and synergy index (SI) were applied to evaluate the additive interaction. NAFLD and MetS were significantly correlated with colorectal neoplasm and colorectal cancer (CRC), respectively. The incidence of CRC in NAFLD (+) MetS (+) group was significantly higher than other 3 groups. The result of RERI, AP, and SI indicated the significant additive interaction of NAFLD and MetS on the development of CRC. NAFLD and MetS are risk factors for colorectal neoplasm and CRC, respectively. And NAFLD and MetS have an additive effect on the development of CRC.","DOI":"10.1097/MD.0000000000005809","ISSN":"0025-7974","author":[{"family":"Pan","given":"Shuang"},{"family":"Hong","given":"Wandong"},{"family":"Wu","given":"Wenzhi"},{"family":"Chen","given":"Qinfen"},{"family":"Zhao","given":"Qian"},{"family":"Wu","given":"Jiansheng"},{"family":"Jin","given":"Yin"}],"editor":[{"family":"Žarko.","given":"Babi
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"}],"issued":{"date-parts":[["2017",1]]}}},{"id":179,"uris":["http://zotero.org/users/2724931/items/G83HJCGN"],"uri":["http://zotero.org/users/2724931/items/G83HJCGN"],"itemData":{"id":179,"type":"article-journal","title":"Prevalence and risk factors of advanced colorectal neoplasms in asymptomatic Korean people between 40 and 49

years of age","container-title":"Journal of Gastroenterology and Hepatology","page":"98-105","volume":"32","issue":"1","source":"PubMed","abstract":"BACKGROUND AND AIM: Current guidelines recommend colon cancer screening for persons aged over 50

years. However, there are few data on colorectal cancer screening in 40- to 49-year-olds. This study assessed the prevalence and risk factors of colorectal neoplasms in 40- to 49-year-old Koreans.\nMETHODS: We analyzed the results of screening colonoscopies of 6680 persons 40-59

years of age (2206 aged 40-49 and 4474 aged 50-59

years).\nRESULTS: The prevalence of overall and advanced neoplasms in the 40- to 49-year age group was lower than in the 50- to 59-year age group (26.7% and 2.4% vs 37.8% and 3.5%, respectively). However, the prevalence of overall and advanced neoplasms increased to 39.1% and 5.4%, respectively, in 45- to 49-year-old individuals with metabolic syndrome. In the 40- to 49-year age group, age, current smoking, and metabolic syndrome were associated with an increased risk of advanced neoplasms (odds ratio [OR] 1.16, 95% confidence interval [CI] 1.04-1.30; OR 3.12, 95% CI 1.20-8.12; and OR 2.00, 95% CI 1.09-3.67, respectively).\nCONCLUSIONS: Individuals aged 40-49

years had a lower prevalence of colorectal neoplasms than those aged 50-59

years, but some 40- to 49-year-olds showed a similar prevalence to those aged 50-59

years. Age, current smoking habits, and metabolic syndrome are associated with an increased risk of advanced neoplasms in subjects aged 40-49

years. Further studies are needed to stratify the risks of colon cancer and guide targeted screening in persons younger than 50

years old.","DOI":"10.1111/jgh.13454","ISSN":"1440-1746","note":"PMID: 27197805","journalAbbreviation":"J. Gastroenterol. Hepatol.","language":"eng","author":[{"family":"Koo","given":"Ja Eun"},{"family":"Kim","given":"Kyung-Jo"},{"family":"Park","given":"Hye Won"},{"family":"Kim","given":"Hong-Kyu"},{"family":"Choe","given":"Jae Won"},{"family":"Chang","given":"Hye-Sook"},{"family":"Lee","given":"Ji Young"},{"family":"Myung","given":"Seung-Jae"},{"family":"Yang","given":"Suk-Kyun"},{"family":"Kim","given":"Jin-Ho"}],"issued":{"date-parts":[["2017",1]]}}},{"id":176,"uris":["http://zotero.org/users/2724931/items/G5JJS8K5"],"uri":["http://zotero.org/users/2724931/items/G5JJS8K5"],"itemData":{"id":176,"type":"article-journal","title":"Uric Acid Is a Risk Indicator for Metabolic Syndrome-related Colorectal Adenoma: Results in a Korean Population Receiving Screening Colonoscopy","container-title":"The Korean Journal of Gastroenterology = Taehan Sohwagi Hakhoe Chi","page":"202-208","volume":"66","issue":"4","source":"PubMed","abstract":"BACKGROUND/AIMS: An association between serum uric acid and cancer risk has been noted over the past few decades. There is ongoing debate about whether hyperuricemia represents an independent risk factor for colorectal neoplasm. We investigated the association between serum uric acid and prevalence of colorectal adenoma considering numerous confounding factors.\nMETHODS: A cross-sectional study was performed with individuals who underwent a routine health check-up examination, including a screening colonoscopy and blood chemistry. The association between serum uric acid and prevalence of colorectal adenoma was estimated from the results of a logistic regression analysis.\nRESULTS: Of the 1,066 participants, 402 had colorectal adenoma (37.7%). In univariate models, the prevalence of colorectal adenoma was higher in participants in the fourth quartile uric acid level, compared to those in the first quartile uric acid level (OR, 1.67; 95% CI, 1.17-2.42; p=0.004). However, no significant association was detected between serum uric acid and prevalence of colorectal adenoma in multiple logistic regression analysis. A number of metabolic syndrome components exhibited a strong association with the prevalence of colorectal adenoma in the multivariate model (OR, 3.46 for highest vs. lowest; 95% CI, 1.30-9.20; p=0.021). Moreover, serum uric acid was strongly associated with metabolic syndrome-associated variables, including waist circumference, fasting blood glucose, systolic blood pressure, diastolic blood pressure, triglyceride, and high-density lipoprotein.\nCONCLUSIONS: Uric acid is not an independent risk factor for colorectal adenoma but is a risk indicator for metabolic syndrome-related colorectal adenoma.","DOI":"10.4166/kjg.2015.66.4.202","ISSN":"2233-6869","note":"PMID: 26493505","shortTitle":"Uric Acid Is a Risk Indicator for Metabolic Syndrome-related Colorectal Adenoma","journalAbbreviation":"Korean J Gastroenterol","language":"eng","author":[{"family":"Kim","given":"Hyo Jin"},{"family":"Kim","given":"Jee Eun"},{"family":"Jung","given":"Ji Hye"},{"family":"Kim","given":"Eun Ran"},{"family":"Hong","given":"Sung Noh"},{"family":"Chang","given":"Dong Kyung"},{"family":"Son","given":"Hee Jung"},{"family":"Rhee","given":"Poong Lyul"},{"family":"Kim","given":"Jae J."},{"family":"Kim","given":"Young Ho"}],"issued":{"date-parts":[["2015",10]]}}},{"id":170,"uris":["http://zotero.org/users/2724931/items/2S89J5KW"],"uri":["http://zotero.org/users/2724931/items/2S89J5KW"],"itemData":{"id":170,"type":"article-journal","title":"Risk factors associated with rectal neuroendocrine tumors: a cross-sectional study.","container-title":"Cancer epidemiology, biomarkers & prevention : a publication of the American Association for Cancer Research, cosponsored by the American Society of Preventive Oncology","page":"1406-1413","volume":"23","issue":"7","abstract":"BACKGROUND: The incidence of rectal neuroendocrine tumors (NET) has been increasing since the implementation of the screening colonoscopy. However, very little is known about risk factors associated with rectal NETs. We examined the prevalence of and the risk factors for rectal NETs in a Korean population. METHODS: A cross-sectional study was performed on 62,171 Koreans who underwent screening colonoscopy. The

clinical characteristics and serum biochemical parameters of subjects with rectal NET were compared with those of subjects without rectal NET using multivariate logistic regression. RESULTS: Of a total of 57,819 participants, 101 [OR, 0.17%; 95% confidence interval (CI), 0.14-0.20] had a rectal NET. Young age (<50 years; OR, 2.09; 95% CI, 1.06-4.15), male gender (OR, 1.92; 95% CI, 1.15-3.20), alcohol drinking [adjusted OR (AOR), 1.56; 95% CI, 1.01-2.42], and a low high-density lipoprotein-cholesterol (HDL-C) level (AOR, 1.85; 95% CI, 1.10-3.11) were independent risk factors for rectal NETs. Cigarette smoking, fatty liver, metabolic syndrome, higher triglyceride level (>/=150 mg/dL), and higher homeostasis model assessment of insulin resistance (>/=2.5) were not independently associated with rectal NETs, although these factors were more common in individuals with rectal NETs in the univariate analysis. CONCLUSIONS: Young age (<50 years), male gender, alcohol drinking, and a low","DOI":"10.1158/1055-9965.EPI-14-0132","ISSN":"1538-7755 1055-9965","note":"PMID: 24813818","journalAbbreviation":"Cancer Epidemiol Biomarkers Prev","language":"eng","author":[{"family":"Jung","given":"Yoon Suk"},{"family":"Yun","given":"Kyung Eun"},{"family":"Chang","given":"Yoosoo"},{"family":"Ryu","given":"Seungho"},{"family":"Park","given":"Jung Ho"},{"family":"Kim","given":"Hong Joo"},{"family":"Cho","given":"Yong Kyun"},{"family":"Sohn","given":"Chong Il"},{"family":"Jeon","given":"Woo Kyu"},{"family":"Kim","given":"Byung Ik"},{"family":"Park","given":"Dong Il"}],"issued":{"date-parts":[["2014",7]]}}},{"id":169,"uris":["http://zotero.org/users/2724931/items/M9QUET6C"],"uri":["http://zotero.org/users/2724931/items/M9QUET6C"],"itemData":{"id":169,"type":"article-journal","title":"Metabolic syndrome and smoking may justify earlier colorectal cancer screening in men","container-title":"Gastrointestinal Endoscopy","page":"961-969","volume":"79","issue":"6","abstract":"Background\nGender, smoking, and metabolic syndrome (MetS) are important risk factors of colorectal neoplasm. Whether presence of these factors may warrant earlier screening remains unclear.\nObjective\nTo compare age- and gender-specific risk of colorectal neoplasms in association with smoking and MetS under endoscopic or stool-based screening.\nDesign\nCross-sectional observational study.\nSetting\nScreening center in a university hospital in Taiwan.\nPatients\nA cohort of 10,884 average-risk individuals who received concurrent screening colonoscopy and fecal immunochemical testing (FIT).\nMain Outcome Measurements\nFirst, the prevalence of colorectal neoplasms and positive predictive value of FIT relative to age, gender, smoking, and MetS. Second, the number of colonoscopies needed to detect 1 advanced neoplasm with different strategies.\nResults\nMale smokers aged 40 to 49 years had a significantly higher prevalence of advanced neoplasms and positive predictive value of stool tests than nonsmoking counterparts. The prevalence of advanced neoplasms in concurrent MetS and smoking (6.2%) or smoking alone (3.8%) men aged 40 to 49 years was higher than that of average-risk women aged 50 to 59 years (2.1%) (P = .03 and .04, respectively). The number of colonoscopies needed to detect 1 advanced neoplasm in men aged 40 to 49 years with concurrent MetS and smoking, smoking, MetS, and women aged 50 to 59 years was, respectively, 14.6, 24.8, 39.8, and 47.4 in the colonoscopy scenario and 1.7, 4.6, 5.7, and 8.3 in the FIT scenario.\nLimitation\nSelf-selective bias may exist for subjects voluntarily submitted to health check-ups.\nConclusions\nMetS and smoking significantly impact both the prevalence of colorectal neoplasms and the diagnostic yields of screening tests in men aged 40 to 49 years. Whether our findings justify earlier screening in this subgroup requires further study.","DOI":"10.1016/j.gie.2013.11.035","ISSN":"0016-5107","journalAbbreviation":"Gastrointestinal Endoscopy","author":[{"family":"Chang","given":"Li-Chun"},{"family":"Wu","given":"Ming-Shiang"},{"family":"Tu","given":"Chia-Hung"},{"family":"Lee","given":"Yi-Chia"},{"family":"Shun","given":"Chia-Tung"},{"family":"Chiu","given":"Han-Mo"}],"issued":{"date-parts":[["2014",6]]}}},{"id":168,"uris":["http://zotero.org/users/2724931/items/HXJHWUI6"],"uri":["http://zotero.org/users/2724931/items/HXJHWUI6"],"itemData":{"id":168,"type":"article-journal","title":"Vegetarianism as a Protective Factor for Colorectal Adenoma and Advanced Adenoma in Asians","container-title":"Digestive Diseases and Sciences","page":"1025-1035","volume":"59","issue":"5","abstract":"Although epidemiologic and animal studies suggest a vegetarian diet protects against the development of colorectal cancer, the relationship between vegetarian diet and incidence of colorectal adenoma is not yet conclusive, especially for Asians.","DOI":"10.1007/s10620-013-2974-5","ISSN":"1573-2568","journalAbbreviation":"Digestive Diseases and Sciences","author":[{"family":"Lee","given":"Chang Geun"},{"family":"Hahn","given":"Suk Jae"},{"family":"Song","given":"Min Keun"},{"family":"Lee","given":"Jun Kyu"},{"family":"Kim","given":"Jae Hak"},{"family":"Lim","given":"Yun Jeong"},{"family":"Koh","given":"Moon-Soo"},{"family":"Lee","given":"Jin Ho"},{"family":"Kang","given":"Hyoun Woo"}],"issued":{"date-parts":[["2014"]]}}},{"id":78,"uris":["http://zotero.org/users/2724931/items/TSAINUMV"],"uri":["http://zotero.org/users/2724931/items/TSAINUMV"],"itemData":{"id":78,"type":"article-journal","title":"Increased homeostasis model assessment-insulin resistance is a risk factor for colorectal adenoma in Japanese males.","container-title":"The Tohoku journal of experimental medicine","page":"297-303","volume":"223","issue":"4","abstract":"Many previous reports have documented a relationship between metabolic syndrome, in terms of insulin resistance, and colorectal cancer. However, the association of insulin resistance with colorectal adenoma has not been investigated in detail. To elucidate the association of metabolic syndrome components and insulin resistance with adenoma, we investigated homeostasis model assessment insulin resistance (HOMA-IR) in individuals with adenoma. A cross-sectional study was conducted involving individuals who underwent scheduled health examinations using total colonoscopy. Restricting the subjects to males, 261 with adenoma and 702 without adenoma were investigated. HOMA-IR was categorized into three groups: normal (< 1.6), intermediate (>/= 1.6 - < 2.5), and insulin resistance (2.5 </=). Metabolic syndrome was defined by a combination of any three of the following components: central obesity (waist circumference >/= 90 cm); elevated blood pressure (systolic blood pressure >/= 130 mmHg and/or diastolic blood pressure 85 mmHg); elevated fasting plasma glucose (>/= 100 mg/dL); reduced high-density lipoprotein-cholesterol (< 40 mg/dL); and elevated triglyceride (>/= 150 mg/dL). Multivariate analysis of HOMA-IR showed that the intermediate and insulin resistance groups had a significantly increased risk for colorectal adenoma, even after adjustment for waist circumference (odds ratio, 1.62 and 2.23; 95% confidence interval, 1.07-2.45 and 1.31-3.79, respectively). Accumulation of any metabolic syndrome components increased the risk of colorectal adenoma (P trend = 0.001). However, none of the components alone demonstrated a significant risk for colorectal adenoma. Our data indicate that an increased level of HOMA-IR is a risk factor for colorectal adenoma in Japanese males.","ISSN":"1349-3329 0040-8727","note":"PMID: 21478654","journalAbbreviation":"Tohoku J Exp Med","language":"eng","author":[{"family":"Sato","given":"Takeshi"},{"family":"Takeda","given":"Hiroaki"},{"family":"Sasaki","given":"Yu"},{"family":"Kawata","given":"Sumio"}],"issued":{"date-parts":[["2011",4]]}}},{"id":310,"uris":["http://zotero.org/users/2724931/items/9BZ8ICKP"],"uri":["http://zotero.org/users/2724931/items/9BZ8ICKP"],"itemData":{"id":310,"type":"article-journal","title":"Stepwise Relationship Between Components of Metabolic Syndrome and Risk of Colorectal Adenoma in a Taiwanese Population Receiving Screening Colonoscopy","container-title":"Journal of the Formosan Medical Association","page":"100-108","volume":"110","issue":"2","source":"CrossRef","DOI":"10.1016/S0929-6646(11)60016-8","ISSN":"09296646","language":"en","author":[{"family":"Hu","given":"Nien-Chih"},{"family":"Chen","given":"Jong-Dar"},{"family":"Lin","given":"Yu-Min"},{"family":"Chang","given":"Jun-Yih"},{"family":"Chen","given":"Yu-Hung"}],"issued":{"date-parts":[["2011",2]]}}},{"id":77,"uris":["http://zotero.org/users/2724931/items/QQRBWQMX"],"uri":["http://zotero.org/users/2724931/items/QQRBWQMX"],"itemData":{"id":77,"type":"article-journal","title":"Association between colorectal adenoma and coronary atherosclerosis detected by CT coronary angiography in Korean men; a cross-sectional study.","container-title":"Journal of gastroenterology and hepatology","page":"1795-1799","volume":"25","issue":"11","abstract":"BACKGROUND: Colorectal adenoma and coronary artery disease (CAD) appear to share common risk factors, such as male gender, diabetes mellitus, smoking, and obesity. We investigated the relationship between colorectal adenoma and coronary atherosclerosis, as a risk factor for colorectal adenoma. METHODS: A cross-sectional study was conducted on Korean men who presented for a health check-up. The subjects were 488 men (217 colorectal adenoma

and 271 normal colonoscopic findings) who underwent colonoscopy and coronary computed tomography angiography (CTA) on the same day as a screening examination. Advanced colonic lesion was defined as a presence of adenoma with villous component, high-grade dysplasia, and/or with size of >/=1 cm. CTA findings were classified as normal, mild (low-grade atherosclerosis or <50% stenosis), and significant CAD (>/=50% stenosis). Abnormal CTA findings included mild and significant CAD. RESULTS: Patients with abnormal CTA findings were more likely to have colorectal adenoma compared with those with normal CTA findings (P < 0.005). Furthermore, presence of advanced adenoma was significantly associated with significant CAD (P < 0.01). On multivariate analyses, abnormal CTA findings (OR = 1.66, 95% CI: 1.14-2.41, P < 0.01) and significant CAD (OR = 1.96, 95% CI: 1.15-3.35, P < 0.05) were found to be independent risk factors for colorectal adenoma after adjusting for age, current smoking, and metabolic syndrome. CONCLUSIONS: In this study, in the population who underwent CTA and colonoscopy for health check-up, prevalence of colorectal adenoma was greater in subjects with low-grade coronary atherosclerosis or significant CAD. The presence of advanced adenoma was significantly associated with significant CAD.","DOI":"10.1111/j.1440-1746.2010.06330.x","ISSN":"1440-1746 0815-9319","note":"PMID: 21039843","journalAbbreviation":"J Gastroenterol Hepatol","language":"eng","author":[{"family":"Yang","given":"Sun Young"},{"family":"Kim","given":"Young Sun"},{"family":"Chung","given":"Su Jin"},{"family":"Song","given":"Ji Hyun"},{"family":"Choi","given":"Su Yeon"},{"family":"Park","given":"Min Jung"},{"family":"Yim","given":"Jeong Yoon"},{"family":"Lim","given":"Seon Hee"},{"family":"Kim","given":"Donghee"},{"family":"Kim","given":"Chung Hyun"},{"family":"Kim","given":"Ju Sung"},{"family":"Song","given":"In Sung"}],"issued":{"date-parts":[["2010",11]]}}},{"id":163,"uris":["http://zotero.org/users/2724931/items/FX77VBWZ"],"uri":["http://zotero.org/users/2724931/items/FX77VBWZ"],"itemData":{"id":163,"type":"article-journal","title":"Prevalence and risk of colorectal neoplasms in asymptomatic, average-risk screenees 40 to 49 years of age","container-title":"Gastrointestinal Endoscopy","page":"480-489","volume":"72","issue":"3","abstract":"Background\nA paucity of information exists regarding colorectal neoplasm in asymptomatic, average-risk individuals 40 to 49 years of age.\nObjective\nTo evaluate the prevalence and risk factors of colorectal neoplasms in those in their 40s.\nDesign\nCross-sectional study.\nSetting\nResults offered to subjects of a health care provider that offers screening services as part of an employer-provided wellness program.\nPatients\nA consecutive series of 1761 asymptomatic, average-risk screenees 40 to 59 years of age.\nIntervention\nFirst screening colonoscopy.\nResults\nThe prevalence of overall colorectal neoplasm in subjects of ages 40 to 44 years, 45 to 49 years, 50 to 54 years, and 55 to 59 years increased significantly with increasing age (13.7%, 20.2%, 21.0%, and 23.8%, respectively; P < .001). The prevalence of advanced adenomas in subjects of ages 40 to 44 years, 45 to 49 years, 50 to 54 years, and 55 to 59 years increased significantly with age (1.9%, 3.0%, 3.2%, and 5.9%, respectively; P = .004). Multivariate analysis of data from the 40- to 49-year age group identified an increased risk of colorectal neoplasm associated with ages 45 years and older (odds ratio [OR], 1.68; 95% CI, 1.20-2.35), male sex (OR, 1.76; 95% CI, 1.15-2.69), presence of abdominal obesity (OR, 1.57; 95% CI, 1.12-2.21), and metabolic syndrome (OR, 1.56; 95% CI, 1.03-2.35), whereas for advanced adenomas, abdominal obesity (OR, 2.37; 95% CI, 1.06-5.27) and metabolic syndrome (OR, 2.83; 95% CI, 1.23-6.53) were the independent risk factors.\nLimitations\nSingle-center study and the cohort composed of ethnic Korean subjects who lived in the same geographic region.\nConclusion\nIn average-risk individuals 40 to 49 years of age, men with abdominal obesity or metabolic syndrome might benefit from screening colonoscopy starting at 45 years of age to detect colorectal neoplasm.","DOI":"10.1016/j.gie.2010.06.022","ISSN":"0016-5107","journalAbbreviation":"Gastrointestinal Endoscopy","author":[{"family":"Hong","given":"Sung Noh"},{"family":"Kim","given":"Jeong Hwan"},{"family":"Choe","given":"Won Hyeok"},{"family":"Han","given":"Hye Seung"},{"family":"Sung","given":"In Kyung"},{"family":"Park","given":"Hyung Seok"},{"family":"Shim","given":"Chan Sup"}],"issued":{"date-parts":[["2010",9]]}}},{"id":76,"uris":["http://zotero.org/users/2724931/items/3DEUV37V"],"uri":["http://zotero.org/users/2724931/items/3DEUV37V"],"itemData":{"id":76,"type":"article-journal","title":"Relationship of non-alcoholic fatty liver disease to colorectal adenomatous polyps.","container-title":"Journal of gastroenterology and hepatology","page":"562-567","volume":"25","issue":"3","abstract":"BACKGROUND AND AIMS: Metabolic syndrome and insulin resistance are associated with a higher risk of colon cancer. Non-alcoholic fatty liver disease (NAFLD) is regarded as a manifestation of metabolic syndrome in the liver. This investigation was initiated to determine whether NAFLD has a relationship to colorectal adenomatous polyps. METHODS: We examined the 2917 participants who underwent a routine colonoscopy at Kangbuk Samsung Hospital in 2007. We divided the 2917 subjects into the adenomatous polyp group (n = 556) and the normal group (n = 2361). Anthropometric measurements, biochemical tests for liver and metabolic function, and abdominal ultrasonographs were assessed. RESULTS: The prevalence of NAFLD was 41.5% in the adenomatous polyp group and 30.2% in the control group. By multiple logistic regression analysis, NAFLD was found to be associated with an increased risk of colorectal adenomatous polyps (odds ratio, 1.28; 95% confidence interval, 1.03-1.60). An increased risk for NAFLD was more evident in patients with a greater number of adenomatous polyps. CONCLUSION: NAFLD was associated with colorectal adenomatous polyps. Further studies are needed to confirm whether NAFLD is a predictor for the development of colorectal adenomatous polyps and cancer.","DOI":"10.1111/j.1440-1746.2009.06117.x","ISSN":"1440-1746 0815-9319","note":"PMID: 20074156","journalAbbreviation":"J Gastroenterol Hepatol","language":"eng","author":[{"family":"Hwang","given":"Sang Tae"},{"family":"Cho","given":"Yong Kyun"},{"family":"Park","given":"Jung Ho"},{"family":"Kim","given":"Hong Joo"},{"family":"Park","given":"Dong Il"},{"family":"Sohn","given":"Chong Il"},{"family":"Jeon","given":"Woo Kyu"},{"family":"Kim","given":"Byung Ik"},{"family":"Won","given":"Kyoung Hee"},{"family":"Jin","given":"Wook"}],"issued":{"date-parts":[["2010",3]]}}},{"id":97,"uris":["http://zotero.org/users/2724931/items/566MKVT3"],"uri":["http://zotero.org/users/2724931/items/566MKVT3"],"itemData":{"id":97,"type":"article-journal","title":"Visceral obesity as a risk factor for colorectal neoplasm","container-title":"Journal of Gastroenterology and Hepatology","page":"411-417","volume":"23","issue":"3","abstract":"Background and Aim: Obesity as a risk factor for colorectal neoplasm (CRN) is controversial. In the present study, we evaluated visceral obesity as a risk factor for CRN. Methods: We prospectively enrolled 200 consecutive, asymptomatic adults (male : female = 133:67, mean age, 50.9 ± 8.5 years) undergoing both colonoscopy and abdominopelvic computed tomography (CT) scan for routine health evaluations. The presence or absence and the characteristics of CRN were determined during colonoscopy. The amount of visceral adipose tissue (VAT) and subcutaneous adipose tissue was measured by an abdominopelvic CT scan. Body mass index, waist circumference, and percentage of body fat were measured. Blood pressure and other blood markers for assessing the metabolic syndrome were also investigated. Results: Of the 200 patients, 53 (26.5%) had CRN. Old age, smoking, metabolic syndrome, and a high fasting plasma glucose level were associated with an increased risk of CRN. VAT (P < 0.01) and waist circumference (P = 0.01) were significantly higher in those with CRN. A multivariate analysis of the risks of CRN showed an odds ratio of 4.07 (95% confidence interval: 1.01–16.43, P = 0.03) for those with VAT over 136.61 cm2 relative to those with VAT under 67.23 cm2. Waist circumference, metabolic syndrome, and fasting plasma glucose levels were not independent risk factors for CRN in the multivariate analysis. Conclusion: Increased VAT is an independent risk factor for CRN. Further large scale studies are needed to clarify the causal relationship between VAT and CRN.","DOI":"10.1111/j.1440-1746.2007.05125.x","ISSN":"1440-1746","author":[{"family":"Oh","given":"Tae-Hoon"},{"family":"Byeon","given":"Jeong-Sik"},{"family":"Myung","given":"Seung-Jae"},{"family":"Yang","given":"Suk-Kyun"},{"family":"Choi","given":"Kwi-Sook"},{"family":"Chung","given":"Jun-Won"},{"family":"Kim","given":"Benjamin"},{"family":"Lee","given":"Don"},{"family":"Byun","given":"Jae Ho"},{"family":"Jang","given":"Se Jin"},{"family":"Kim","given":"Jin-Ho"}],"issued":{"date-parts":[["2008",3,1]]}}},{"id":306,"uris":["http://zotero.org/users/2724931/items/FP3DWZMH"],"uri":["http://zotero.org/users/2724931/items/FP3DWZMH"],"itemData":{"id":306,"type":"article-journal","title":"Is Metabolic Syndrome A Risk Factor for Colorectal Adenoma?","container-title":"Cancer Epidemiology and Prevention

Biomarkers","page":"1543-1546","volume":"16","issue":"8","journalAbbreviation":"Cancer Epidemiol Biomarkers Prev","author":[{"family":"Kim","given":"Jeong Hwan"},{"family":"Lim","given":"Yun Jeong"},{"family":"Kim","given":"Young-Ho"},{"family":"Sung","given":"In-Kyung"},{"family":"Shim","given":"Sang Goon"},{"family":"Oh","given":"Sung-Ook"},{"family":"Park","given":"Sin-Sil"},{"family":"Yang","given":"Sun"},{"family":"Son","given":"Hee Jung"},{"family":"Rhee","given":"Poong-Lyul"},{"family":"Kim","given":"Jae J."},{"family":"Rhee","given":"Jong Chul"},{"family":"Choi","given":"Yoon-Ho"}],"issued":{"date-parts":[["2007",8,7]]}}},"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
25, 26, 28–31, 33–35, 37, 38, 42, 44–57
] while eight were carried out in European countries [
ADDIN ZOTERO_ITEM CSL_CITATION {"citationID":"aivgjj51tl","properties":{"formattedCitation":"{\\rtf \\super 20,27,32,36,39\\uc0\\u8211{}41,43\\nosupersub{}}","plainCitation":"20,27,32,36,39–41,43"},"citationItems":[{"id":177,"uris":["http://zotero.org/users/2724931/items/E2HN5VWH"],"uri":["http://zotero.org/users/2724931/items/E2HN5VWH"],"itemData":{"id":177,"type":"article-journal","title":"Metabolic Predispositions and Increased Risk of Colorectal Adenocarcinoma by Anatomical Location: A Large Population-Based Cohort Study in Norway","container-title":"American Journal of Epidemiology","page":"883-893","volume":"182","issue":"10","abstract":"Whether different definitions of metabolic syndrome (MetS) are differently associated with colorectal adenocarcinoma (CA) by anatomical location is unclear. A population-based cohort study, the Cohort of Norway (CONOR) Study, was conducted in Norway from 1995 to 2010. Anthropometric measurements, blood samples, and lifestyle data were collected at recruitment. CAs were identified through linkage to the Norwegian Cancer Register. A composite index of MetS as defined by the International Diabetes Federation (IDF) or/and the National Cholesterol Education Program's Adult Treatment Panel III (ATP III) and single components of MetS, including anthropometric factors, blood pressure, lipids, triglycerides, and glucose, were analyzed. Cox proportional hazards regression was performed to estimate hazard ratios and 95% confidence intervals. Significant associations between single MetS components and CA, except for reduced high-density lipoprotein cholesterol and nonfasting glucose levels, were observed. MetS defined by 2 criteria separately showed a similar association with CA in general, and MetS defined by both the IDF and ATP III showed consistent results. Stronger associations were observed in the proximal colon among men (IDF: hazard ratio (HR) = 1.51, 95% confidence interval (CI): 1.24, 1.84; ATP III: HR = 1.40, 95% CI: 1.15, 1.70) and in the rectum among women (IDF: HR = 1.42, 95% CI: 1.07, 1.89; ATP III: HR = 1.43, 95% CI: 1.08, 1.90).","DOI":"10.1093/aje/kwv141","ISSN":"0002-9262","journalAbbreviation":"American Journal of Epidemiology","author":[{"family":"Lu","given":"Yunxia"},{"family":"Ness-Jensen","given":"Eivind"},{"family":"Hveem","given":"Kristian"},{"family":"Martling","given":"Anna"}],"issued":{"date-parts":[["2015",11,15]]}}},{"id":4,"uris":["http://zotero.org/users/2724931/items/C7S4WQSB"],"uri":["http://zotero.org/users/2724931/items/C7S4WQSB"],"itemData":{"id":4,"type":"article-journal","title":"Cancer Risk in Patients with Manifest Vascular Disease: Effects of Smoking, Obesity, and Metabolic Syndrome","container-title":"Cancer Epidemiology and Prevention Biomarkers","page":"1267-1277","volume":"22","issue":"7","source":"cebp.aacrjournals.org","abstract":"Background: Patients with vascular disease may be at increased risk of cancer because of shared risk factors and common pathogenesis.\nMethods: Patients with vascular disease (n = 6,172) were prospectively followed for cancer incidence. Standardized incidence ratios (SIRs) were calculated to compare the cancer incidence of the study population with that of the general population. Multivariable-adjusted hazard ratio's (HRs) of cancer were estimated for smoking status, pack-years, body mass index, waist circumference and visceral adipose tissue (VAT), and metabolic syndrome (MetS).\nResults: During a median follow-up of 5.5 years, 563 patients were diagnosed with cancer. Patients with vascular disease were at increased risk of cancer [SIR = 1.19; 95% confidence interval (CI), 1.10–1.29]. Specifically, risk of lung cancer (SIR = 1.56; 95% CI, 1.31–1.83), as well as bladder cancer (SIR = 1.60; 95% CI, 1.11–2.24) and cancer of the lip, oral cavity, or pharynx in men (SIR = 1.51; 95% CI, 0.89–2.39), and colorectal (SIR = 1.71; 95% CI, 1.11–2.53) and kidney cancer (SIR = 2.92; 95% CI, 1.05–6.38) in women was increased. A relation between smoking and cancer risk was observed (HR for current smokers = 1.37; 95% CI, 1.05–1.73), whereas an increase in VAT was associated with higher breast cancer risk in women (HR = 1.42; 95% CI, 1.03–1.96). No relation between MetS and cancer risk was found.\nConclusions: Patients with vascular disease have a 19% higher cancer risk compared to the general population. Smoking increased cancer risk and abdominal obesity is a risk factor for breast cancer in female patients with vascular disease.\nImpact: These results call for awareness of the increased cancer risk in patients with vascular disease among physicians and underline the necessity of lifestyle improvement not only for reducing cardiovascular risk. Cancer Epidemiol Biomarkers Prev; 22(7); 1267–77. ©2013 AACR.","DOI":"10.1158/1055-9965.EPI-13-0090","ISSN":"1055-9965, 1538-7755","note":"PMID: 23677576","shortTitle":"Cancer Risk in Patients with Manifest Vascular Disease","journalAbbreviation":"Cancer Epidemiol Biomarkers Prev","language":"en","author":[{"family":"Kruijsdijk","given":"Rob C. M.","dropping-particle":"van"},{"family":"Graaf","given":"Yolanda","dropping-particle":"van der"},{"family":"Peeters","given":"Petra H. M."},{"family":"Visseren","given":"Frank L. J."},{"family":"Group","given":"on behalf of the Second Manifestations of ARTerial disease (SMART)","dropping-particle":"study"}],"issued":{"date-parts":[["2013",7,1]]}}},{"id":49,"uris":["http://zotero.org/users/2724931/items/JZMISB9P"],"uri":["http://zotero.org/users/2724931/items/JZMISB9P"],"itemData":{"id":49,"type":"article-journal","title":"The Metabolic Syndrome, Inflammation, and Colorectal Cancer Risk: An Evaluation of Large Panels of Plasma Protein Markers Using Repeated, Prediagnostic Samples","container-title":"Mediators of Inflammation","page":"4803156","volume":"2017","archive":"PMC","archive_location":"PMC5381203","abstract":"Metabolic syndrome (MetS), a set of metabolic risk factors including obesity, dysglycemia, and dyslipidemia, is associated with increased colorectal cancer (CRC) risk. A putative biological mechanism is chronic, low-grade inflammation, both a feature of MetS and a CRC risk factor. However, excess body fat also induces a proinflammatory state and increases CRC risk. In order to explore the relationship between MetS, body size, inflammation, and CRC, we studied large panels of inflammatory and cancer biomarkers. We included 138 participants from the Västerbotten Intervention Programme with repeated sampling occasions, 10 years apart. Plasma samples were analyzed for 178 protein markers by proximity extension assay. To identify associations between plasma protein levels and MetS components, linear mixed models were fitted for each protein. Twelve proteins were associated with at least one MetS component, six of which were associated with MetS score. MetS alone was not related to any protein. Instead, BMI displayed by far the strongest associations with the biomarkers. One of the 12 MetS score-related proteins (FGF-21), also associated with BMI, was associated with an increased CRC risk (OR 1.71, 95% CI 1.19–2.47). We conclude that overweight and obesity, acting through both inflammation and other mechanisms, likely explain the MetS-CRC connection.","DOI":"10.1155/2017/4803156","ISSN":"0962-9351","author":[{"family":"Harlid","given":"Sophia"},{"family":"Myte","given":"Robin"},{"family":"Van Guelpen","given":"Bethany"}],"issued":{"date-parts":[["2017"]]}}},{"id":175,"uris":["http://zotero.org/users/2724931/items/SMIADFP7"],"uri":["http://zotero.org/users/2724931/items/SMIADFP7"],"itemData":{"id":175,"type":"article-journal","title":"Metabolic syndrome and colorectal neoplasms: An ominous association","container-title":"World Journal of Gastroenterology","page":"5320","volume":"21","issue":"17","source":"CrossRef","DOI":"10.3748/wjg.v21.i17.5320","ISSN":"19327","shortTitle":"Metabolic syndrome and colorectal neoplasms","language":"en","author":[{"family":"Trabulo","given":"Daniel"}],"issued":{"date-parts":[["2015"]]}}},{"id":80,"uris":["http://zotero.org/users/2724931/items/UJ5VD5FU"],"uri":["http://zotero.org/users/2724931/items/UJ5VD5FU"],"itemData":{"id":80,"type":"article-journal","title":"The role of resistin in colorectal cancer.","container-title":"Clinica chimica acta; international journal of clinical chemistry","page":"760-764","volume":"413","issue":"7-8","abstract":"BACKGROUND: To date the role of resistin in colorectal cancer (CRC) is far from being elucidated. The aim of this study was to investigate the

association between serum resistin levels and CRC in relation to known risk/protective factors including anthropometric, metabolic, inflammatory parameters as well as lifestyle individual characteristics. METHODS: 40 CRC patients and 40 controls were enrolled. Body weight, height, waist circumference and blood pressure were recorded. Fasting plasma glucose, lipids, C-reactive protein (CRP) and resistin levels were measured. Metabolic Syndrome (MS) was defined according to the harmonized definition. RESULTS: Resistin levels were significantly higher in CRC patients than in controls (p=0.028) and gradually increased with tumor stage progression (p=0.042). A high resistin level was statistically significant determinant of CRC after adjusting for age, sex, body mass index and lifestyle parameters (p=0.029). Resistin showed a strong association with CRP levels (p </= 0.0001). In stepwise regression analysis CRP remained the only independent predictor of both resistin levels (p=0.001) and CRC risk (p=0.021). CONCLUSIONS: These results clarify the nature of the association between resistin and CRC risk suggesting that the proinflammatory state of cancer, rather than the clinical diagnosis of CRC itself or its link with obesity and MS, may govern this association.","DOI":"10.1016/j.cca.2012.01.019","ISSN":"1873-3492 0009-8981","note":"PMID: 22296675","journalAbbreviation":"Clin Chim Acta","language":"eng","author":[{"family":"Danese","given":"Elisa"},{"family":"Montagnana","given":"Martina"},{"family":"Minicozzi","given":"Anna Maria"},{"family":"Bonafini","given":"Sara"},{"family":"Ruzzenente","given":"Orazio"},{"family":"Gelati","given":"Matteo"},{"family":"De Manzoni","given":"Giovanni"},{"family":"Lippi","given":"Giuseppe"},{"family":"Guidi","given":"Gian Cesare"}],"issued":{"date-parts":[["2012",4,11]]}}},{"id":79,"uris":["http://zotero.org/users/2724931/items/S9F263MP"],"uri":["http://zotero.org/users/2724931/items/S9F263MP"],"itemData":{"id":79,"type":"article-journal","title":"Metabolic syndrome and colorectal cancer: the protective role of Mediterranean diet--a case-control study.","container-title":"Angiology","page":"390-396","volume":"63","issue":"5","abstract":"The effect of Mediterranean diet on colorectal cancer, in the presence of the metabolic syndrome, was evaluated in 250 patients with first developed cancer (63 +/- 12 years, 59% males) and 250 age-gender-matched controls. Adherence to the Mediterranean diet was evaluated with the modified-MedDietScore (theoretical range 0-75), while assessment of the metabolic syndrome (MetS) was based on the third Adult Treatment Panel ([ATP III] National Cholesterol Education Program) criteria. Presence of MetS (1.66, 95% confidence interval [CI] 1.02, 2.69), age (4.25, 95% CI 2.33, 7.77), smoking (1.85, 95% CI 1.27, 2.70), and family history of colorectal cancer (3.37, 95% CI 1.69, 6.75) had a detrimental effect, whereas adherence to the Mediterranean diet (0.88, 95% CI 0.84, 0.92) and body mass index (0.93, 95%CI 0.89, 0.98) had a protective role regarding colorectal cancer. Mediterranean diet had the same effect in relation to colorectal cancer, in both participants with (0.84, 95% CI 0.76, 0.93) and without MetS (0.89, 95% CI 0.85, 0.94).","DOI":"10.1177/0003319711421164","ISSN":"1940-1574 0003-3197","note":"PMID: 22267847","journalAbbreviation":"Angiology","language":"eng","author":[{"family":"Kontou","given":"Niki"},{"family":"Psaltopoulou","given":"Theodora"},{"family":"Soupos","given":"Nick"},{"family":"Polychronopoulos","given":"Evangelos"},{"family":"Xinopoulos","given":"Dimitrios"},{"family":"Linos","given":"Athena"},{"family":"Panagiotakos","given":"Demosthenes B."}],"issued":{"date-parts":[["2012",7]]}}},{"id":164,"uris":["http://zotero.org/users/2724931/items/9WXARXXK"],"uri":["http://zotero.org/users/2724931/items/9WXARXXK"],"itemData":{"id":164,"type":"article-journal","title":"Metabolic Syndrome and Risks of Colon and Rectal Cancer: The European Prospective Investigation into Cancer and Nutrition Study","container-title":"Cancer Prevention Research","page":"1873","volume":"4","issue":"11","abstract":"Metabolic syndrome (MetS) is purportedly related to risk of developing colorectal cancer; however, the association of MetS, as defined according to recent international criteria, and colorectal cancer has not been yet evaluated. In particular, it remains unclear to what extent the MetS components individually account for such an association. We addressed these issues in a nested case–control study that included 1,093 incident cases matched (1:1) to controls by using incidence density sampling. Conditional logistic regression was used to estimate relative risks (RR) and 95% CIs. MetS was defined according to the criteria of the National Cholesterol Education Program/Adult Treatment Panel III (NCEP/ATPIII), the International Diabetes Federation (IDF), and the 2009 harmonized definition. Among individual components, abdominal obesity (RR = 1.51; 95% CI: 1.16–1.96) was associated with colon cancer, whereas abnormal glucose metabolism was associated with both colon (RR = 2.05; 95% CI: 1.57–2.68) and rectal cancer (RR = 2.07; 95% CI: 1.45–2.96). MetS, as defined by each of the definitions, was similarly associated with colon cancer (e.g., RR = 1.91; 95% CI: 1.47–2.42 for MetS by NCEP/ATPIII), whereas MetS by NCEP/ATPIII, but not IDF or harmonized definition, was associated with rectal cancer (RR = 1.45; 95% CI: 1.02–2.06). Overall, these associations were stronger in women than in men. However, the association between MetS and colorectal cancer was accounted for by abdominal obesity and abnormal glucose metabolism such that MetS did not provide risk information beyond these components (likelihood ratio test P = 0.10 for MetS by NCEP/ATPIII). These data suggest that simple assessment of abnormal glucose metabolism and/or abdominal obesity to identify individuals at colorectal cancer risk may have higher clinical utility than applying more complex MetS definitions. Cancer Prev Res; 4(11); 1873–83. ©2011 AACR.","DOI":"10.1158/1940-6207.CAPR-11-0218","journalAbbreviation":"Cancer Prev Res (Phila)","author":[{"family":"Aleksandrova","given":"Krasimira"},{"family":"Boeing","given":"Heiner"},{"family":"Jenab","given":"Mazda"},{"family":"Bas Bueno-de-Mesquita","given":"H."},{"family":"Jansen","given":"Eugene"},{"family":"Duijnhoven","given":"Fränzel J.B.","non-dropping-particle":"van"},{"family":"Fedirko","given":"Veronika"},{"family":"Rinaldi","given":"Sabina"},{"family":"Romieu","given":"Isabelle"},{"family":"Riboli","given":"Elio"},{"family":"Romaguera","given":"Dora"},{"family":"Overvad","given":"Kim"},{"family":"Østergaard","given":"Jane Nautrup"},{"family":"Olsen","given":"Anja"},{"family":"Tjønneland","given":"Anne"},{"family":"Boutron-Ruault","given":"Marie-Christine"},{"family":"Clavel-Chapelon","given":"Françoise"},{"family":"Morois","given":"Sophie"},{"family":"Masala","given":"Giovanna"},{"family":"Agnoli","given":"Claudia"},{"family":"Panico","given":"Salvatore"},{"family":"Tumino","given":"Rosario"},{"family":"Vineis","given":"Paolo"},{"family":"Kaaks","given":"Rudolf"},{"family":"Lukanova","given":"Annekatrin"},{"family":"Trichopoulou","given":"Antonia"},{"family":"Naska","given":"Androniki"},{"family":"Bamia","given":"Christina"},{"family":"Peeters","given":"Petra H."},{"family":"Rodríguez","given":"Laudina"},{"family":"Buckland","given":"Genevieve"},{"family":"Sánchez","given":"María-José"},{"family":"Dorronsoro","given":"Miren"},{"family":"Huerta","given":"Jose-María"},{"family":"Barricarte","given":"Aurelio"},{"family":"Hallmans","given":"Göran"},{"family":"Palmqvist","given":"Richard"},{"family":"Khaw","given":"Kay-Tee"},{"family":"Wareham","given":"Nicholas"},{"family":"Allen","given":"Naomi E."},{"family":"Tsilidis","given":"Konstantinos K"},{"family":"Pischon","given":"Tobias"}],"issued":{"date-parts":[["2011",11,2]]}}},{"id":160,"uris":["http://zotero.org/users/2724931/items/6XNHFT4N"],"uri":["http://zotero.org/users/2724931/items/6XNHFT4N"],"itemData":{"id":160,"type":"article-journal","title":"Metabolic syndrome is associated with colorectal cancer in men","container-title":"European Journal of Cancer","page":"1866-1872","volume":"46","issue":"10","abstract":"Aim of the study\nWe assessed the relation between metabolic syndrome (MetS) and its components and colorectal cancer.\nMethods\nWe analysed data from a multicentre case–control study conducted in Italy and Switzerland, including 1378 cases of colon cancer, 878 cases of rectal cancer and 4661 controls. All cases were incident and histologically confirmed. Controls were subjects admitted to the same hospitals as cases with acute non-malignant conditions. MetS was defined according to the International Diabetes Federation criteria. Odds ratios (ORs) and the corresponding 95% confidence intervals (CIs) were estimated by multiple logistic regression models, including terms for major identified confounding factors for colorectal cancer.\nResults\nWith reference to each component of the MetS, the ORs of colorectal cancer in men were 1.27 (95% CI, 0.95–1.69) for diabetes, 1.24 (95% CI, 1.03–1.48) for hypertension, 1.14 (95% CI, 0.93–1.40) for hypercholesterolaemia and 1.26 (95% CI, 1.08–1.48) for overweight at age 30. The corresponding ORs in women were 1.20 (95% CI, 0.82–1.75), 0.87 (95% CI, 0.71–1.06), 0.83 (95% CI, 0.66–1.03) and 1.06 (95% CI, 0.86–1.30). Colorectal cancer risk was increased in men (OR = 1.86; 95% CI, 1.21–2.86), but not in women (OR =

1.13; 95% CI, 0.66–1.93), with MetS. The ORs were 2.09 (95% CI, 1.38–3.18) in men and 1.15 (95% CI, 0.68–1.94) in women with
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3 components of the MetS, as compared to no component. Results were similar for colon and rectal cancers.\nConclusion\nThis study supports a direct association between MetS and both colon and rectal cancers in men, but not in women.","DOI":"10.1016/j.ejca.2010.03.010","ISSN":"0959-8049","journalAbbreviation":"European Journal of Cancer","author":[{"family":"Pelucchi","given":"Claudio"},{"family":"Negri","given":"Eva"},{"family":"Talamini","given":"Renato"},{"family":"Levi","given":"Fabio"},{"family":"Giacosa","given":"Attilio"},{"family":"Crispo","given":"Anna"},{"family":"Bidoli","given":"Ettore"},{"family":"Montella","given":"Maurizio"},{"family":"Franceschi","given":"Silvia"},{"family":"La Vecchia","given":"Carlo"}],"issued":{"date-parts":[["2010",7]]}}},"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
20, 27, 32, 36, 39–41, 43
], and only one study was performed in the USA [
ADDIN ZOTERO_ITEM CSL_CITATION {"citationID":"a13ufdfjv0","properties":{"formattedCitation":"{\\rtf \\super 21 \\nosupersub{}}","plainCitation":"21"},"citationItems":[{"id":282,"uris":["http://zotero.org/users/2724931/items/83RDVNWE"],"uri":["http://zotero.org/users/2724931/items/83RDVNWE"],"itemData":{"id":282,"type":"article-journal","title":"Metabolic syndrome components and colorectal adenoma in the CLUE II cohort","container-title":"Cancer causes & control : CCC","page":"1-10","volume":"21","issue":"1","source":"PubMed Central","abstract":"Background\nMetabolic syndrome components have been associated with colorectal cancer in several studies; however, the evidence for colorectal adenomas is limited. Thus, we evaluated the association between markers of the metabolic syndrome with colorectal adenoma development in a nested case-control study.\n\nMethods\nColorectal adenoma cases (n= 132) and matched controls who had had a negative sigmoidoscopy or a colonoscopy (n=260) were identified between baseline in 1989 and 2000 among participants in the CLUE II cohort of Washington County, Maryland. Concentrations of C-peptide, insulin-like growth factor binding protein-1, glycosylated hemoglobin, total cholesterol, high density lipoprotein-cholesterol, and triglycerides were measured in baseline blood specimens. Body mass index was calculated using baseline height and weight. Use of medications to treat diabetes mellitus was self-reported at baseline. Blood pressure was measured at baseline. Distributional cutpoints of the latter markers were used to define the metabolic syndrome components (hyperinsulinemia, hyperglycemia, obesity, dyslipidemia, and hypertension) present at baseline.\n\nResults\nNo statistically significant associations with adenomas were observed for the markers of the metabolic syndrome, with the exception of a strong positive association for use of diabetes medications (OR, 8.00; 95% CI, 1.70 – 37.67), albeit based on small numbers.\n\nConclusion\nOur findings do not support that components of the metabolic syndrome influence risk of colorectal adenomas, except possibly for severe diabetes mellitus warranting medical treatment.","DOI":"10.1007/s10552-009-9428-6","ISSN":"0957-5243","note":"PMID: 19774471 \nPMCID: PMC3010872","journalAbbreviation":"Cancer Causes Control","author":[{"family":"Tsilidis","given":"Konstantinos K"},{"family":"Brancati","given":"Frederick L"},{"family":"Pollak","given":"Michael N"},{"family":"Rifai","given":"Nader"},{"family":"Clipp","given":"Sandra L"},{"family":"Hoffman-Bolton","given":"Judy"},{"family":"Helzlsouer","given":"Kathy J"},{"family":"Platz","given":"Elizabeth A"}],"issued":{"date-parts":[["2010",1]]}}},"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
21
].
Regarding the outcomes considered, 22 studies provided data on CRA risk [
ADDIN ZOTERO_ITEM CSL_CITATION {"citationID":"YK0EkpCK","properties":{"formattedCitation":"{\\rtf \\super 21,25,26,28\\uc0\\u8211{}31,34\\uc0\\u8211{}36,44,46,47,49\\uc0\\u8211{}57\\nosupersub{}}","plainCitation":"21,25,26,28–31,34–36,44,46,47,49–57"},"citationItems":[{"id":172,"uris":["http://zotero.org/users/2724931/items/Z38D9WWB"],"uri":["http://zotero.org/users/2724931/items/Z38D9WWB"],"itemData":{"id":172,"type":"article-journal","title":"Effects of Metabolic Syndrome and Findings From Baseline Colonoscopies on Occurrence of Colorectal Neoplasms","container-title":"Clinical Gastroenterology and Hepatology","page":"1134-1142.e8","volume":"13","issue":"6","abstract":"Background & Aims\nMetabolic syndrome is associated with increased risk of colorectal neoplasm, but little is known about its effects on the occurrence of neoplasm after colonoscopy. We investigated the effects of metabolic syndrome on the risk of advanced neoplasm after colonoscopy.\nMethods\nWe performed a prospective study of 4483 subjects age 50 years and older who underwent screening and surveillance colonoscopies as part of an annual health check-up at National Taiwan University Hospital. Baseline demographic data and colonoscopic findings were recorded. Subjects with either advanced adenoma or 3 or more adenomas detected at baseline were classified as high risk; those with fewer than 3 nonadvanced adenomas were classified as low risk; and those without any neoplastic lesions were classified as normal. The cumulative risk of detecting an advanced neoplasm during surveillance colonoscopies (3 and 5 years later) was correlated with risk group and metabolic syndrome. Hazard ratios (HRs) were calculated for occurrence of neoplasm according to baseline colonoscopic findings and clinical risk factors, including metabolic syndrome.\nResults\nAdvanced neoplasms were detected during the surveillance colonoscopies in 1.3% of subjects in the normal group and in 2.4% of those in the low-risk group at 5 years, and in 8.5% of subjects in the high-risk group at 3 years. Subjects with metabolic syndrome had a significantly higher risk for subsequent advanced neoplasms (P < .0001). After stratification based on findings from baseline colonoscopies, the risk for neoplasm was significant in the normal (P < .001) and low-risk groups (P = .04), but not in the high-risk group (P = .48). In Cox regression analysis, metabolic syndrome had significant effects on the risk for advanced neoplasms in the normal (HR, 2.07; 95% confidence interval, 1.13–3.81) and low-risk groups (HR, 2.34; 95% confidence interval, 1.01–5.41), but not in the high-risk group.\nConclusions\nMetabolic syndrome is a significant risk factor for occurrence of an advanced adenoma after a negative or low-risk finding from a baseline colonoscopy. Metabolic syndrome should be considered in risk stratification for surveillance intervals.","DOI":"10.1016/j.cgh.2014.10.022","ISSN":"1542-3565","journalAbbreviation":"Clinical Gastroenterology and Hepatology","author":[{"family":"Chiu","given":"Han-Mo"},{"family":"Lee","given":"Yi-Chia"},{"family":"Tu","given":"Chia-Hung"},{"family":"Chang","given":"Li-Chun"},{"family":"Hsu","given":"Wen-Feng"},{"family":"Chou","given":"Chu-Kuang"},{"family":"Tsai","given":"Kun-Feng"},{"family":"Liang","given":"Jin-Tung"},{"family":"Shun","given":"Chia-Tung"},{"family":"Wu","given":"Ming-Shiang"}],"issued":{"date-parts":[["2015",6]]}}},{"id":83,"uris":["http://zotero.org/users/2724931/items/33PI99M5"],"uri":["http://zotero.org/users/2724931/items/33PI99M5"],"itemData":{"id":83,"type":"article-journal","title":"Increased risk of colorectal malignant neoplasm in patients with nonalcoholic fatty liver disease: a large study","container-title":"Molecular Biology Reports","page":"2989-2997","volume":"41","issue":"5","abstract":"Nonalcoholic fatty liver disease (NAFLD) has been suggested to be a strong risk factor of colorectal benign adenomas and advanced neoplasms. The aim of this large cohort study was to further investigate the prevalence of colorectal malignant neoplasm (CRMN) in patients with NAFLD and determine whether association between NAFLD and CRMN exists. 2,315 community subjects (1,370 males and 945 females) who underwent a routine colonoscopy according to international colorectal cancer screening guideline were recruited. Nature of colorectal lesions determined by biopsy and NAFLD was diagnosed by ultrasound. Binary logistic regression analysis was applied to explore the related associations. Prevalence of CRMN was 29.3 % (77/263) in patients with NAFLD, which was significantly higher than 18.0 % (369/2,052) in the control group (P < 0.05). In addition, malignant neoplasm in NAFLD group occurred more frequently at sigmoid colon than in control group (14.3 vs. 11.9 %). The incidence of highly-differentiated colorectal adenocarcinoma in NAFLD group was significantly higher than control group (62.3 vs. 9.8 %). Univariate analysis showed that NAFLD had strong association with

CRMN (OR 2.043; 95 % CI 1.512–2.761; P < 0.05). After adjusting for metabolic and other confounding factors, NAFLD remained as an independent risk factor for CRMN (OR 1.868; 95 % CI 1.360–2.567; P < 0.05). NAFLD was an independent risk factor for CRMN. Sigmoid carcinoma and highly differentiated colorectal adenocarcinoma were more commonly found in NAFLD. (ClinicalTrials.gov number, NCT01657773, website: http://clinicaltrials.gov/ct2/show/NCT01657773?term=zheng+minghua&rank=1)."},"DOI":"10.1007/s11033-014-3157-y","ISSN":"1573-4978","journalAbbreviation":"Molecular Biology Reports","author":[{"family":"Lin","given":"Xian-Feng"},{"family":"Shi","given":"Ke-Qing"},{"family":"You","given":"Jie"},{"family":"Liu","given":"Wen-Yue"},{"family":"Luo","given":"Ying-Wan"},{"family":"Wu","given":"Fa-Ling"},{"family":"Chen","given":"Yong-Ping"},{"family":"Wong","given":"Danny Ka-Ho"},{"family":"Yuen","given":"Man-Fung"},{"family":"Zheng","given":"Ming-Hua"}],"issued":{"date-parts":[["2014"]]}}},{"id":82,"uris":["http://zotero.org/users/2724931/items/K9AVA46D"],"uri":["http://zotero.org/users/2724931/items/K9AVA46D"],"itemData":{"id":82,"type":"article-journal","title":"Patients with nonalcoholic fatty liver disease have higher risk of colorectal adenoma after negative baseline colonoscopy.","container-title":"Colorectal disease : the official journal of the Association of Coloproctology of Great Britain and Ireland","page":"830-835","volume":"15","issue":"7","abstract":"AIM: The study aimed to determine whether nonalcoholic fatty liver disease (NAFLD) is an independent risk factor of adenoma after negative baseline colonoscopy. METHOD: A retrospective cohort study was conducted on 1522 health-check individuals who underwent two consecutive colonoscopies at Taipei Veterans General Hospital between 2003 and 2010. Those developing an adenoma after an initial negative baseline colonoscopy (adenoma group) were compared with those in whom the second colonoscopy was negative (nonadenoma group). Anthropometric measurements, biochemical tests and the presence of NAFLD were compared between the two groups. RESULTS: The adenoma group had a higher prevalence of NAFLD than the nonadenoma group (55.6% vs 38.8%; P < 0.05). On multivariate logistic regression analysis, NAFLD was an independent risk factor (OR = 1.45, 95% CI: 1.07-1.98) for adenoma formation after a negative baseline colonoscopy. The risk of colorectal adenoma increased when NAFLD patients had other morbidities including metabolic syndrome, hypertension or smoking (OR = 2.85, 4.03 and 4.17). CONCLUSION: NAFLD is an independent risk factor for colorectal adenoma formation after a negative baseline colonoscopy. The risk is higher in individuals with NAFLD and other comorbidities, such as hypertension, smoking or metabolic syndrome.","DOI":"10.1111/codi.12172","ISSN":"1463-1318 1462-8910","note":"PMID: 23398678","journalAbbreviation":"Colorectal Dis","language":"eng","author":[{"family":"Huang","given":"K.-W."},{"family":"Leu","given":"H.-B."},{"family":"Wang","given":"Y.-J."},{"family":"Luo","given":"J.-C."},{"family":"Lin","given":"H.-C."},{"family":"Lee","given":"F.-Y."},{"family":"Chan","given":"W.-L."},{"family":"Lin","given":"J.-K."},{"family":"Chang","given":"F.-Y."}],"issued":{"date-parts":[["2013",7]]}}},{"id":81,"uris":["http://zotero.org/users/2724931/items/7FAPCFIV"],"uri":["http://zotero.org/users/2724931/items/7FAPCFIV"],"itemData":{"id":81,"type":"article-journal","title":"Association of colorectal adenoma with components of metabolic syndrome.","container-title":"Cancer causes & control : CCC","page":"727-735","volume":"23","issue":"5","abstract":"PURPOSE: Recently, some studies have shown that diabetes mellitus and metabolic syndrome increase the risk of colorectal neoplasms. Although the mechanism is not known, those have been proposed to contribute to this phenomenon, including insulin resistance, oxidative stress, and adipokine production. The objective of this study was to assess the association between metabolic risk factors and colorectal neoplasm. METHODS: Study participants visited the National Cancer Center, Korea, for screening (2007-2009). A total of 1,771 diagnosed adenoma patients and 4,667 polyp-free controls were included. The association between risk factors and colorectal neoplasm was evaluated using logistic regression models. RESULTS: High waist circumference, blood pressure, and serum triglyceride levels were associated with an increased risk of colorectal adenoma. Metabolic syndrome (MS) was associated with an increased risk of adenoma (OR = 1.44, 95 % CI = 1.23-1.70). The association between MS and colorectal adenoma was observed regardless of advanced/low-risk adenoma, and multiplicity. MS affected right colon adenomas (OR = 1.50, 95 % CI = 1.22-1.85), left colon adenomas (OR = 1.36, 95 % CI = 1.05-1.76), and adenomas in multiple anatomical locations (OR = 1.59, 95 % CI = 1.19-2.12), but was not associated with rectum. CONCLUSION: Central obesity, triglyceride level, and MS are risk factors for colorectal adenoma including advanced adenoma and multiplicity.","DOI":"10.1007/s10552-012-9942-9","ISSN":"1573-7225 0957-5243","note":"PMID: 22450737","journalAbbreviation":"Cancer Causes Control","language":"eng","author":[{"family":"Kim","given":"Byung Chang"},{"family":"Shin","given":"Aesun"},{"family":"Hong","given":"Chang Won"},{"family":"Sohn","given":"Dae Kyung"},{"family":"Han","given":"Kyung Su"},{"family":"Ryu","given":"Kum Hei"},{"family":"Park","given":"Bum Joon"},{"family":"Nam","given":"Ji Hyung"},{"family":"Park","given":"Ji Won"},{"family":"Chang","given":"Hee Jin"},{"family":"Choi","given":"Hyo Seong"},{"family":"Kim","given":"Jeongseon"},{"family":"Oh","given":"Jae Hwan"}],"issued":{"date-parts":[["2012",5]]}}},{"id":36,"uris":["http://zotero.org/users/2724931/items/437ZFQED"],"uri":["http://zotero.org/users/2724931/items/437ZFQED"],"itemData":{"id":36,"type":"article-journal","title":"Clinico-epidemiologic study of the metabolic syndrome and lifestyle factors associated with the risk of colon adenoma and adenocarcinoma.","container-title":"Asian Pacific journal of cancer prevention : APJCP","page":"975-983","volume":"11","issue":"4","abstract":"BACKGROUND: The numbers of patients with colorectal cancer and associated deaths have been increasing in Japan, probably due to rapid lifestyle changes. Prevention is clearly important and the present study aimed to clarify risk factors and to promote colon cancer screening. METHODS: We investigated lifestyle factors, biochemical data, and pathological features of 727 individuals who underwent colonoscopy. Data were subjected to statistical analysis using SPSS software. RESULTS: Low-grade adenoma was more frequent among the elderly and in men. All of the men and 87.5% of the women with high-grade adenoma or adenocarcinoma were aged>/=45 and>/=50 years, respectively. In women, a larger waist circumference (=80 cm) increased the odds ratio for colon adenoma or adenocarcinoma (colon tumors) by 1.033 (95% confidence index (CI), 1.001-1.066; p=0.040). Metabolic syndrome significantly increased the odds ratio of colon tumors in men, but not in women. Cigarette smoking, drinking alcohol, and increased physical activity were significant risk factors for colon tumors in men, with odds ratios of 1.001 (95% CI, 1.000-1.002; p=0.001), 1.001 (95% CI, 1.000-1.003; p=0.047), and 1.406 (95% CI 1.038-1.904; p=0.028), respectively. CONCLUSIONS: Colon tumors have a high prevalence in the elderly. A larger waist circumference in women and metabolic syndrome in both men and women elevate the risk of colon tumors. In addition, smoking, drinking, and excessive physical activity are risk factors for adenoma and adenocarcinoma in men. For early detection of colorectal cancer, men older than 45 years and women older than 50 years with these risk factors are recommended to undergo colonoscopy.","ISSN":"2476-762X 1513-7368","note":"PMID: 21133610","journalAbbreviation":"Asian Pac J Cancer Prev","language":"eng","author":[{"family":"Kaneko","given":"Rena"},{"family":"Sato","given":"Yuzuru"},{"family":"An","given":"Yasuyosi"},{"family":"Nakagawa","given":"Motoki"},{"family":"Kusayanagi","given":"Satoshi"},{"family":"Kamisago","given":"Satoshi"},{"family":"Umeda","given":"Tomoyuki"},{"family":"Ogawa","given":"Masazumi"},{"family":"Munakata","given":"Kazuo"},{"family":"Mizuno","given":"Kyoichi"}],"issued":{"date-parts":[["2010"]]}}},{"id":161,"uris":["http://zotero.org/users/2724931/items/Q4DM498H"],"uri":["http://zotero.org/users/2724931/items/Q4DM498H"],"itemData":{"id":161,"type":"article-journal","title":"Central obesity and atherogenic dyslipidemia in metabolic syndrome are associated with increased risk for colorectal adenoma in a Chinese population","container-title":"BMC Gastroenterology","page":"51","volume":"10","source":"BioMed Central","abstract":"Metabolic syndrome (MetS) is composed of cardiovascular risk factors including insulin resistance, obesity, dyslipidemia, and hypertension. Most of the components of MetS have been linked to the development of neoplasm. The purpose of this study was to evaluate the relationship between individual components of MetS and colorectal adenoma.","DOI":"10.1186/1471-230X-10-51","ISSN":"1471-230X","journalAbbreviation":"BMC Gastroenterology","author":[{"family":"Liu","given":"Chiu-Shong"},

{"family":"Hsu","given":"Hua-Shui"},{"family":"Li","given":"Chia-Ing"},{"family":"Jan","given":"Chia-Ing"},
{"family":"Li","given":"Tsai-Chung"},{"family":"Lin","given":"Wen-Yuan"},{"family":"Lin","given":"Tsann"},
{"family":"Chen","given":"Ya-Chien"},{"family":"Lee","given":"Cheng-Chun"},{"family":"Lin","given":"Cheng-
Chieh"}],"issued":{"date-parts":[["2010"]]}}},{"id":282,"uris":["http://zotero.org/users/2724931/items/83RDVNWE"],"uri":
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syndrome components and colorectal adenoma in the CLUE II cohort","container-title":"Cancer causes & control :
CCC","page":"1-10","volume":"21","issue":"1","source":"PubMed Central","abstract":"Background\nMetabolic syndrome
components have been associated with colorectal cancer in several studies; however, the evidence for colorectal adenomas is
limited. Thus, we evaluated the association between markers of the metabolic syndrome with colorectal adenoma development in
a nested case-control study.\n\nMethods\nColorectal adenoma cases (n= 132) and matched controls who had had a negative
sigmoidoscopy or a colonoscopy (n=260) were identified between baseline in 1989 and 2000 among participants in the CLUE II
cohort of Washington County, Maryland. Concentrations of C-peptide, insulin-like growth factor binding protein-1, glycosylated
hemoglobin, total cholesterol, high density lipoprotein-cholesterol, and triglycerides were measured in baseline blood specimens.
Body mass index was calculated using baseline height and weight. Use of medications to treat diabetes mellitus was self-reported
at baseline. Blood pressure was measured at baseline. Distributional cutpoints of the latter markers were used to define the
metabolic syndrome components (hyperinsulinemia, hyperglycemia, obesity, dyslipidemia, and hypertension) present at
baseline.\n\nResults\nNo statistically significant associations with adenomas were observed for the markers of the metabolic
syndrome, with the exception of a strong positive association for use of diabetes medications (OR, 8.00; 95% CI, 1.70 – 37.67),
albeit based on small numbers.\n\nConclusion\nOur findings do not support that components of the metabolic syndrome
influence risk of colorectal adenomas, except possibly for severe diabetes mellitus warranting medical
treatment.","DOI":"10.1007/s10552-009-9428-6","ISSN":"0957-5243","note":"PMID: 19774471\nPMCID:
PMC3010872","journalAbbreviation":"Cancer Causes Control","author":[{"family":"Tsilidis","given":"Konstantinos K"},
{"family":"Brancati","given":"Frederick L"},{"family":"Pollak","given":"Michael N"},{"family":"Rifai","given":"Nader"},
{"family":"Clipp","given":"Sandra L"},{"family":"Hoffman-Bolton","given":"Judy"},{"family":"Helzlsouer","given":"Kathy
J"},{"family":"Platz","given":"Elizabeth A"}],"issued":{"date-parts":[["2010",1]]}}},{"id":86,"uris":
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Internal Medicine","page":"653-
659","volume":"31","issue":"4","archive":"PMC","archive_location":"PMC4939489","abstract":"BACKGROUND/AIMS::
Although it is generally known that the risk for all types of cancer increases with adult height, combined and for several common
site-specific cancers (including colon and rectal), evidence is limited for adenomas, which are precursors to colorectal cancer. We
evaluated the association between height and risk of colorectal adenoma at various stages of the adenoma-carcinoma pathway.
METHODS:: We conducted a retrospective study using data from patients who had undergone a complete colonoscopy as part of
a health examination at the Health Promotion Center of Samsung Medical Center between October 13, 2009 and December 31,
2011. A total of 1,347 male subjects were included in our study. Multivariate logistic regression analysis was used to evaluate the
association between height and colorectal adenoma. RESULTS:: Each 5-cm increase in height was associated with 1.6% and
5.3% higher risks of advanced colorectal adenoma and high-risk colorectal adenoma, respectively, but associations were not
significant after adjusting for age, body mass index, metabolic syndrome, alcohol intake, smoking, family history of colorectal
cancer, and regular aspirin use (p = 0.840 and p = 0.472, respectively). CONCLUSIONS:: No clear association was found
between colorectal adenoma risk and height. Unlike other site-specific tumors reported to have a consistent relationship with
height, the association between colorectal tumor and height remains
controversial.","DOI":"10.3904/kjim.2014.313","ISSN":"1226-3303","author":[{"family":"Pyo","given":"Jeung Hui"},
{"family":"Hong","given":"Sung Noh"},{"family":"Min","given":"Byung-Hoon"},{"family":"Chang","given":"Dong Kyung"},
{"family":"Son","given":"Hee Jung"},{"family":"Rhee","given":"Poong-Lyul"},{"family":"Kim","given":"Jae J"},
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title":"Journal of Korean Medical Science","page":"1288-
1294","volume":"30","issue":"9","archive":"PMC","archive_location":"PMC4553676","abstract":"Cholecystectomy is associated
with an increased risk of colorectal cancer, but little is known about the relationship between gallbladder disease and colorectal
adenoma. Gallbladder polyps and colorectal neoplasia (CRN) share several risk factors such as obesity, diabetes and metabolic
syndrome, which might account for their association. In this study, we investigated whether asymptomatic patients with
gallbladder disease are at increased risk of CRN and identified the factors to their association. The study population consisted of
4,626 consecutive, asymptomatic individuals drawn from a prospective health check-up cohort who underwent both
ultrasonography and colonoscopy screening. The prevalence of CRNs in patients with gallbladder polyps or gallstones was
significantly higher than that in the control group (32.1% vs. 26.8%; P = 0.032, 35.8% vs. 26.9%; P = 0.020). A multivariate
regression analysis showed that gallbladder polyps were an independent risk factor for CRN [adjusted odds ratio (OR): 1.29; 95%
confidence interval (CI); 1.03-1.62] whereas gallstones were not (adjusted OR: 1.14; 95% CI: 0.79-1.63). The adjusted OR for
the risk of CRN was 1.12 for gallbladder polyps < 5 mm (95% CI, 0.85-1.46) and 1.79 for gallbladder polyps ≥ 5 mm (95% CI,
1.15-2.77). The prevalence of CRN increased with increasing polyp size (P trend = 0.022). Our results suggest that colorectal
neoplasia is significantly related to gallbladder polyps, especially those ≥ 5 mm. GRAPHICAL
ABSTRACT:","DOI":"10.3346/jkms.2015.30.9.1288","ISSN":"1011-8934","author":[{"family":"Hong","given":"Sung Noh"},
{"family":"Lee","given":"Tae Yoon"},{"family":"Yun","given":"Sung-Cheol"}],"issued":{"date-parts":[["2015",9]]}}},
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and colorectal neoplasms: An ominous association","container-title":"World Journal of
Gastroenterology","page":"5320","volume":"21","issue":"17","source":"CrossRef","DOI":"10.3748/wjg.v21.i17.5320","ISSN":"1
9327","shortTitle":"Metabolic syndrome and colorectal neoplasms","language":"en","author":
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{"id":100,"type":"article-journal","title":"Visceral Obesity and Insulin Resistance as Risk Factors for Colorectal Adenoma: A
Cross-Sectional, Case–Control Study","container-title":"The American Journal of Gastroenterology","page":"178-
187","volume":"105","issue":"1","source":"www.nature.com","abstract":"OBJECTIVES: Colorectal adenoma is known to be
associated with obesity, but the association between colorectal adenoma and visceral adipose tissue (VAT) area measured by
abdominal computed tomography (CT) has not been documented clearly. In addition, the relationship between insulin resistance
and colorectal adenomas, which underlies the mechanism that links obesity and colorectal adenoma, has not been studied
extensively. The aim of this study was to examine VAT area and insulin resistance as risk factors of colorectal
adenoma.\nMETHODS: A cross-sectional, case–control study was conducted in Koreans that presented for health check-ups.
Subjects underwent various laboratory tests, abdominal CT, and colonoscopy. VAT, subcutaneous adipose tissue (SAT), and
homeostatic metabolic assessment (HOMA) index were evaluated as potential risk factors of colorectal adenoma in 2,244 age-
and sex-matched subjects.\nRESULTS: According to univariate analysis, the prevalences of smoking, hypertension, metabolic
syndrome, and family history of colorectal cancer were higher in the adenoma group than in the normal control group. In

addition, body mass index, waist circumference, triglyceride, high-density lipoprotein cholesterol, and VAT and SAT areas were significantly different in the two groups. According to the multivariate analysis adjusted for multiple confounders, VAT area was independently associated with the risk of colorectal adenoma (odds ratio (OR)=3.09, 95% confidence interval (CI): 2.19–4.36, highest quintile vs. lowest quintile). Mean HOMA index was higher in the adenoma group than in the control group (OR=1.99, 95% CI: 1.35–2.92, highest vs. lowest quintile).\nCONCLUSIONS: Visceral obesity was found to be an independent risk factor of colorectal adenoma, and insulin resistance was associated with the presence of colorectal adenoma.","DOI":"10.1038/ajg.2009.541","ISSN":"0002-9270","shortTitle":"Visceral Obesity and Insulin Resistance as Risk Factors for Colorectal Adenoma","journalAbbreviation":"Am J Gastroenterol","language":"en","author":[{"family":"Kang","given":"Hyoun Woo"},{"family":"Kim","given":"Donghee"},{"family":"Kim","given":"Hwa Jung"},{"family":"Kim","given":"Chung Hyeon"},{"family":"Kim","given":"Young Sun"},{"family":"Park","given":"Min Jung"},{"family":"Kim","given":"Joo Sung"},{"family":"Cho","given":"Sang-Heon"},{"family":"Sung","given":"Myung-Whun"},{"family":"Jung","given":"Hyun Chae"},{"family":"Lee","given":"Hyo-Suk"},{"family":"Song","given":"In Sung"}],"issued":{"date-parts":[["2009",9,15]]}}},{"id":179,"uris":["http://zotero.org/users/2724931/items/G83HJCGN"],"uri":["http://zotero.org/users/2724931/items/G83HJCGN"],"itemData":{"id":179,"type":"article-journal","title":"Prevalence and risk factors of advanced colorectal neoplasms in asymptomatic Korean people between 40 and 49

years of age","container-title":"Journal of Gastroenterology and Hepatology","page":"98-105","volume":"32","issue":"1","source":"PubMed","abstract":"BACKGROUND AND AIM: Current guidelines recommend colon cancer screening for persons aged over 50

years. However, there are few data on colorectal cancer screening in 40- to 49-year-olds. This study assessed the prevalence and risk factors of colorectal neoplasms in 40- to 49-year-old Koreans.\nMETHODS: We analyzed the results of screening colonoscopies of 6680 persons 40-59

years of age (2206 aged 40-49 and 4474 aged 50-59

years).\nRESULTS: The prevalence of overall and advanced neoplasms in the 40- to 49-year age group was lower than in the 50- to 59-year age group (26.7% and 2.4% vs 37.8% and 3.5%, respectively). However, the prevalence of overall and advanced neoplasms increased to 39.1% and 5.4%, respectively, in 45- to 49-year-old individuals with metabolic syndrome. In the 40- to 49-year age group, age, current smoking, and metabolic syndrome were associated with an increased risk of advanced neoplasms (odds ratio [OR] 1.16, 95% confidence interval [CI] 1.04-1.30; OR 3.12, 95% CI 1.20-8.12; and OR 2.00, 95% CI 1.09-3.67, respectively).\nCONCLUSIONS: Individuals aged 40-49

years had a lower prevalence of colorectal neoplasms than those aged 50-59

years, but some 40- to 49-year-olds showed a similar prevalence to those aged 50-59

years. Age, current smoking habits, and metabolic syndrome are associated with an increased risk of advanced neoplasms in subjects aged 40-49

years. Further studies are needed to stratify the risks of colon cancer and guide targeted screening in persons younger than 50

years old.","DOI":"10.1111/jgh.13454","ISSN":"1440-1746","note":"PMID: 27197805","journalAbbreviation":"J. Gastroenterol. Hepatol.","language":"eng","author":[{"family":"Koo","given":"Ja Eun"},{"family":"Kim","given":"Kyung-Jo"},{"family":"Park","given":"Hye Won"},{"family":"Kim","given":"Hong-Kyu"},{"family":"Choe","given":"Jae Won"},{"family":"Chang","given":"Hye-Sook"},{"family":"Lee","given":"Ji Young"},{"family":"Myung","given":"Seung-Jae"},{"family":"Yang","given":"Suk-Kyun"},{"family":"Kim","given":"Jin-Ho"}],"issued":{"date-parts":[["2017",1]]}}},{"id":176,"uris":["http://zotero.org/users/2724931/items/G5JJS8K5"],"uri":["http://zotero.org/users/2724931/items/G5JJS8K5"],"itemData":{"id":176,"type":"article-journal","title":"Uric Acid Is a Risk Indicator for Metabolic Syndrome-related Colorectal Adenoma: Results in a Korean Population Receiving Screening Colonoscopy","container-title":"The Korean Journal of Gastroenterology = Taehan Sohwagi Hakhoe Chi","page":"202-208","volume":"66","issue":"4","source":"PubMed","abstract":"BACKGROUND/AIMS: An association between serum uric acid and cancer risk has been noted over the past few decades. There is ongoing debate about whether hyperuricemia represents an independent risk factor for colorectal neoplasm. We investigated the association between serum uric acid and prevalence of colorectal adenoma considering numerous confounding factors.\nMETHODS: A cross-sectional study was performed with individuals who underwent a routine health check-up examination, including a screening colonoscopy and blood chemistry. The association between serum uric acid and prevalence of colorectal adenoma was estimated from the results of a logistic regression analysis.\nRESULTS: Of the 1,066 participants, 402 had colorectal adenoma (37.7%). In univariate models, the prevalence of colorectal adenoma was higher in participants in the fourth quartile uric acid level, compared to those in the first quartile uric acid level (OR, 1.67; 95% CI, 1.17-2.42; p=0.004). However, no significant association was detected between serum uric acid and prevalence of colorectal adenoma in multiple logistic regression analysis. A number of metabolic syndrome components exhibited a strong association with the prevalence of colorectal adenoma in the multivariate model (OR, 3.46 for highest vs. lowest; 95% CI, 1.30-9.20; p=0.021). Moreover, serum uric acid was strongly associated with metabolic syndrome-associated variables, including waist circumference, fasting blood glucose, systolic blood pressure, diastolic blood pressure, triglyceride, and high-density lipoprotein.\nCONCLUSIONS: Uric acid is not an independent risk factor for colorectal adenoma but is a risk indicator for metabolic syndrome-related colorectal adenoma.","DOI":"10.4166/kjg.2015.66.4.202","ISSN":"2233-6869","note":"PMID: 26493505","shortTitle":"Uric Acid Is a Risk Indicator for Metabolic Syndrome-related Colorectal Adenoma","journalAbbreviation":"Korean J Gastroenterol","language":"eng","author":[{"family":"Kim","given":"Hyo Jin"},{"family":"Kim","given":"Jee Eun"},{"family":"Jung","given":"Ji Hye"},{"family":"Kim","given":"Eun Ran"},{"family":"Hong","given":"Sung Noh"},{"family":"Chang","given":"Dong Kyung"},{"family":"Son","given":"Hee Jung"},{"family":"Rhee","given":"Poong Lyul"},{"family":"Kim","given":"Jae J."},{"family":"Kim","given":"Young Ho"}],"issued":{"date-parts":[["2015",10]]}}},{"id":169,"uris":["http://zotero.org/users/2724931/items/M9QUET6C"],"uri":["http://zotero.org/users/2724931/items/M9QUET6C"],"itemData":{"id":169,"type":"article-journal","title":"Metabolic syndrome and smoking may justify earlier colorectal cancer screening in men","container-title":"Gastrointestinal Endoscopy","page":"961-969","volume":"79","issue":"6","abstract":"Background\nGender, smoking, and metabolic syndrome (MetS) are important risk factors of colorectal neoplasm. Whether presence of these factors may warrant earlier screening remains unclear.\nObjective\nTo compare age- and gender-specific risk of colorectal neoplasms in association with smoking and MetS under endoscopic or stool-based screening.\nDesign\nCross-sectional observational study.\nSetting\nScreening center in a university hospital in Taiwan.\nPatients\nA cohort of 10,884 average-risk individuals who received concurrent screening colonoscopy and fecal immunochemical testing (FIT).\nMain Outcome Measurements\nFirst, the prevalence of colorectal neoplasms and positive predictive value of FIT relative to age, gender, smoking, and MetS. Second, the number of colonoscopies needed to detect 1 advanced neoplasm with different strategies.\nResults\nMale smokers aged 40 to 49 years had a significantly higher prevalence

of advanced neoplasms and positive predictive value of stool tests than nonsmoking counterparts. The prevalence of advanced neoplasms in concurrent MetS and smoking (6.2%) or smoking alone (3.8%) men aged 40 to 49 years was higher than that of average-risk women aged 50 to 59 years (2.1%) (P = .03 and .04, respectively). The number of colonoscopies needed to detect 1 advanced neoplasm in men aged 40 to 49 years with concurrent MetS and smoking, smoking, MetS, and women aged 50 to 59 years was, respectively, 14.6, 24.8, 39.8, and 47.4 in the colonoscopy scenario and 1.7, 4.6, 5.7, and 8.3 in the FIT scenario.\nLimitation\nSelf-selective bias may exist for subjects voluntarily submitted to health check-ups.\nConclusions\nMetS and smoking significantly impact both the prevalence of colorectal neoplasms and the diagnostic yields of screening tests in men aged 40 to 49 years. Whether our findings justify earlier screening in this subgroup requires further study.","DOI":"10.1016/j.gie.2013.11.035","ISSN":"0016-5107","journalAbbreviation":"Gastrointestinal Endoscopy","author":[{"family":"Chang","given":"Li-Chun"},{"family":"Wu","given":"Ming-Shiang"},{"family":"Tu","given":"Chia-Hung"},{"family":"Lee","given":"Yi-Chia"},{"family":"Shun","given":"Chia-Tung"},{"family":"Chiu","given":"Han-Mo"}],"issued":{"date-parts":[["2014",6]]}}},{"id":168,"uris":["http://zotero.org/users/2724931/items/HXJHWUI6"],"uri":["http://zotero.org/users/2724931/items/HXJHWUI6"],"itemData":{"id":168,"type":"article-journal","title":"Vegetarianism as a Protective Factor for Colorectal Adenoma and Advanced Adenoma in Asians","container-title":"Digestive Diseases and Sciences","page":"1025-1035","volume":"59","issue":"5","abstract":"Although epidemiologic and animal studies suggest a vegetarian diet protects against the development of colorectal cancer, the relationship between vegetarian diet and incidence of colorectal adenoma is not yet conclusive, especially for Asians.","DOI":"10.1007/s10620-013-2974-5","ISSN":"1573-2568","journalAbbreviation":"Digestive Diseases and Sciences","author":[{"family":"Lee","given":"Chang Geun"},{"family":"Hahn","given":"Suk Jae"},{"family":"Song","given":"Min Keun"},{"family":"Lee","given":"Jun Kyu"},{"family":"Kim","given":"Jae Hak"},{"family":"Lim","given":"Yun Jeong"},{"family":"Koh","given":"Moon-Soo"},{"family":"Lee","given":"Jin Ho"},{"family":"Kang","given":"Hyoun Woo"}],"issued":{"date-parts":[["2014"]]}}},{"id":78,"uris":["http://zotero.org/users/2724931/items/TSAINUMV"],"uri":["http://zotero.org/users/2724931/items/TSAINUMV"],"itemData":{"id":78,"type":"article-journal","title":"Increased homeostasis model assessment-insulin resistance is a risk factor for colorectal adenoma in Japanese males.","container-title":"The Tohoku journal of experimental medicine","page":"297-303","volume":"223","issue":"4","abstract":"Many previous reports have documented a relationship between metabolic syndrome, in terms of insulin resistance, and colorectal cancer. However, the association of insulin resistance with colorectal adenoma has not been investigated in detail. To elucidate the association of metabolic syndrome components and insulin resistance with adenoma, we investigated homeostasis model assessment insulin resistance (HOMA-IR) in individuals with adenoma. A cross-sectional study was conducted involving individuals who underwent scheduled health examinations using total colonoscopy. Restricting the subjects to males, 261 with adenoma and 702 without adenoma were investigated. HOMA-IR was categorized into three groups: normal (< 1.6), intermediate (>/= 1.6 - < 2.5), and insulin resistance (2.5 </=). Metabolic syndrome was defined by a combination of any three of the following components: central obesity (waist circumference >/= 90 cm); elevated blood pressure (systolic blood pressure >/= 130 mmHg and/or diastolic blood pressure 85 mmHg); elevated fasting plasma glucose (>/= 100 mg/dL); reduced high-density lipoprotein-cholesterol (< 40 mg/dL); and elevated triglyceride (>/= 150 mg/dL). Multivariate analysis of HOMA-IR showed that the intermediate and insulin resistance groups had a significantly increased risk for colorectal adenoma, even after adjustment for waist circumference (odds ratio, 1.62 and 2.23; 95% confidence interval, 1.07-2.45 and 1.31-3.79, respectively). Accumulation of any metabolic syndrome components increased the risk of colorectal adenoma (P trend = 0.001). However, none of the components alone demonstrated a significant risk for colorectal adenoma. Our data indicate that an increased level of HOMA-IR is a risk factor for colorectal adenoma in Japanese males.","ISSN":"1349-3329 0040-8727","note":"PMID: 21478654","journalAbbreviation":"Tohoku J Exp Med","language":"eng","author":[{"family":"Sato","given":"Takeshi"},{"family":"Takeda","given":"Hiroaki"},{"family":"Sasaki","given":"Yu"},{"family":"Kawata","given":"Sumio"}],"issued":{"date-parts":[["2011",4]]}}},{"id":310,"uris":["http://zotero.org/users/2724931/items/9BZ8ICKP"],"uri":["http://zotero.org/users/2724931/items/9BZ8ICKP"],"itemData":{"id":310,"type":"article-journal","title":"Stepwise Relationship Between Components of Metabolic Syndrome and Risk of Colorectal Adenoma in a Taiwanese Population Receiving Screening Colonoscopy","container-title":"Journal of the Formosan Medical Association","page":"100-108","volume":"110","issue":"2","source":"CrossRef","DOI":"10.1016/S0929-6646(11)60016-8","ISSN":"09296646","language":"en","author":[{"family":"Hu","given":"Nien-Chih"},{"family":"Chen","given":"Jong-Dar"},{"family":"Lin","given":"Yu-Min"},{"family":"Chang","given":"Jun-Yih"},{"family":"Chen","given":"Yu-Hung"}],"issued":{"date-parts":[["2011",2]]}}},{"id":77,"uris":["http://zotero.org/users/2724931/items/QQRBWQMX"],"uri":["http://zotero.org/users/2724931/items/QQRBWQMX"],"itemData":{"id":77,"type":"article-journal","title":"Association between colorectal adenoma and coronary atherosclerosis detected by CT coronary angiography in Korean men; a cross-sectional study.","container-title":"Journal of gastroenterology and hepatology","page":"1795-1799","volume":"25","issue":"11","abstract":"BACKGROUND: Colorectal adenoma and coronary artery disease (CAD) appear to share common risk factors, such as male gender, diabetes mellitus, smoking, and obesity. We investigated the relationship between colorectal adenoma and coronary atherosclerosis, as a risk factor for colorectal adenoma. METHODS: A cross-sectional study was conducted on Korean men who presented for a health check-up. The subjects were 488 men (217 colorectal adenoma and 271 normal colonoscopic findings) who underwent colonoscopy and coronary computed tomography angiography (CTA) on the same day as a screening examination. Advanced colonic lesion was defined as a presence of adenoma with villous component, high-grade dysplasia, and/or with size of >/=1 cm. CTA findings were classified as normal, mild (low-grade atherosclerosis or <50% stenosis), and significant CAD (>/=50% stenosis). Abnormal CTA findings included mild and significant CAD. RESULTS: Patients with abnormal CTA findings were more likely to have colorectal adenoma compared with those with normal CTA findings (P < 0.005). Furthermore, presence of advanced adenoma was significantly associated with significant CAD (P < 0.01). On multivariate analyses, abnormal CTA findings (OR = 1.66, 95% CI: 1.14-2.41, P < 0.01) and significant CAD (OR = 1.96, 95% CI: 1.15-3.35, P < 0.05) were found to be independent risk factors for colorectal adenoma after adjusting for age, current smoking, and metabolic syndrome. CONCLUSIONS: In this study, in the population who underwent CTA and colonoscopy for health check-up, prevalence of colorectal adenoma was greater in subjects with low-grade coronary atherosclerosis or significant CAD. The presence of advanced adenoma was significantly associated with significant CAD.","DOI":"10.1111/j.1440-1746.2010.06330.x","ISSN":"1440-1746 0815-9319","note":"PMID: 21039843","journalAbbreviation":"J Gastroenterol Hepatol","language":"eng","author":[{"family":"Yang","given":"Sun Young"},{"family":"Kim","given":"Young Sun"},{"family":"Chung","given":"Su Jin"},{"family":"Song","given":"Ji Hyun"},{"family":"Choi","given":"Su Yeon"},{"family":"Park","given":"Min Jung"},{"family":"Yim","given":"Jeong Yoon"},{"family":"Lim","given":"Seon Hee"},{"family":"Kim","given":"Donghee"},{"family":"Kim","given":"Chung Hyun"},{"family":"Kim","given":"Ju Sung"},{"family":"Song","given":"In Sung"}],"issued":{"date-parts":[["2010",11]]}}},{"id":163,"uris":["http://zotero.org/users/2724931/items/FX77VBWZ"],"uri":["http://zotero.org/users/2724931/items/FX77VBWZ"],"itemData":{"id":163,"type":"article-journal","title":"Prevalence and risk of colorectal neoplasms in asymptomatic, average-risk screenees 40 to 49 years of age","container-title":"Gastrointestinal Endoscopy","page":"480-489","volume":"72","issue":"3","abstract":"Background\nA paucity of information exists regarding colorectal neoplasm in asymptomatic, average-risk individuals 40 to 49 years of age.\nObjective\nTo evaluate the prevalence and risk factors of colorectal neoplasms in those in their 40s.\nDesign\nCross-sectional study.\nSetting\nResults offered to subjects of a health care provider that offers screening services as part of an employer-provided wellness program.\nPatients\nA consecutive series of 1761 asymptomatic, average-risk screenees 40 to 59 years of age.\nIntervention\nFirst screening

colonoscopy.\nResults\nThe prevalence of overall colorectal neoplasm in subjects of ages 40 to 44 years, 45 to 49 years, 50 to 54 years, and 55 to 59 years increased significantly with increasing age (13.7%, 20.2%, 21.0%, and 23.8%, respectively; P < .001). The prevalence of advanced adenomas in subjects of ages 40 to 44 years, 45 to 49 years, 50 to 54 years, and 55 to 59 years increased significantly with age (1.9%, 3.0%, 3.2%, and 5.9%, respectively; P = .004). Multivariate analysis of data from the 40- to 49-year age group identified an increased risk of colorectal neoplasm associated with ages 45 years and older (odds ratio [OR], 1.68; 95% CI, 1.20-2.35), male sex (OR, 1.76; 95% CI, 1.15-2.69), presence of abdominal obesity (OR, 1.57; 95% CI, 1.12-2.21), and metabolic syndrome (OR, 1.56; 95% CI, 1.03-2.35), whereas for advanced adenomas, abdominal obesity (OR, 2.37; 95% CI, 1.06-5.27) and metabolic syndrome (OR, 2.83; 95% CI, 1.23-6.53) were the independent risk factors.\nLimitations\nSingle-center study and the cohort composed of ethnic Korean subjects who lived in the same geographic region.\nConclusion\nIn average-risk individuals 40 to 49 years of age, men with abdominal obesity or metabolic syndrome might benefit from screening colonoscopy starting at 45 years of age to detect colorectal neoplasm.","DOI":"10.1016/j.gie.2010.06.022","ISSN":"0016-5107","journalAbbreviation":"Gastrointestinal Endoscopy","author":[{"family":"Hong","given":"Sung Noh"},{"family":"Kim","given":"Jeong Hwan"},{"family":"Choe","given":"Won Hyeok"},{"family":"Han","given":"Hye Seung"},{"family":"Sung","given":"In Kyung"},{"family":"Park","given":"Hyung Seok"},{"family":"Shim","given":"Chan Sup"}],"issued":{"date-parts":[["2010",9]]}},{"id":76,"uris":["http://zotero.org/users/2724931/items/3DEUV37V"],"uri":["http://zotero.org/users/2724931/items/3DEUV37V"],"itemData":{"id":76,"type":"article-journal","title":"Relationship of non-alcoholic fatty liver disease to colorectal adenomatous polyps.","container-title":"Journal of gastroenterology and hepatology","page":"562-567","volume":"25","issue":"3","abstract":"BACKGROUND AND AIMS: Metabolic syndrome and insulin resistance are associated with a higher risk of colon cancer. Non-alcoholic fatty liver disease (NAFLD) is regarded as a manifestation of metabolic syndrome in the liver. This investigation was initiated to determine whether NAFLD has a relationship to colorectal adenomatous polyps. METHODS: We examined the 2917 participants who underwent a routine colonoscopy at Kangbuk Samsung Hospital in 2007. We divided the 2917 subjects into the adenomatous polyp group (n = 556) and the normal group (n = 2361). Anthropometric measurements, biochemical tests for liver and metabolic function, and abdominal ultrasonographs were assessed. RESULTS: The prevalence of NAFLD was 41.5% in the adenomatous polyp group and 30.2% in the control group. By multiple logistic regression analysis, NAFLD was found to be associated with an increased risk of colorectal adenomatous polyps (odds ratio, 1.28; 95% confidence interval, 1.03-1.60). An increased risk for NAFLD was more evident in patients with a greater number of adenomatous polyps. CONCLUSION: NAFLD was associated with colorectal adenomatous polyps. Further studies are needed to confirm whether NAFLD is a predictor for the development of colorectal adenomatous polyps and cancer.","DOI":"10.1111/j.1440-1746.2009.06117.x","ISSN":"1440-1746 0815-9319","note":"PMID: 20074156","journalAbbreviation":"J Gastroenterol Hepatol","language":"eng","author":[{"family":"Hwang","given":"Sang Tae"},{"family":"Cho","given":"Yong Kyun"},{"family":"Park","given":"Jung Ho"},{"family":"Kim","given":"Hong Joo"},{"family":"Park","given":"Dong Il"},{"family":"Sohn","given":"Chong Il"},{"family":"Jeon","given":"Woo Kyu"},{"family":"Kim","given":"Byung Ik"},{"family":"Won","given":"Kyoung Hee"},{"family":"Jin","given":"Wook"}],"issued":{"date-parts":[["2010",3]]}},{"id":97,"uris":["http://zotero.org/users/2724931/items/566MKVT3"],"uri":["http://zotero.org/users/2724931/items/566MKVT3"],"itemData":{"id":97,"type":"article-journal","title":"Visceral obesity as a risk factor for colorectal neoplasm","container-title":"Journal of Gastroenterology and Hepatology","page":"411-417","volume":"23","issue":"3","abstract":"Background and Aim: Obesity as a risk factor for colorectal neoplasm (CRN) is controversial. In the present study, we evaluated visceral obesity as a risk factor for CRN. Methods: We prospectively enrolled 200 consecutive, asymptomatic adults (male : female = 133:67, mean age, 50.9 ± 8.5 years) undergoing both colonoscopy and abdominopelvic computed tomography (CT) scan for routine health evaluations. The presence or absence and the characteristics of CRN were determined during colonoscopy. The amount of visceral adipose tissue (VAT) and subcutaneous adipose tissue was measured by an abdominopelvic CT scan. Body mass index, waist circumference, and percentage of body fat were measured. Blood pressure and other blood markers for assessing the metabolic syndrome were also investigated. Results: Of the 200 patients, 53 (26.5%) had CRN. Old age, smoking, metabolic syndrome, and a high fasting plasma glucose level were associated with an increased risk of CRN. VAT (P < 0.01) and waist circumference (P = 0.01) were significantly higher in those with CRN. A multivariate analysis of the risks of CRN showed an odds ratio of 4.07 (95% confidence interval: 1.01–16.43, P = 0.03) for those with VAT over 136.61 cm2 relative to those with VAT under 67.23 cm2. Waist circumference, metabolic syndrome, and fasting plasma glucose levels were not independent risk factors for CRN in the multivariate analysis. Conclusion: Increased VAT is an independent risk factor for CRN. Further large scale studies are needed to clarify the causal relationship between VAT and CRN.","DOI":"10.1111/j.1440-1746.2007.05125.x","ISSN":"1440-1746","author":[{"family":"Oh","given":"Tae-Hoon"},{"family":"Byeon","given":"Jeong-Sik"},{"family":"Myung","given":"Seung-Jae"},{"family":"Yang","given":"Suk-Kyun"},{"family":"Choi","given":"Kwi-Sook"},{"family":"Chung","given":"Jun-Won"},{"family":"Kim","given":"Benjamin"},{"family":"Lee","given":"Don"},{"family":"Byun","given":"Jae Ho"},{"family":"Jang","given":"Se Jin"},{"family":"Kim","given":"Jin-Ho"}],"issued":{"date-parts":[["2008",3,1]]}},{"id":306,"uris":["http://zotero.org/users/2724931/items/FP3DWZMH"],"uri":["http://zotero.org/users/2724931/items/FP3DWZMH"],"itemData":{"id":306,"type":"article-journal","title":"Is Metabolic Syndrome A Risk Factor for Colorectal Adenoma?","container-title":"Cancer Epidemiology and Prevention Biomarkers","page":"1543-1546","volume":"16","issue":"8","journalAbbreviation":"Cancer Epidemiol Biomarkers Prev","author":[{"family":"Kim","given":"Jeong Hwan"},{"family":"Lim","given":"Yun Jeong"},{"family":"Kim","given":"Young-Ho"},{"family":"Sung","given":"In-Kyung"},{"family":"Shim","given":"Sang Goon"},{"family":"Oh","given":"Sung-Ook"},{"family":"Park","given":"Sin-Sil"},{"family":"Yang","given":"Sun"},{"family":"Son","given":"Hee Jung"},{"family":"Rhee","given":"Poong-Lyul"},{"family":"Kim","given":"Jae J."},{"family":"Rhee","given":"Jong Chul"},{"family":"Choi","given":"Yoon-Ho"}],"issued":{"date-parts":[["2007",8,7]]}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"} 21, 25, 26, 28–31, 34–36, 44, 46, 47, 49–57

], 18 concerning CRC [

ADDIN ZOTERO_ITEM CSL_CITATION {"citationID":"a1vnb8dcnl6","properties":{"formattedCitation":"{\\rtf \\super 20,26,27,29,30,32,33,36\\uc0\\u8211{}43,45,46,48\\nosupersub{}}","plainCitation":"20,26,27,29,30,32,33,36–43,45,46,48"},"citationItems":[{"id":177,"uris":["http://zotero.org/users/2724931/items/E2HN5VWH"],"uri":["http://zotero.org/users/2724931/items/E2HN5VWH"],"itemData":{"id":177,"type":"article-journal","title":"Metabolic Predispositions and Increased Risk of Colorectal Adenocarcinoma by Anatomical Location: A Large Population-Based Cohort Study in Norway","container-title":"American Journal of Epidemiology","page":"883-893","volume":"182","issue":"10","abstract":"Whether different definitions of metabolic syndrome (MetS) are differently associated with colorectal adenocarcinoma (CA) by anatomical location is unclear. A population-based cohort study, the Cohort of Norway (CONOR) Study, was conducted in Norway from 1995 to 2010. Anthropometric measurements, blood samples, and lifestyle data were collected at recruitment. CAs were identified through linkage to the Norwegian Cancer Register. A composite index of MetS as defined by the International Diabetes Federation (IDF) or/and the National Cholesterol Education Program's Adult Treatment Panel III (ATP III) and single components of MetS, including anthropometric factors, blood pressure, lipids, triglycerides, and glucose, were analyzed. Cox proportional hazards regression was performed to estimate hazard ratios and 95% confidence intervals. Significant associations between single MetS components and CA, except for reduced high-density lipoprotein cholesterol and nonfasting glucose levels, were observed. MetS defined by 2 criteria separately showed a similar association with CA in general, and MetS defined by both the IDF and ATP III showed consistent results. Stronger associations

were observed in the proximal colon among men (IDF: hazard ratio (HR) = 1.51, 95% confidence interval (CI): 1.24, 1.84; ATP III: HR = 1.40, 95% CI: 1.15, 1.70) and in the rectum among women (IDF: HR = 1.42, 95% CI: 1.07, 1.89; ATP III: HR = 1.43, 95% CI: 1.08, 1.90).","DOI":"10.1093/aje/kwv141","ISSN":"0002-9262","journalAbbreviation":"American Journal of Epidemiology","author":[{"family":"Lu","given":"Yunxia"},{"family":"Ness-Jensen","given":"Eivind"},{"family":"Hveem","given":"Kristian"},{"family":"Martling","given":"Anna"}],"issued":{"date-parts":[["2015",11,15]]}}},{"id":83,"uris":["http://zotero.org/users/2724931/items/33PI99M5"],"uri":["http://zotero.org/users/2724931/items/33PI99M5"],"itemData":{"id":83,"type":"article-journal","title":"Increased risk of colorectal malignant neoplasm in patients with nonalcoholic fatty liver disease: a large study","container-title":"Molecular Biology Reports","page":"2989-2997","volume":"41","issue":"5","abstract":"Nonalcoholic fatty liver disease (NAFLD) has been suggested to be a strong risk factor of colorectal benign adenomas and advanced neoplasms. The aim of this large cohort study was to further investigate the prevalence of colorectal malignant neoplasm (CRMN) in patients with NAFLD and determine whether association between NAFLD and CRMN exists. 2,315 community subjects (1,370 males and 945 females) who underwent a routine colonoscopy according to international colorectal cancer screening guideline were recruited. Nature of colorectal lesions determined by biopsy and NAFLD was diagnosed by ultrasound. Binary logistic regression analysis was applied to explore the related associations. Prevalence of CRMN was 29.3 % (77/263) in patients with NAFLD, which was significantly higher than 18.0 % (369/2,052) in the control group (P < 0.05). In addition, malignant neoplasm in NAFLD group occurred more frequently at sigmoid colon than in control group (14.3 vs. 11.9 %). The incidence of highly-differentiated colorectal adenocarcinoma in NAFLD group was significantly higher than control group (62.3 vs. 9.8 %). Univariate analysis showed that NAFLD had strong association with CRMN (OR 2.043; 95 % CI 1.512–2.761; P < 0.05). After adjusting for metabolic and other confounding factors, NAFLD remained as an independent risk factor for CRMN (OR 1.868; 95 % CI 1.360–2.567; P < 0.05). NAFLD was an independent risk factor for CRMN. Sigmoid carcinoma and highly differentiated colorectal adenocarcinoma were more commonly found in NAFLD. (ClinicalTrials.gov number, NCT01657773, website: http://clinicaltrials.gov/ct2/show/NCT01657773?term=zheng+minghua&rank=1)."},"DOI":"10.1007/s11033-014-3157-y","ISSN":"1573-4978","journalAbbreviation":"Molecular Biology Reports","author":[{"family":"Lin","given":"Xian-Feng"},{"family":"Shi","given":"Ke-Qing"},{"family":"You","given":"Jie"},{"family":"Liu","given":"Wen-Yue"},{"family":"Luo","given":"Ying-Wan"},{"family":"Wu","given":"Fa-Ling"},{"family":"Chen","given":"Yong-Ping"},{"family":"Wong","given":"Danny Ka-Ho"},{"family":"Yuen","given":"Man-Fung"},{"family":"Zheng","given":"Ming-Hua"}],"issued":{"date-parts":[["2014"]]}}},{"id":4,"uris":["http://zotero.org/users/2724931/items/C7S4WQSB"],"uri":["http://zotero.org/users/2724931/items/C7S4WQSB"],"itemData":{"id":4,"type":"article-journal","title":"Cancer Risk in Patients with Manifest Vascular Disease: Effects of Smoking, Obesity, and Metabolic Syndrome","container-title":"Cancer Epidemiology and Prevention Biomarkers","page":"1267-1277","volume":"22","issue":"7","source":"cebp.aacrjournals.org","abstract":"Background: Patients with vascular disease may be at increased risk of cancer because of shared risk factors and common pathogenesis.\nMethods: Patients with vascular disease (n = 6,172) were prospectively followed for cancer incidence. Standardized incidence ratios (SIRs) were calculated to compare the cancer incidence of the study population with that of the general population. Multivariable-adjusted hazard ratio's (HRs) of cancer were estimated for smoking status, pack-years, body mass index, waist circumference and visceral adipose tissue (VAT), and metabolic syndrome (MetS).\nResults: During a median follow-up of 5.5 years, 563 patients were diagnosed with cancer. Patients with vascular disease were at increased risk of cancer [SIR = 1.19; 95% confidence interval (CI), 1.10–1.29]. Specifically, risk of lung cancer (SIR = 1.56; 95% CI, 1.31–1.83), as well as bladder cancer (SIR = 1.60; 95% CI, 1.11–2.24) and cancer of the lip, oral cavity, or pharynx in men (SIR = 1.51; 95% CI, 0.89–2.39), and colorectal (SIR = 1.71; 95% CI, 1.11–2.53) and kidney cancer (SIR = 2.92; 95% CI, 1.05–6.38) in women was increased. A relation between smoking and cancer risk was observed (HR for current smokers = 1.37; 95% CI, 1.05–1.73), whereas an increase in VAT was associated with higher breast cancer risk in women (HR = 1.42; 95% CI, 1.03–1.96). No relation between MetS and cancer risk was found.\nConclusions: Patients with vascular disease have a 19% higher cancer risk compared to the general population. Smoking increased cancer risk and abdominal obesity is a risk factor for breast cancer in female patients with vascular disease.\nImpact: These results call for awareness of the increased cancer risk in patients with vascular disease among physicians and underline the necessity of lifestyle improvement not only for reducing cardiovascular risk. Cancer Epidemiol Biomarkers Prev; 22(7); 1267–77. ©2013 AACR.","DOI":"10.1158/1055-9965.EPI-13-0090","ISSN":"1055-9965, 1538-7755","note":"PMID: 23677576","shortTitle":"Cancer Risk in Patients with Manifest Vascular Disease","journalAbbreviation":"Cancer Epidemiol Biomarkers Prev","language":"en","author":[{"family":"Kruijsdijk","given":"Rob C. M.","dropping-particle":"van"},{"family":"Graaf","given":"Yolanda","dropping-particle":"van der"},{"family":"Peeters","given":"Petra H. M."},{"family":"Visseren","given":"Frank L. J."},{"family":"Group","given":"on behalf of the Second Manifestations of ARTerial disease (SMART)","dropping-particle":"study"}],"issued":{"date-parts":[["2013",7,1]]}}},{"id":81,"uris":["http://zotero.org/users/2724931/items/7FAPCFIV"],"uri":["http://zotero.org/users/2724931/items/7FAPCFIV"],"itemData":{"id":81,"type":"article-journal","title":"Association of colorectal adenoma with components of metabolic syndrome.","container-title":"Cancer causes & control : CCC","page":"727-735","volume":"23","issue":"5","abstract":"PURPOSE: Recently, some studies have shown that diabetes mellitus and metabolic syndrome increase the risk of colorectal neoplasms. Although the mechanism is not known, those have been proposed to contribute to this phenomenon, including insulin resistance, oxidative stress, and adipokine production. The objective of this study was to assess the association between metabolic risk factors and colorectal neoplasm. METHODS: Study participants visited the National Cancer Center, Korea, for screening (2007-2009). A total of 1,771 diagnosed adenoma patients and 4,667 polyp-free controls were included. The association between risk factors and colorectal neoplasm was evaluated using logistic regression models. RESULTS: High waist circumference, blood pressure, and serum triglyceride levels were associated with an increased risk of colorectal adenoma. Metabolic syndrome (MS) was associated with an increased risk of adenoma (OR = 1.44, 95 % CI = 1.23-1.70). The association between MS and colorectal adenoma was observed regardless of advanced/low-risk adenoma, and multiplicity. MS affected right colon adenomas (OR = 1.50, 95 % CI = 1.22-1.85), left colon adenomas (OR = 1.36, 95 % CI = 1.05-1.76), and adenomas in multiple anatomical locations (OR = 1.59, 95 % CI = 1.19-2.12), but was not associated with rectum. CONCLUSION: Central obesity, triglyceride level, and MS are risk factors for colorectal adenoma including advanced adenoma and multiplicity.","DOI":"10.1007/s10552-012-9942-9","ISSN":"1573-7225 0957-5243","note":"PMID: 22450737","journalAbbreviation":"Cancer Causes Control","language":"eng","author":[{"family":"Kim","given":"Byung Chang"},{"family":"Shin","given":"Aesun"},{"family":"Hong","given":"Chang Won"},{"family":"Sohn","given":"Dae Kyung"},{"family":"Han","given":"Kyung Su"},{"family":"Ryu","given":"Kum Hei"},{"family":"Park","given":"Bum Joon"},{"family":"Nam","given":"Ji Hyung"},{"family":"Park","given":"Ji Won"},{"family":"Chang","given":"Hee Jin"},{"family":"Choi","given":"Hyo Seong"},{"family":"Kim","given":"Jeongseon"},{"family":"Oh","given":"Jae Hwan"}],"issued":{"date-parts":[["2012",5]]}}},{"id":36,"uris":["http://zotero.org/users/2724931/items/437ZFQED"],"uri":["http://zotero.org/users/2724931/items/437ZFQED"],"itemData":{"id":36,"type":"article-journal","title":"Clinico-epidemiologic study of the metabolic syndrome and lifestyle factors associated with the risk of colon adenoma and adenocarcinoma.","container-title":"Asian Pacific journal of cancer prevention : APJCP","page":"975-983","volume":"11","issue":"4","abstract":"BACKGROUND: The numbers of patients with colorectal cancer and associated deaths have been increasing in Japan, probably due to rapid lifestyle changes. Prevention is clearly important and the present study aimed to clarify risk factors and to promote colon cancer screening. METHODS: We investigated lifestyle factors, biochemical data, and pathological features of 727 individuals who underwent colonoscopy. Data were subjected to statistical

analysis using SPSS software. RESULTS: Low-grade adenoma was more frequent among the elderly and in men. All of the men and 87.5% of the women with high-grade adenoma or adenocarcinoma were aged>/=45 and>/=50 years, respectively. In women, a larger waist circumference (=80 cm) increased the odds ratio for colon adenoma or adenocarcinoma (colon tumors) by 1.033 (95% confidence index (CI), 1.001-1.066; p=0.040). Metabolic syndrome significantly increased the odds ratio of colon tumors in men, but not in women. Cigarette smoking, drinking alcohol, and increased physical activity were significant risk factors for colon tumors in men, with odds ratios of 1.001 (95% CI, 1.000-1.002; p=0.001), 1.001 (95% CI, 1.000-1.003; p=0.047), and 1.406 (95% CI 1.038-1.904; p=0.028), respectively. CONCLUSIONS: Colon tumors have a high prevalence in the elderly. A larger waist circumference in women and metabolic syndrome in both men and women elevate the risk of colon tumors. In addition, smoking, drinking, and excessive physical activity are risk factors for adenoma and adenocarcinoma in men. For early detection of colorectal cancer, men older than 45 years and women older than 50 years with these risk factors are recommended to undergo colonoscopy.","ISSN":"2476-762X 1513-7368","note":"PMID: 21133610","journalAbbreviation":"Asian Pac J Cancer Prev","language":"eng","author":[{"family":"Kaneko","given":"Rena"},{"family":"Sato","given":"Yuzuru"},{"family":"An","given":"Yasuyosi"},{"family":"Nakagawa","given":"Motoki"},{"family":"Kusayanagi","given":"Satoshi"},{"family":"Kamisago","given":"Satoshi"},{"family":"Umeda","given":"Tomoyuki"},{"family":"Ogawa","given":"Masazumi"},{"family":"Munakata","given":"Kazuo"},{"family":"Mizuno","given":"Kyoichi"}],"issued":{"date-parts":[["2010"]]}}},{"id":49,"uris":["http://zotero.org/users/2724931/items/JZMISB9P"],"uri":["http://zotero.org/users/2724931/items/JZMISB9P"],"itemData":{"id":49,"type":"article-journal","title":"The Metabolic Syndrome, Inflammation, and Colorectal Cancer Risk: An Evaluation of Large Panels of Plasma Protein Markers Using Repeated, Prediagnostic Samples","container-title":"Mediators of Inflammation","page":"4803156","volume":"2017","archive":"PMC","archive_location":"PMC5381203","abstract":"Metabolic syndrome (MetS), a set of metabolic risk factors including obesity, dysglycemia, and dyslipidemia, is associated with increased colorectal cancer (CRC) risk. A putative biological mechanism is chronic, low-grade inflammation, both a feature of MetS and a CRC risk factor. However, excess body fat also induces a proinflammatory state and increases CRC risk. In order to explore the relationship between MetS, body size, inflammation, and CRC, we studied large panels of inflammatory and cancer biomarkers. We included 138 participants from the Västerbotten Intervention Programme with repeated sampling occasions, 10 years apart. Plasma samples were analyzed for 178 protein markers by proximity extension assay. To identify associations between plasma protein levels and MetS components, linear mixed models were fitted for each protein. Twelve proteins were associated with at least one MetS component, six of which were associated with MetS score. MetS alone was not related to any protein. Instead, BMI displayed by far the strongest associations with the biomarkers. One of the 12 MetS score-related proteins (FGF-21), also associated with BMI, was associated with an increased CRC risk (OR 1.71, 95% CI 1.19–2.47). We conclude that overweight and obesity, acting through both inflammation and other mechanisms, likely explain the MetS-CRC connection.","DOI":"10.1155/2017/4803156","ISSN":"0962-9351","author":[{"family":"Harlid","given":"Sophia"},{"family":"Myte","given":"Robin"},{"family":"Van Guelpen","given":"Bethany"}],"issued":{"date-parts":[["2017"]]}}},{"id":5,"uris":["http://zotero.org/users/2724931/items/QHPCVRZ8"],"uri":["http://zotero.org/users/2724931/items/QHPCVRZ8"],"itemData":{"id":5,"type":"article-journal","title":"Evaluation of the risk factors associated with rectal neuroendocrine tumors: a big data analytic study from a health screening center","container-title":"Journal of Gastroenterology","page":"1112-1121","volume":"51","issue":"12","abstract":"Rectal neuroendocrine tumor (NET) is the most common NET in Asia. The risk factors associated with rectal NETs are unclear because of the overall low incidence rate of these tumors and the associated difficulty in conducting large epidemiological studies on rare cases. The aim of this study was to exploit the benefits of big data analytics to assess the risk factors associated with rectal NET.","DOI":"10.1007/s00535-016-1198-9","ISSN":"1435-5922","journalAbbreviation":"Journal of Gastroenterology","author":[{"family":"Pyo","given":"Jeung Hui"},{"family":"Hong","given":"Sung Noh"},{"family":"Min","given":"Byung-Hoon"},{"family":"Lee","given":"Jun Haeng"},{"family":"Chang","given":"Dong Kyung"},{"family":"Rhee","given":"Poong-Lyul"},{"family":"Kim","given":"Jae Jun"},{"family":"Choi","given":"Sun Kyu"},{"family":"Jung","given":"Sin-Ho"},{"family":"Son","given":"Hee Jung"},{"family":"Kim","given":"Young-Ho"}],"issued":{"date-parts":[["2016",12,1]]}}},{"id":175,"uris":["http://zotero.org/users/2724931/items/SMIADFP7"],"uri":["http://zotero.org/users/2724931/items/SMIADFP7"],"itemData":{"id":175,"type":"article-journal","title":"Metabolic syndrome and colorectal neoplasms: An ominous association","container-title":"World Journal of Gastroenterology","page":"5320","volume":"21","issue":"17","source":"CrossRef","DOI":"10.3748/wjg.v21.i17.5320","ISSN":"19327","shortTitle":"Metabolic syndrome and colorectal neoplasms","language":"en","author":[{"family":"Trabulo","given":"Daniel"}],"issued":{"date-parts":[["2015"]]}}},{"id":85,"uris":["http://zotero.org/users/2724931/items/ENWMID8V"],"uri":["http://zotero.org/users/2724931/items/ENWMID8V"],"itemData":{"id":85,"type":"article-journal","title":"Interplay between 3′-UTR polymorphisms in the vascular endothelial growth factor (VEGF) gene and metabolic syndrome in determining the risk of colorectal cancer in Koreans","container-title":"BMC Cancer","page":"881","volume":"14","archive":"PMC","archive_location":"PMC4289193","abstract":"BACKGROUND: Polymorphisms in angiogenesis-related genes and metabolic syndrome (MetS) risk factors play important roles in cancer development. Moreover, recent studies have reported associations between a number of 3′-UTR polymorphisms and a variety of cancers. The aim of this study was to investigate the associations of three VEGF 3′-UTR polymorphisms (1451C>T [rs3025040], 1612G>A [rs10434], and 1725G>A [rs3025053]) and MetS with colorectal cancer (CRC) susceptibility in Koreans. METHODS: A total of 850 participants (450 CRC patients and 400 controls) were enrolled in the study. The genotyping of VEGF polymorphisms was performed by TaqMan allelic discrimination assays. Cancer risks of genetic variations and gene-environment interactions were assessed by adjusted odds ratios (AORs) and 95% confidence intervals (CIs) of multivariate logistic regression analyses. RESULTS: VEGF 1451C>

T was significantly associated with rectal cancer risk (Dominant model; AOR =1.58; 95% CI = 1.09 - 2.28; p = 0.015) whereas VEGF 1725G

>

A correlated with MetS risk (Dominant model; AOR =1.61; 95% CI =1.06 - 2.46; p = 0.026). Of the gene-environment combined effects, the interaction of VEGF 1451C

>

T and MetS contributed to increased rectal cancer risk (AOR = 3.15; 95% CI = 1.74 - 5.70; p <

.001) whereas the combination of VEGF 1725G

>

A and MetS was involved with elevated colon cancer risk (AOR = 2.68; 95% CI = 1.30 - 1.55; p =0.008). CONCLUSIONS: Our results implicate that VEGF 1451C

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T and 1725G

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A may predispose to CRC susceptibility and the genetic contributions may be varied with the presence of MetS. ELECTRONIC SUPPLEMENTARY MATERIAL: The online version of this article (doi:10.1186/1471-2407-14-881) contains supplementary material, which is available to authorized users.","DOI":"10.1186/1471-2407-14-881","ISSN":"1471-2407","author":[{"family":"Jeon","given":"Young Joo"},{"family":"Kim","given":"Jong Woo"},{"family":"Park","given":"Hye Mi"},{"family":"Jang","given":"Hyo Geun"},{"family":"Kim","given":"Jung O"},{"family":"Oh","given":"Jisu"},{"family":"Chong","given":"So Young"},{"family":"Kwon","given":"Sung Won"},{"family":"Kim","given":"Eo Jin"},{"family":"Oh","given":"Doyeun"},{"family":"Kim","given":"Nam Keun"}],"issued":{"date-parts":[["2014"]]}}},{"id":37,"uris":["http://zotero.org/users/2724931/items/B468CSCB"],"uri":["http://zotero.org/users/2724931/items/B468CSCB"],"itemData":{"id":37,"type":"article-journal","title":"Colorectal cancer and its association with the metabolic syndrome: a Malaysian multi-centric case-control study.","container-title":"Asian Pacific journal of cancer prevention : APJCP","page":"3873-3877","volume":"13","issue":"8","abstract":"OBJECTIVE: Colorectal cancer (CRC) and the metabolic syndrome (MetS) are both on the rise in Malaysia. A multi-centric case-control study was conducted from December 2009 to January 2011 to determine any relationship between the two. METHODS: Patients with confirmed CRC based on colonoscopy findings and cancer free controls from five local hospitals were assessed for MetS according to the International Diabetes Federation (IDF) definition. Each index case was matched for age, gender and ethnicity with two controls (140: 280). RESULTS: MetS among cases was highly prevalent (70.7%), especially among women (68.7%). MetS as an entity increased CRC risk by almost three fold independently (OR=2.61, 95%CI=1.53-4.47). In men MetS increased the risk of CRC by two fold (OR=2.01, 95%CI, 1.43-4.56), demonstrating an increasing trend in risk with the number of Mets components observed. CONCLUSION: This study provides evidence for a positive association between the metabolic syndrome and colorectal cancer. A prospective study on the Malaysian population is a high priority to confirm these findings.","ISSN":"2476-762X 1513-7368","note":"PMID: 23098486","journalAbbreviation":"Asian Pac J Cancer Prev","language":"eng","author":[{"family":"Ulaganathan","given":"V."},{"family":"Kandiah","given":"M."},{"family":"Zalilah","given":"M. S."},{"family":"Faizal","given":"J. A."},{"family":"Fijeraid","given":"H."},{"family":"Normayah","given":"K."},{"family":"Gooi","given":"B. H."},{"family":"Othman","given":"R."}],"issued":{"date-parts":[["2012"]]}}},{"id":80,"uris":["http://zotero.org/users/2724931/items/UJ5VD5FU"],"uri":["http://zotero.org/users/2724931/items/UJ5VD5FU"],"itemData":{"id":80,"type":"article-journal","title":"The role of resistin in colorectal cancer.","container-title":"Clinica chimica acta; international journal of clinical chemistry","page":"760-764","volume":"413","issue":"7-8","abstract":"BACKGROUND: To date the role of resistin in colorectal cancer (CRC) is far from being elucidated. The aim of this study was to investigate the association between serum resistin levels and CRC in relation to known risk/protective factors including anthropometric, metabolic, inflammatory parameters as well as lifestyle individual characteristics. METHODS: 40 CRC patients and 40 controls were enrolled. Body weight, height, waist circumference and blood pressure were recorded. Fasting plasma glucose, lipids, C-reactive protein (CRP) and resistin levels were measured. Metabolic Syndrome (MS) was defined according to the harmonized definition. RESULTS: Resistin levels were significantly higher in CRC patients than in controls (p=0.028) and gradually increased with tumor stage progression (p=0.042). A high resistin level was statistically significant determinant of CRC after adjusting for age, sex, body mass index and lifestyle parameters (p=0.029). Resistin showed a strong association with CRP levels (p </= 0.0001). In stepwise regression analysis CRP remained the only independent predictor of both resistin levels (p=0.001) and CRC risk (p=0.021). CONCLUSIONS: These results clarify the nature of the association between resistin and CRC risk suggesting that the proinflammatory state of cancer, rather than the clinical diagnosis of CRC itself or its link with obesity and MS, may govern this association.","DOI":"10.1016/j.cca.2012.01.019","ISSN":"1873-3492 0009-8981","note":"PMID: 22296675","journalAbbreviation":"Clin Chim Acta","language":"eng","author":[{"family":"Danese","given":"Elisa"},{"family":"Montagnana","given":"Martina"},{"family":"Minicozzi","given":"Anna Maria"},{"family":"Bonafini","given":"Sara"},{"family":"Ruzzenente","given":"Orazio"},{"family":"Gelati","given":"Matteo"},{"family":"De Manzoni","given":"Giovanni"},{"family":"Lippi","given":"Giuseppe"},{"family":"Guidi","given":"Gian Cesare"}],"issued":{"date-parts":[["2012",4,11]]}}},{"id":79,"uris":["http://zotero.org/users/2724931/items/S9F263MP"],"uri":["http://zotero.org/users/2724931/items/S9F263MP"],"itemData":{"id":79,"type":"article-journal","title":"Metabolic syndrome and colorectal cancer: the protective role of Mediterranean diet--a case-control study.","container-title":"Angiology","page":"390-396","volume":"63","issue":"5","abstract":"The effect of Mediterranean diet on colorectal cancer, in the presence of the metabolic syndrome, was evaluated in 250 patients with first developed cancer (63 +/- 12 years, 59% males) and 250 age-gender-matched controls. Adherence to the Mediterranean diet was evaluated with the modified-MedDietScore (theoretical range 0-75), while assessment of the metabolic syndrome (MetS) was based on the third Adult Treatment Panel ([ATP III] National Cholesterol Education Program) criteria. Presence of MetS (1.66, 95% confidence interval [CI] 1.02, 2.69), age (4.25, 95% CI 2.33, 7.77), smoking (1.85, 95% CI 1.27, 2.70), and family history of colorectal cancer (3.37, 95% CI 1.69, 6.75) had a detrimental effect, whereas adherence to the Mediterranean diet (0.88, 95% CI 0.84, 0.92) and body mass index (0.93, 95%CI 0.89, 0.98) had a protective role regarding colorectal cancer. Mediterranean diet had the same effect in relation to colorectal cancer, in both participants with (0.84, 95% CI 0.76, 0.93) and without MetS (0.89, 95% CI 0.85, 0.94).","DOI":"10.1177/0003319711421164","ISSN":"1940-1574 0003-3197","note":"PMID:

22267847","journalAbbreviation":"Angiology","language":"eng","author":[{"family":"Kontou","given":"Niki"},
{"family":"Psaltopoulou","given":"Theodora"},{"family":"Soupos","given":"Nick"},
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{"family":"Linos","given":"Athena"},{"family":"Panagiotakos","given":"Demosthenes B."}],"issued":{"date-parts":
[["2012",7]]}}},{"id":164,"uris":["http://zotero.org/users/2724931/items/9WXARXXK"],"uri":
["http://zotero.org/users/2724931/items/9WXARXXK"],"itemData":{"id":164,"type":"article-journal","title":"Metabolic
Syndrome and Risks of Colon and Rectal Cancer: The European Prospective Investigation into Cancer and Nutrition
Study","container-title":"Cancer Prevention Research","page":"1873","volume":"4","issue":"11","abstract":"Metabolic syndrome
(MetS) is purportedly related to risk of developing colorectal cancer; however, the association of MetS, as defined according to
recent international criteria, and colorectal cancer has not been yet evaluated. In particular, it remains unclear to what extent the
MetS components individually account for such an association. We addressed these issues in a nested case–control study that
included 1,093 incident cases matched (1:1) to controls by using incidence density sampling. Conditional logistic regression was
used to estimate relative risks (RR) and 95% CIs. MetS was defined according to the criteria of the National Cholesterol
Education Program/Adult Treatment Panel III (NCEP/ATPIII), the International Diabetes Federation (IDF), and the 2009
harmonized definition. Among individual components, abdominal obesity (RR = 1.51; 95% CI: 1.16–1.96) was associated with
colon cancer, whereas abnormal glucose metabolism was associated with both colon (RR = 2.05; 95% CI: 1.57–2.68) and rectal
cancer (RR = 2.07; 95% CI: 1.45–2.96). MetS, as defined by each of the definitions, was similarly associated with colon cancer
(e.g., RR = 1.91; 95% CI: 1.47–2.42 for MetS by NCEP/ATPIII), whereas MetS by NCEP/ATPIII, but not IDF or harmonized
definition, was associated with rectal cancer (RR = 1.45; 95% CI: 1.02–2.06). Overall, these associations were stronger in women
than in men. However, the association between MetS and colorectal cancer was accounted for by abdominal obesity and
abnormal glucose metabolism such that MetS did not provide risk information beyond these components (likelihood ratio test P =
0.10 for MetS by NCEP/ATPIII). These data suggest that simple assessment of abnormal glucose metabolism and/or abdominal
obesity to identify individuals at colorectal cancer risk may have higher clinical utility than applying more complex MetS
definitions. Cancer Prev Res; 4(11); 1873–83. ©2011 AACR.","DOI":"10.1158/1940-6207.CAPR-11-
0218","journalAbbreviation":"Cancer Prev Res (Phila)","author":[{"family":"Aleksandrova","given":"Krasimira"},
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{"family":"Wareham","given":"Nicholas"},{"family":"Allen","given":"Naomi E."},{"family":"Tsilidis","given":"Konstantinos
K"},{"family":"Pischon","given":"Tobias"}],"issued":{"date-parts":[["2011",11,2]]}}},{"id":162,"uris":
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{"id":162,"type":"article-journal","title":"Clinical study on the correlation between metabolic syndrome and colorectal
carcinoma","container-title":"ANZ Journal of Surgery","page":"331-336","volume":"80","issue":"5","abstract":"Background:
Although metabolic syndrome (MS) has received a lot of attention in recent years, the correlation between MS and colorectal
carcinoma is still not very clear. This study aims at exploring the relationship between MS and colorectal carcinoma. Methods:
Data was collected from 507 cases of colorectal carcinoma and 507 cases of healthy patients between January 2002 and March
2007 to establish the database. The patients with colorectal cancer were divided into two groups based on the presence of MS.
Multivariate analysis of these data for the overall survival and recurrence was performed with the Cox proportional hazard
model. Variables examined by multivariate analysis were sex , age, location, histotype, differentiation, tumour, node, metastasis
(TNM) stage, the number of lymph nodes detected, etc. Results: The existence of MS in the colorectal carcinoma group was
clearly more than that in the control group. The existence of two to four types of abnormal metabolic diseases was significantly
more in the colorectal cancer group than in the control group. MS is one of the important elements that can independently
influence the survival (odds ratio (OR) = 1.501, 95% confidence interval (CI) = 1.057–2.131) and have the highest risk with
worse survival compared with other parameters. Conclusion: There is a close relationship between MS and colorectal
carcinoma, and MS is a significantly independent element that influences the survival of the colorectal carcinoma. Decreasing the
incidence of MS maybe play a role in improving therapeutic efficacy and prognosis of the cancer.","DOI":"10.1111/j.1445-
2197.2009.05084.x","ISSN":"1445-2197","author":[{"family":"Shen","given":"Zhanlong"},{"family":"Wang","given":"Shan"},
{"family":"Ye","given":"Yingjiang"},{"family":"Yin","given":"Mujun"},{"family":"Yang","given":"Xiaodong"},
{"family":"Jiang","given":"Kewei"},{"family":"Liu","given":"Yan"}],"issued":{"date-parts":[["2010",5,1]]}}},{"id":160,"uris":
["http://zotero.org/users/2724931/items/6XNHFT4N"],"uri":["http://zotero.org/users/2724931/items/6XNHFT4N"],"itemData":
{"id":160,"type":"article-journal","title":"Metabolic syndrome is associated with colorectal cancer in men","container-
title":"European Journal of Cancer","page":"1866-1872","volume":"46","issue":"10","abstract":"Aim of the study\nWe assessed
the relation between metabolic syndrome (MetS) and its components and colorectal cancer.\nMethods\nWe analysed data from a
multicentre case–control study conducted in Italy and Switzerland, including 1378 cases of colon cancer, 878 cases of rectal
cancer and 4661 controls. All cases were incident and histologically confirmed. Controls were subjects admitted to the same
hospitals as cases with acute non-malignant conditions. MetS was defined according to the International Diabetes Federation
criteria. Odds ratios (ORs) and the corresponding 95% confidence intervals (CIs) were estimated by multiple logistic regression
models, including terms for major identified confounding factors for colorectal cancer.\nResults\nWith reference to each
component of the MetS, the ORs of colorectal cancer in men were 1.27 (95% CI, 0.95–1.69) for diabetes, 1.24 (95% CI, 1.03
–1.48) for hypertension, 1.14 (95% CI, 0.93–1.40) for hypercholesterolaemia and 1.26 (95% CI, 1.08–1.48) for overweight at age
30. The corresponding ORs in women were 1.20 (95% CI, 0.82–1.75), 0.87 (95% CI, 0.71–1.06), 0.83 (95% CI, 0.66–1.03) and
1.06 (95% CI, 0.86–1.30). Colorectal cancer risk was increased in men (OR = 1.86; 95% CI, 1.21–2.86), but not in women (OR =
1.13; 95% CI, 0.66–1.93), with MetS. The ORs were 2.09 (95% CI, 1.38–3.18) in men and 1.15 (95% CI, 0.68–1.94) in women
with
⩾
3 components of the MetS, as compared to no component. Results were similar for colon and rectal cancers.\nConclusion\nThis
study supports a direct association between MetS and both colon and rectal cancers in men, but not in
women.","DOI":"10.1016/j.ejca.2010.03.010","ISSN":"0959-8049","journalAbbreviation":"European Journal of
Cancer","author":[{"family":"Pelucchi","given":"Claudio"},{"family":"Negri","given":"Eva"},
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{"family":"Crispo","given":"Anna"},{"family":"Bidoli","given":"Ettore"},{"family":"Montella","given":"Maurizio"},

{"family":"Franceschi","given":"Silvia"},{"family":"La Vecchia","given":"Carlo"}],"issued":{"date-parts":[["2010",7]]}}},{"id":87,"uris":["http://zotero.org/users/2724931/items/VESC9IC5"],"uri":["http://zotero.org/users/2724931/items/VESC9IC5"],"itemData":{"id":87,"type":"article-journal","title":"The relationship of nonalcoholic fatty liver disease and metabolic syndrome for colonoscopy colorectal neoplasm","container-title":"Medicine","page":"e5809","volume":"96","issue":"2","archive":"PMC","archive_location":"PMC5266168","abstract":"Col neoplasm is considered to have a strong association with nonalcoholic fatty liver disease (NAFLD) and metabolic syndrome (MetS), respectively. The relationship among NAFLD, MetS, and colorectal neoplasm was assessed in 1793 participants. Participants were divided into 4 groups based on the status of NAFLD and MetS. Relative excess risks of interaction (RERI), attributable proportion (AP), and synergy index (SI) were applied to evaluate the additive interaction. NAFLD and MetS were significantly correlated with colorectal neoplasm and colorectal cancer (CRC), respectively. The incidence of CRC in NAFLD (+) MetS (+) group was significantly higher than other 3 groups. The result of RERI, AP, and SI indicated the significant additive interaction of NAFLD and MetS on the development of CRC. NAFLD and MetS are risk factors for colorectal neoplasm and CRC, respectively. And NAFLD and MetS have an additive effect on the development of CRC.","DOI":"10.1097/MD.0000000000005809","ISSN":"0025-7974","author":[{"family":"Pan","given":"Shuang"},{"family":"Hong","given":"Wandong"},{"family":"Wu","given":"Wenzhi"},{"family":"Chen","given":"Qinfen"},{"family":"Zhao","given":"Qian"},{"family":"Wu","given":"Jiansheng"},{"family":"Jin","given":"Yin"}],"editor":[{"family":"Žarko.","given":"Babi
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"}],"issued":{"date-parts":[["2017",1]]}}},{"id":179,"uris":["http://zotero.org/users/2724931/items/G83HJCGN"],"uri":["http://zotero.org/users/2724931/items/G83HJCGN"],"itemData":{"id":179,"type":"article-journal","title":"Prevalence and risk factors of advanced colorectal neoplasms in asymptomatic Korean people between 40 and 49

years of age","container-title":"Journal of Gastroenterology and Hepatology","page":"98-105","volume":"32","issue":"1","source":"PubMed","abstract":"BACKGROUND AND AIM: Current guidelines recommend colon cancer screening for persons aged over 50

years. However, there are few data on colorectal cancer screening in 40- to 49-year-olds. This study assessed the prevalence and risk factors of colorectal neoplasms in 40- to 49-year-old Koreans.\nMETHODS: We analyzed the results of screening colonoscopies of 6680 persons 40-59

years of age (2206 aged 40-49 and 4474 aged 50-59

years).\nRESULTS: The prevalence of overall and advanced neoplasms in the 40- to 49-year age group was lower than in the 50- to 59-year age group (26.7% and 2.4% vs 37.8% and 3.5%, respectively). However, the prevalence of overall and advanced neoplasms increased to 39.1% and 5.4%, respectively, in 45- to 49-year-old individuals with metabolic syndrome. In the 40- to 49-year age group, age, current smoking, and metabolic syndrome were associated with an increased risk of advanced neoplasms (odds ratio [OR] 1.16, 95% confidence interval [CI] 1.04-1.30; OR 3.12, 95% CI 1.20-8.12; and OR 2.00, 95% CI 1.09-3.67, respectively).\nCONCLUSIONS: Individuals aged 40-49

years had a lower prevalence of colorectal neoplasms than those aged 50-59

years, but some 40- to 49-year-olds showed a similar prevalence to those aged 50-59

years. Age, current smoking habits, and metabolic syndrome are associated with an increased risk of advanced neoplasms in subjects aged 40-49

years. Further studies are needed to stratify the risks of colon cancer and guide targeted screening in persons younger than 50

years old.","DOI":"10.1111/jgh.13454","ISSN":"1440-1746","note":"PMID: 27197805","journalAbbreviation":"J. Gastroenterol. Hepatol.","language":"eng","author":[{"family":"Koo","given":"Ja Eun"},{"family":"Kim","given":"Kyung-Jo"},{"family":"Park","given":"Hye Won"},{"family":"Kim","given":"Hong-Kyu"},{"family":"Choe","given":"Jae Won"},{"family":"Chang","given":"Hye-Sook"},{"family":"Lee","given":"Ji Young"},{"family":"Myung","given":"Seung-Jae"},{"family":"Yang","given":"Suk-Kyun"},{"family":"Kim","given":"Jin-Ho"}],"issued":{"date-parts":[["2017",1]]}}},{"id":170,"uris":["http://zotero.org/users/2724931/items/2S89J5KW"],"uri":["http://zotero.org/users/2724931/items/2S89J5KW"],"itemData":{"id":170,"type":"article-journal","title":"Risk factors associated with rectal neuroendocrine tumors: a cross-sectional study.","container-title":"Cancer epidemiology, biomarkers & prevention : a publication of the American Association for Cancer Research, cosponsored by the American Society of Preventive Oncology","page":"1406-1413","volume":"23","issue":"7","abstract":"BACKGROUND: The incidence of rectal neuroendocrine tumors (NET) has been increasing since the implementation of the screening colonoscopy. However, very little is known about risk factors associated with rectal NETs. We examined the prevalence of and the risk factors for rectal NETs in a Korean population. METHODS: A cross-sectional study was performed on 62,171 Koreans who underwent screening colonoscopy. The clinical characteristics and serum biochemical parameters of subjects with rectal NET were compared with those of subjects without rectal NET using multivariate logistic regression. RESULTS: Of a total of 57,819 participants, 101 [OR, 0.17%; 95% confidence interval (CI), 0.14-0.20] had a rectal NET. Young age (<50 years; OR, 2.09; 95% CI, 1.06-4.15), male gender (OR, 1.92; 95% CI, 1.15-3.20), alcohol drinking [adjusted OR (AOR), 1.56; 95% CI, 1.01-2.42], and a low high-density lipoprotein-cholesterol (HDL-C) level (AOR, 1.85; 95% CI, 1.10-3.11) were independent risk factors for rectal NETs. Cigarette smoking, fatty liver, metabolic syndrome, higher triglyceride level (>/=150 mg/dL), and higher homeostasis model assessment of insulin resistance (>/=2.5) were not independently associated with rectal NETs, although these factors were more common in individuals with rectal NETs in the univariate analysis. CONCLUSIONS: Young age (<50 years), male gender, alcohol drinking, and a low","DOI":"10.1158/1055-9965.EPI-14-0132","ISSN":"1538-7755 1055-9965","note":"PMID: 24813818","journalAbbreviation":"Cancer Epidemiol Biomarkers Prev","language":"eng","author":[{"family":"Jung","given":"Yoon Suk"},{"family":"Yun","given":"Kyung Eun"},{"family":"Chang","given":"Yoosoo"},{"family":"Ryu","given":"Seungho"},{"family":"Park","given":"Jung Ho"},{"family":"Kim","given":"Hong Joo"},{"family":"Cho","given":"Yong Kyun"},{"family":"Sohn","given":"Chong Il"},{"family":"Jeon","given":"Woo Kyu"},{"family":"Kim","given":"Byung Ik"},{"family":"Park","given":"Dong Il"}],"issued":{"date-parts":[["2014",7]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
20, 26, 27, 29, 30, 32, 33, 36–43, 45, 46, 48
], whereas 5 studies on both outcomes [
ADDIN ZOTERO_ITEM CSL_CITATION {"citationID":"a2mb4k82ig2","properties":{"formattedCitation":"{\\rtf \\super 26,29,30,36,46\\nosupersub{}}","plainCitation":"26,29,30,36,46"},"citationItems":[{"id":83,"uris":["http://zotero.org/users/2724931/items/33PI99M5"],"uri":["http://zotero.org/users/2724931/items/33PI99M5"],"itemData":{"id":83,"type":"article-journal","title":"Increased risk of colorectal malignant neoplasm in patients with nonalcoholic fatty liver

disease: a large study","container-title":"Molecular Biology Reports","page":"2989-2997","volume":"41","issue":"5","abstract":"Nonalcoholic fatty liver disease (NAFLD) has been suggested to be a strong risk factor of colorectal benign adenomas and advanced neoplasms. The aim of this large cohort study was to further investigate the prevalence of colorectal malignant neoplasm (CRMN) in patients with NAFLD and determine whether association between NAFLD and CRMN exists. 2,315 community subjects (1,370 males and 945 females) who underwent a routine colonoscopy according to international colorectal cancer screening guideline were recruited. Nature of colorectal lesions determined by biopsy and NAFLD was diagnosed by ultrasound. Binary logistic regression analysis was applied to explore the related associations. Prevalence of CRMN was 29.3 % (77/263) in patients with NAFLD, which was significantly higher than 18.0 % (369/2,052) in the control group (P < 0.05). In addition, malignant neoplasm in NAFLD group occurred more frequently at sigmoid colon than in control group (14.3 vs. 11.9 %). The incidence of highly-differentiated colorectal adenocarcinoma in NAFLD group was significantly higher than control group (62.3 vs. 9.8 %). Univariate analysis showed that NAFLD had strong association with CRMN (OR 2.043; 95 % CI 1.512–2.761; P < 0.05). After adjusting for metabolic and other confounding factors, NAFLD remained as an independent risk factor for CRMN (OR 1.868; 95 % CI 1.360–2.567; P < 0.05). NAFLD was an independent risk factor for CRMN. Sigmoid carcinoma and highly differentiated colorectal adenocarcinoma were more commonly found in NAFLD. (ClinicalTrials.gov number, NCT01657773, website: http://clinicaltrials.gov/ct2/show/NCT01657773?term=zheng+minghua&rank=1)."," DOI":"10.1007/s11033-014-3157-y","ISSN":"1573-4978","journalAbbreviation":"Molecular Biology Reports","author":[{"family":"Lin","given":"Xian-Feng"},{"family":"Shi","given":"Ke-Qing"},{"family":"You","given":"Jie"},{"family":"Liu","given":"Wen-Yue"},{"family":"Luo","given":"Ying-Wan"},{"family":"Wu","given":"Fa-Ling"},{"family":"Chen","given":"Yong-Ping"},{"family":"Wong","given":"Danny Ka-Ho"},{"family":"Yuen","given":"Man-Fung"},{"family":"Zheng","given":"Ming-Hua"}],"issued":{"date-parts":[["2014"]]}}},{"id":81,"uris":["http://zotero.org/users/2724931/items/7FAPCFIV"],"uri":["http://zotero.org/users/2724931/items/7FAPCFIV"],"itemData":{"id":81,"type":"article-journal","title":"Association of colorectal adenoma with components of metabolic syndrome.","container-title":"Cancer causes & control : CCC","page":"727-735","volume":"23","issue":"5","abstract":"PURPOSE: Recently, some studies have shown that diabetes mellitus and metabolic syndrome increase the risk of colorectal neoplasms. Although the mechanism is not known, those have been proposed to contribute to this phenomenon, including insulin resistance, oxidative stress, and adipokine production. The objective of this study was to assess the association between metabolic risk factors and colorectal neoplasm. METHODS: Study participants visited the National Cancer Center, Korea, for screening (2007-2009). A total of 1,771 diagnosed adenoma patients and 4,667 polyp-free controls were included. The association between risk factors and colorectal neoplasm was evaluated using logistic regression models. RESULTS: High waist circumference, blood pressure, and serum triglyceride levels were associated with an increased risk of colorectal adenoma. Metabolic syndrome (MS) was associated with an increased risk of adenoma (OR = 1.44, 95 % CI = 1.23-1.70). The association between MS and colorectal adenoma was observed regardless of advanced/low-risk adenoma, and multiplicity. MS affected right colon adenomas (OR = 1.50, 95 % CI = 1.22-1.85), left colon adenomas (OR = 1.36, 95 % CI = 1.05-1.76), and adenomas in multiple anatomical locations (OR = 1.59, 95 % CI = 1.19-2.12), but was not associated with rectum. CONCLUSION: Central obesity, triglyceride level, and MS are risk factors for colorectal adenoma including advanced adenoma and multiplicity.","DOI":"10.1007/s10552-012-9942-9","ISSN":"1573-7225 0957-5243","note":"PMID: 22450737","journalAbbreviation":"Cancer Causes Control","language":"eng","author":[{"family":"Kim","given":"Byung Chang"},{"family":"Shin","given":"Aesun"},{"family":"Hong","given":"Chang Won"},{"family":"Sohn","given":"Dae Kyung"},{"family":"Han","given":"Kyung Su"},{"family":"Ryu","given":"Kum Hei"},{"family":"Park","given":"Bum Joon"},{"family":"Nam","given":"Ji Hyung"},{"family":"Park","given":"Ji Won"},{"family":"Chang","given":"Hee Jin"},{"family":"Choi","given":"Hyo Seong"},{"family":"Kim","given":"Jeongseon"},{"family":"Oh","given":"Jae Hwan"}],"issued":{"date-parts":[["2012",5]]}}},{"id":36,"uris":["http://zotero.org/users/2724931/items/437ZFQED"],"uri":["http://zotero.org/users/2724931/items/437ZFQED"],"itemData":{"id":36,"type":"article-journal","title":"Clinico-epidemiologic study of the metabolic syndrome and lifestyle factors associated with the risk of colon adenoma and adenocarcinoma.","container-title":"Asian Pacific journal of cancer prevention : APJCP","page":"975-983","volume":"11","issue":"4","abstract":"BACKGROUND: The numbers of patients with colorectal cancer and associated deaths have been increasing in Japan, probably due to rapid lifestyle changes. Prevention is clearly important and the present study aimed to clarify risk factors and to promote colon cancer screening. METHODS: We investigated lifestyle factors, biochemical data, and pathological features of 727 individuals who underwent colonoscopy. Data were subjected to statistical analysis using SPSS software. RESULTS: Low-grade adenoma was more frequent among the elderly and in men. All of the men and 87.5% of the women with high-grade adenoma or adenocarcinoma were aged>/=45 and>/=50 years, respectively. In women, a larger waist circumference (=80 cm) increased the odds ratio for colon adenoma or adenocarcinoma (colon tumors) by 1.033 (95% confidence index (CI), 1.001-1.066; p=0.040). Metabolic syndrome significantly increased the odds ratio of colon tumors in men, but not in women. Cigarette smoking, drinking alcohol, and increased physical activity were significant risk factors for colon tumors in men, with odds ratios of 1.001 (95% CI, 1.000-1.002; p=0.001), 1.001 (95% CI, 1.000-1.003; p=0.047), and 1.406 (95% CI 1.038-1.904; p=0.028), respectively. CONCLUSIONS: Colon tumors have a high prevalence in the elderly. A larger waist circumference in women and metabolic syndrome in both men and women elevate the risk of colon tumors. In addition, smoking, drinking, and excessive physical activity are risk factors for adenoma and adenocarcinoma in men. For early detection of colorectal cancer, men older than 45 years and women older than 50 years with these risk factors are recommended to undergo colonoscopy.","ISSN":"2476-762X 1513-7368","note":"PMID: 21133610","journalAbbreviation":"Asian Pac J Cancer Prev","language":"eng","author":[{"family":"Kaneko","given":"Rena"},{"family":"Sato","given":"Yuzuru"},{"family":"An","given":"Yasuyosi"},{"family":"Nakagawa","given":"Motoki"},{"family":"Kusayanagi","given":"Satoshi"},{"family":"Kamisago","given":"Satoshi"},{"family":"Umeda","given":"Tomoyuki"},{"family":"Ogawa","given":"Masazumi"},{"family":"Munakata","given":"Kazuo"},{"family":"Mizuno","given":"Kyoichi"}],"issued":{"date-parts":[["2010"]]}}},{"id":175,"uris":["http://zotero.org/users/2724931/items/SMIADFP7"],"uri":["http://zotero.org/users/2724931/items/SMIADFP7"],"itemData":{"id":175,"type":"article-journal","title":"Metabolic syndrome and colorectal neoplasms: An ominous association","container-title":"World Journal of Gastroenterology","page":"5320","volume":"21","issue":"17","source":"CrossRef","DOI":"10.3748/wjg.v21.i17.5320","ISSN":"19327","shortTitle":"Metabolic syndrome and colorectal neoplasms","language":"en","author":[{"family":"Trabulo","given":"Daniel"}],"issued":{"date-parts":[["2015"]]}}},{"id":179,"uris":["http://zotero.org/users/2724931/items/G83HJCGN"],"uri":["http://zotero.org/users/2724931/items/G83HJCGN"],"itemData":{"id":179,"type":"article-journal","title":"Prevalence and risk factors of advanced colorectal neoplasms in asymptomatic Korean people between 40 and 49

years of age","container-title":"Journal of Gastroenterology and Hepatology","page":"98-105","volume":"32","issue":"1","source":"PubMed","abstract":"BACKGROUND AND AIM: Current guidelines recommend colon cancer screening for persons aged over 50

years. However, there are few data on colorectal cancer screening in 40- to 49-year-olds. This study assessed the prevalence and risk factors of colorectal neoplasms in 40- to 49-year-old Koreans.\nMETHODS: We analyzed the results of screening colonoscopies of 6680 persons 40-59

years of age (2206 aged 40-49 and 4474 aged 50-59

years).\nRESULTS: The prevalence of overall and advanced neoplasms in the 40- to 49-year age group was lower than in the 50- to 59-year age group (26.7% and 2.4% vs 37.8% and 3.5%, respectively). However, the prevalence of overall and advanced neoplasms increased to 39.1% and 5.4%, respectively, in 45- to 49-year-old individuals with metabolic syndrome. In the 40- to 49-year age group, age, current smoking, and metabolic syndrome were associated with an increased risk of advanced neoplasms (odds ratio [OR] 1.16, 95% confidence interval [CI] 1.04-1.30; OR 3.12, 95% CI 1.20-8.12; and OR 2.00, 95% CI 1.09-3.67, respectively).\nCONCLUSIONS: Individuals aged 40-49

years had a lower prevalence of colorectal neoplasms than those aged 50-59

years, but some 40- to 49-year-olds showed a similar prevalence to those aged 50-59

years. Age, current smoking habits, and metabolic syndrome are associated with an increased risk of advanced neoplasms in subjects aged 40-49

years. Further studies are needed to stratify the risks of colon cancer and guide targeted screening in persons younger than 50

years old.","DOI":"10.1111/jgh.13454","ISSN":"1440-1746","note":"PMID: 27197805","journalAbbreviation":"J. Gastroenterol. Hepatol.","language":"eng","author":[{"family":"Koo","given":"Ja Eun"},{"family":"Kim","given":"Kyung-Jo"},{"family":"Park","given":"Hye Won"},{"family":"Kim","given":"Hong-Kyu"},{"family":"Choe","given":"Jae Won"},{"family":"Chang","given":"Hye-Sook"},{"family":"Lee","given":"Ji Young"},{"family":"Myung","given":"Seung-Jae"},{"family":"Yang","given":"Suk-Kyun"},{"family":"Kim","given":"Jin-Ho"}],"issued":{"date-parts":[["2017",1]]}}},"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
26, 29, 30, 36, 46
]. Furthermore, 20 studies utilized the definition formulated by the NCEP/ATPIII as diagnosis criteria in clinical practice [ADDIN ZOTERO_ITEM CSL_CITATION {"citationID":"a2gl4n4j1fd","properties":{"formattedCitation":"{\\rtf \\super 20,25 \\uc0\\u8211{}29,34,36,40,41,44,46,47,49,50,52\\uc0\\u8211{}55,57\\nosupersub{}}","plainCitation":"20,25 –29,34,36,40,41,44,46,47,49,50,52–55,57"},"citationItems":[{"id":177,"uris":["http://zotero.org/users/2724931/items/E2HN5VWH"],"uri":["http://zotero.org/users/2724931/items/E2HN5VWH"],"itemData":{"id":177,"type":"article-journal","title":"Metabolic Predispositions and Increased Risk of Colorectal Adenocarcinoma by Anatomical Location: A Large Population-Based Cohort Study in Norway","container-title":"American Journal of Epidemiology","page":"883-893","volume":"182","issue":"10","abstract":"Whether different definitions of metabolic syndrome (MetS) are differently associated with colorectal adenocarcinoma (CA) by anatomical location is unclear. A population-based cohort study, the Cohort of Norway (CONOR) Study, was conducted in Norway from 1995 to 2010. Anthropometric measurements, blood samples, and lifestyle data were collected at recruitment. CAs were identified through linkage to the Norwegian Cancer Register. A composite index of MetS as defined by the International Diabetes Federation (IDF) or/and the National Cholesterol Education Program's Adult Treatment Panel III (ATP III) and single components of MetS, including anthropometric factors, blood pressure, lipids, triglycerides, and glucose, were analyzed. Cox proportional hazards regression was performed to estimate hazard ratios and 95% confidence intervals. Significant associations between single MetS components and CA, except for reduced high-density lipoprotein cholesterol and nonfasting glucose levels, were observed. MetS defined by 2 criteria separately showed a similar association with CA in general, and MetS defined by both the IDF and ATP III showed consistent results. Stronger associations were observed in the proximal colon among men (IDF: hazard ratio (HR) = 1.51, 95% confidence interval (CI): 1.24, 1.84; ATP III: HR = 1.40, 95% CI: 1.15, 1.70) and in the rectum among women (IDF: HR = 1.42, 95% CI: 1.07, 1.89; ATP III: HR = 1.43, 95% CI: 1.08, 1.90).","DOI":"10.1093/aje/kwv141","ISSN":"0002-9262","journalAbbreviation":"American Journal of Epidemiology","author":[{"family":"Lu","given":"Yunxia"},{"family":"Ness-Jensen","given":"Eivind"},{"family":"Hveem","given":"Kristian"},{"family":"Martling","given":"Anna"}],"issued":{"date-parts":[["2015",11,15]]}}},{"id":172,"uris":["http://zotero.org/users/2724931/items/Z38D9WWB"],"uri":["http://zotero.org/users/2724931/items/Z38D9WWB"],"itemData":{"id":172,"type":"article-journal","title":"Effects of Metabolic Syndrome and Findings From Baseline Colonoscopies on Occurrence of Colorectal Neoplasms","container-title":"Clinical Gastroenterology and Hepatology","page":"1134-1142.e8","volume":"13","issue":"6","abstract":"Background & Aims\nMetabolic syndrome is associated with increased risk of colorectal neoplasm, but little is known about its effects on the occurrence of neoplasm after colonoscopy. We investigated the effects of metabolic syndrome on the risk of advanced neoplasm after colonoscopy.\nMethods\nWe performed a prospective study of 4483 subjects age 50 years and older who underwent screening and surveillance colonoscopies as part of an annual health check-up at National Taiwan University Hospital. Baseline demographic data and colonoscopic findings were recorded. Subjects with either advanced adenoma or 3 or more adenomas detected at baseline were classified as high risk; those with fewer than 3 nonadvanced adenomas were classified as low risk; and those without any neoplastic lesions were classified as normal. The cumulative risk of detecting an advanced neoplasm during surveillance colonoscopies (3 and 5 years later) was correlated with risk group and metabolic syndrome. Hazard ratios (HRs) were calculated for occurrence of neoplasm according to baseline colonoscopic findings and clinical risk factors, including metabolic syndrome.\nResults\nAdvanced neoplasms were detected during the surveillance colonoscopies in 1.3% of subjects in the normal group and in 2.4% of those in the low-risk group at 5 years, and in 8.5% of subjects in the high-risk group at 3 years. Subjects with metabolic syndrome had a significantly higher risk for subsequent advanced neoplasms (P < .0001). After stratification based on findings from baseline colonoscopies, the risk for neoplasm was significant in the normal (P < .001) and low-risk groups (P = .04), but not in the high-risk group (P = .48). In Cox regression analysis, metabolic syndrome had significant effects on the risk for advanced neoplasms in the normal (HR, 2.07; 95% confidence interval, 1.13–3.81) and low-risk groups (HR, 2.34; 95% confidence interval, 1.01–5.41), but not in the high-risk group.\nConclusions\nMetabolic syndrome is a significant risk factor for occurrence of an advanced adenoma after a negative or low-risk finding from a baseline colonoscopy. Metabolic syndrome should be considered in risk stratification for surveillance intervals.","DOI":"10.1016/j.cgh.2014.10.022","ISSN":"1542-3565","journalAbbreviation":"Clinical Gastroenterology and Hepatology","author":[{"family":"Chiu","given":"Han-Mo"},{"family":"Lee","given":"Yi-Chia"},{"family":"Tu","given":"Chia-Hung"},{"family":"Chang","given":"Li-Chun"},{"family":"Hsu","given":"Wen-Feng"},{"family":"Chou","given":"Chu-Kuang"},{"family":"Tsai","given":"Kun-Feng"},{"family":"Liang","given":"Jin-Tung"},{"family":"Shun","given":"Chia-Tung"},{"family":"Wu","given":"Ming-Shiang"}],"issued":{"date-parts":[["2015",6]]}}},{"id":83,"uris":["http://zotero.org/users/2724931/items/33PI99M5"],"uri":["http://zotero.org/users/2724931/items/33PI99M5"],"itemData":{"id":83,"type":"article-journal","title":"Increased risk of colorectal malignant neoplasm in patients with nonalcoholic fatty liver disease: a large study","container-title":"Molecular Biology Reports","page":"2989-2997","volume":"41","issue":"5","abstract":"Nonalcoholic fatty liver disease (NAFLD) has been suggested to be a strong risk factor of colorectal benign adenomas and advanced neoplasms. The aim of this large cohort study was to further investigate the prevalence of colorectal malignant neoplasm (CRMN) in patients with NAFLD and determine whether association between NAFLD and CRMN exists. 2,315 community subjects (1,370 males and 945 females) who underwent a routine colonoscopy

according to international colorectal cancer screening guideline were recruited. Nature of colorectal lesions determined by biopsy and NAFLD was diagnosed by ultrasound. Binary logistic regression analysis was applied to explore the related associations. Prevalence of CRMN was 29.3 % (77/263) in patients with NAFLD, which was significantly higher than 18.0 % (369/2,052) in the control group (P < 0.05). In addition, malignant neoplasm in NAFLD group occurred more frequently at sigmoid colon than in control group (14.3 vs. 11.9 %). The incidence of highly-differentiated colorectal adenocarcinoma in NAFLD group was significantly higher than control group (62.3 vs. 9.8 %). Univariate analysis showed that NAFLD had strong association with CRMN (OR 2.043; 95 % CI 1.512–2.761; P < 0.05). After adjusting for metabolic and other confounding factors, NAFLD remained as an independent risk factor for CRMN (OR 1.868; 95 % CI 1.360–2.567; P < 0.05). NAFLD was an independent risk factor for CRMN. Sigmoid carcinoma and highly differentiated colorectal adenocarcinoma were more commonly found in NAFLD. (ClinicalTrials.gov number, NCT01657773, website: http://clinicaltrials.gov/ct2/show/NCT01657773?term=zheng+minghua&rank=1)."},"DOI":"10.1007/s11033-014-3157-y","ISSN":"1573-4978","journalAbbreviation":"Molecular Biology Reports","author":[{"family":"Lin","given":"Xian-Feng"},{"family":"Shi","given":"Ke-Qing"},{"family":"You","given":"Jie"},{"family":"Liu","given":"Wen-Yue"},{"family":"Luo","given":"Ying-Wan"},{"family":"Wu","given":"Fa-Ling"},{"family":"Chen","given":"Yong-Ping"},{"family":"Wong","given":"Danny Ka-Ho"},{"family":"Yuen","given":"Man-Fung"},{"family":"Zheng","given":"Ming-Hua"}],"issued":{"date-parts":[["2014"]]}}},{"id":4,"uris":["http://zotero.org/users/2724931/items/C7S4WQSB"],"uri":["http://zotero.org/users/2724931/items/C7S4WQSB"],"itemData":{"id":4,"type":"article-journal","title":"Cancer Risk in Patients with Manifest Vascular Disease: Effects of Smoking, Obesity, and Metabolic Syndrome","container-title":"Cancer Epidemiology and Prevention Biomarkers","page":"1267-1277","volume":"22","issue":"7","source":"cebp.aacrjournals.org","abstract":"Background: Patients with vascular disease may be at increased risk of cancer because of shared risk factors and common pathogenesis.\nMethods: Patients with vascular disease (n = 6,172) were prospectively followed for cancer incidence. Standardized incidence ratios (SIRs) were calculated to compare the cancer incidence of the study population with that of the general population. Multivariable-adjusted hazard ratio's (HRs) of cancer were estimated for smoking status, pack-years, body mass index, waist circumference and visceral adipose tissue (VAT), and metabolic syndrome (MetS).\nResults: During a median follow-up of 5.5 years, 563 patients were diagnosed with cancer. Patients with vascular disease were at increased risk of cancer [SIR = 1.19; 95% confidence interval (CI), 1.10–1.29]. Specifically, risk of lung cancer (SIR = 1.56; 95% CI, 1.31–1.83), as well as bladder cancer (SIR = 1.60; 95% CI, 1.11–2.24) and cancer of the lip, oral cavity, or pharynx in men (SIR = 1.51; 95% CI, 0.89–2.39), and colorectal (SIR = 1.71; 95% CI, 1.11–2.53) and kidney cancer (SIR = 2.92; 95% CI, 1.05–6.38) in women was increased. A relation between smoking and cancer risk was observed (HR for current smokers = 1.37; 95% CI, 1.05–1.73), whereas an increase in VAT was associated with higher breast cancer risk in women (HR = 1.42; 95% CI, 1.03–1.96). No relation between MetS and cancer risk was found.\nConclusions: Patients with vascular disease have a 19% higher cancer risk compared to the general population. Smoking increased cancer risk and abdominal obesity is a risk factor for breast cancer in female patients with vascular disease.\nImpact: These results call for awareness of the increased cancer risk in patients with vascular disease among physicians and underline the necessity of lifestyle improvement not only for reducing cardiovascular risk. Cancer Epidemiol Biomarkers Prev; 22(7); 1267–77. ©2013 AACR.","DOI":"10.1158/1055-9965.EPI-13-0090","ISSN":"1055-9965, 1538-7755","note":"PMID: 23677576","shortTitle":"Cancer Risk in Patients with Manifest Vascular Disease","journalAbbreviation":"Cancer Epidemiol Biomarkers Prev","language":"en","author":[{"family":"Kruijsdijk","given":"Rob C. M.","dropping-particle":"van"},{"family":"Graaf","given":"Yolanda","dropping-particle":"van der"},{"family":"Peeters","given":"Petra H. M."},{"family":"Visseren","given":"Frank L. J."},{"family":"Group","given":"on behalf of the Second Manifestations of ARTerial disease (SMART)","dropping-particle":"study"}],"issued":{"date-parts":[["2013",7,1]]}}},{"id":82,"uris":["http://zotero.org/users/2724931/items/K9AVA46D"],"uri":["http://zotero.org/users/2724931/items/K9AVA46D"],"itemData":{"id":82,"type":"article-journal","title":"Patients with nonalcoholic fatty liver disease have higher risk of colorectal adenoma after negative baseline colonoscopy.","container-title":"Colorectal disease : the official journal of the Association of Coloproctology of Great Britain and Ireland","page":"830-835","volume":"15","issue":"7","abstract":"AIM: The study aimed to determine whether nonalcoholic fatty liver disease (NAFLD) is an independent risk factor of adenoma after negative baseline colonoscopy. METHOD: A retrospective cohort study was conducted on 1522 health-check individuals who underwent two consecutive colonoscopies at Taipei Veterans General Hospital between 2003 and 2010. Those developing an adenoma after an initial negative baseline colonoscopy (adenoma group) were compared with those in whom the second colonoscopy was negative (nonadenoma group). Anthropometric measurements, biochemical tests and the presence of NAFLD were compared between the two groups. RESULTS: The adenoma group had a higher prevalence of NAFLD than the nonadenoma group (55.6% vs 38.8%; P < 0.05). On multivariate logistic regression analysis, NAFLD was an independent risk factor (OR = 1.45, 95% CI: 1.07-1.98) for adenoma formation after a negative baseline colonoscopy. The risk of colorectal adenoma increased when NAFLD patients had other morbidities including metabolic syndrome, hypertension or smoking (OR = 2.85, 4.03 and 4.17). CONCLUSION: NAFLD is an independent risk factor for colorectal adenoma formation after a negative baseline colonoscopy. The risk is higher in individuals with NAFLD and other comorbidities, such as hypertension, smoking or metabolic syndrome.","DOI":"10.1111/codi.12172","ISSN":"1463-1318 1462-8910","note":"PMID: 23398678","journalAbbreviation":"Colorectal Dis","language":"eng","author":[{"family":"Huang","given":"K.-W."},{"family":"Leu","given":"H.-B."},{"family":"Wang","given":"Y.-J."},{"family":"Luo","given":"J.-C."},{"family":"Lin","given":"H.-C."},{"family":"Lee","given":"F.-Y."},{"family":"Chan","given":"W.-L."},{"family":"Lin","given":"J.-K."},{"family":"Chang","given":"F.-Y."}],"issued":{"date-parts":[["2013",7]]}}},{"id":81,"uris":["http://zotero.org/users/2724931/items/7FAPCFIV"],"uri":["http://zotero.org/users/2724931/items/7FAPCFIV"],"itemData":{"id":81,"type":"article-journal","title":"Association of colorectal adenoma with components of metabolic syndrome.","container-title":"Cancer causes & control : CCC","page":"727-735","volume":"23","issue":"5","abstract":"PURPOSE: Recently, some studies have shown that diabetes mellitus and metabolic syndrome increase the risk of colorectal neoplasms. Although the mechanism is not known, those have been proposed to contribute to this phenomenon, including insulin resistance, oxidative stress, and adipokine production. The objective of this study was to assess the association between metabolic risk factors and colorectal neoplasm. METHODS: Study participants visited the National Cancer Center, Korea, for screening (2007-2009). A total of 1,771 diagnosed adenoma patients and 4,667 polyp-free controls were included. The association between risk factors and colorectal neoplasm was evaluated using logistic regression models. RESULTS: High waist circumference, blood pressure, and serum triglyceride levels were associated with an increased risk of colorectal adenoma. Metabolic syndrome (MS) was associated with an increased risk of adenoma (OR = 1.44, 95 % CI = 1.23-1.70). The association between MS and colorectal adenoma was observed regardless of advanced/low-risk adenoma, and multiplicity. MS affected right colon adenomas (OR = 1.50, 95 % CI = 1.22-1.85), left colon adenomas (OR = 1.36, 95 % CI = 1.05-1.76), and adenomas in multiple anatomical locations (OR = 1.59, 95 % CI = 1.19-2.12), but was not associated with rectum. CONCLUSION: Central obesity, triglyceride level, and MS are risk factors for colorectal adenoma including advanced adenoma and multiplicity.","DOI":"10.1007/s10552-012-9942-9","ISSN":"1573-7225 0957-5243","note":"PMID: 22450737","journalAbbreviation":"Cancer Causes Control","language":"eng","author":[{"family":"Kim","given":"Byung Chang"},{"family":"Shin","given":"Aesun"},{"family":"Hong","given":"Chang Won"},{"family":"Sohn","given":"Dae Kyung"},{"family":"Han","given":"Kyung Su"},{"family":"Ryu","given":"Kum Hei"},{"family":"Park","given":"Bum Joon"},{"family":"Nam","given":"Ji Hyung"},{"family":"Park","given":"Ji Won"},{"family":"Chang","given":"Hee Jin"},{"family":"Choi","given":"Hyo Seong"},{"family":"Kim","given":"Jeongseon"},{"family":"Oh","given":"Jae Hwan"}],"issued":{"date-parts":[["2012",5]]}}},

{"id":86,"uris":["http://zotero.org/users/2724931/items/HH3ENCP2"],"uri":["http://zotero.org/users/2724931/items/HH3ENCP2"],"itemData":{"id":86,"type":"article-journal","title":"Is height a risk factor for colorectal adenoma?","container-title":"The Korean Journal of Internal Medicine","page":"653-659","volume":"31","issue":"4","archive":"PMC","archive_location":"PMC4939489","abstract":"BACKGROUND/AIMS:: Although it is generally known that the risk for all types of cancer increases with adult height, combined and for several common site-specific cancers (including colon and rectal), evidence is limited for adenomas, which are precursors to colorectal cancer. We evaluated the association between height and risk of colorectal adenoma at various stages of the adenoma-carcinoma pathway. METHODS:: We conducted a retrospective study using data from patients who had undergone a complete colonoscopy as part of a health examination at the Health Promotion Center of Samsung Medical Center between October 13, 2009 and December 31, 2011. A total of 1,347 male subjects were included in our study. Multivariate logistic regression analysis was used to evaluate the association between height and colorectal adenoma. RESULTS:: Each 5-cm increase in height was associated with 1.6% and 5.3% higher risks of advanced colorectal adenoma and high-risk colorectal adenoma, respectively, but associations were not significant after adjusting for age, body mass index, metabolic syndrome, alcohol intake, smoking, family history of colorectal cancer, and regular aspirin use (p = 0.840 and p = 0.472, respectively). CONCLUSIONS:: No clear association was found between colorectal adenoma risk and height. Unlike other site-specific tumors reported to have a consistent relationship with height, the association between colorectal tumor and height remains controversial.","DOI":"10.3904/kjim.2014.313","ISSN":"1226-3303","author":[{"family":"Pyo","given":"Jeung Hui"},{"family":"Hong","given":"Sung Noh"},{"family":"Min","given":"Byung-Hoon"},{"family":"Chang","given":"Dong Kyung"},{"family":"Son","given":"Hee Jung"},{"family":"Rhee","given":"Poong-Lyul"},{"family":"Kim","given":"Jae J"},{"family":"Kim","given":"Young-Ho"}],"issued":{"date-parts":[["2016",7]]}}},{"id":175,"uris":["http://zotero.org/users/2724931/items/SMIADFP7"],"uri":["http://zotero.org/users/2724931/items/SMIADFP7"],"itemData":{"id":175,"type":"article-journal","title":"Metabolic syndrome and colorectal neoplasms: An ominous association","container-title":"World Journal of Gastroenterology","page":"5320","volume":"21","issue":"17","source":"CrossRef","DOI":"10.3748/wjg.v21.i17.5320","ISSN":"19327","shortTitle":"Metabolic syndrome and colorectal neoplasms","language":"en","author":[{"family":"Trabulo","given":"Daniel"}],"issued":{"date-parts":[["2015"]]}}},{"id":79,"uris":["http://zotero.org/users/2724931/items/S9F263MP"],"uri":["http://zotero.org/users/2724931/items/S9F263MP"],"itemData":{"id":79,"type":"article-journal","title":"Metabolic syndrome and colorectal cancer: the protective role of Mediterranean diet--a case-control study.","container-title":"Angiology","page":"390-396","volume":"63","issue":"5","abstract":"The effect of Mediterranean diet on colorectal cancer, in the presence of the metabolic syndrome, was evaluated in 250 patients with first developed cancer (63 +/- 12 years, 59% males) and 250 age-gender-matched controls. Adherence to the Mediterranean diet was evaluated with the modified-MedDietScore (theoretical range 0-75), while assessment of the metabolic syndrome (MetS) was based on the third Adult Treatment Panel ([ATP III] National Cholesterol Education Program) criteria. Presence of MetS (1.66, 95% confidence interval [CI] 1.02, 2.69), age (4.25, 95% CI 2.33, 7.77), smoking (1.85, 95% CI 1.27, 2.70), and family history of colorectal cancer (3.37, 95% CI 1.69, 6.75) had a detrimental effect, whereas adherence to the Mediterranean diet (0.88, 95% CI 0.84, 0.92) and body mass index (0.93, 95%CI 0.89, 0.98) had a protective role regarding colorectal cancer. Mediterranean diet had the same effect in relation to colorectal cancer, in both participants with (0.84, 95% CI 0.76, 0.93) and without MetS (0.89, 95% CI 0.85, 0.94).","DOI":"10.1177/0003319711421164","ISSN":"1940-1574 0003-3197","note":"PMID: 22267847","journalAbbreviation":"Angiology","language":"eng","author":[{"family":"Kontou","given":"Niki"},{"family":"Psaltopoulou","given":"Theodora"},{"family":"Soupos","given":"Nick"},{"family":"Polychronopoulos","given":"Evangelos"},{"family":"Xinopoulos","given":"Dimitrios"},{"family":"Linos","given":"Athena"},{"family":"Panagiotakos","given":"Demosthenes B."}],"issued":{"date-parts":[["2012",7]]}}},{"id":164,"uris":["http://zotero.org/users/2724931/items/9WXARXXK"],"uri":["http://zotero.org/users/2724931/items/9WXARXXK"],"itemData":{"id":164,"type":"article-journal","title":"Metabolic Syndrome and Risks of Colon and Rectal Cancer: The European Prospective Investigation into Cancer and Nutrition Study","container-title":"Cancer Prevention Research","page":"1873","volume":"4","issue":"11","abstract":"Metabolic syndrome (MetS) is purportedly related to risk of developing colorectal cancer; however, the association of MetS, as defined according to recent international criteria, and colorectal cancer has not been yet evaluated. In particular, it remains unclear to what extent the MetS components individually account for such an association. We addressed these issues in a nested case–control study that included 1,093 incident cases matched (1:1) to controls by using incidence density sampling. Conditional logistic regression was used to estimate relative risks (RR) and 95% CIs. MetS was defined according to the criteria of the National Cholesterol Education Program/Adult Treatment Panel III (NCEP/ATPIII), the International Diabetes Federation (IDF), and the 2009 harmonized definition. Among individual components, abdominal obesity (RR = 1.51; 95% CI: 1.16–1.96) was associated with colon cancer, whereas abnormal glucose metabolism was associated with both colon (RR = 2.05; 95% CI: 1.57–2.68) and rectal cancer (RR = 2.07; 95% CI: 1.45–2.96). MetS, as defined by each of the definitions, was similarly associated with colon cancer (e.g., RR = 1.91; 95% CI: 1.47–2.42 for MetS by NCEP/ATPIII), whereas MetS by NCEP/ATPIII, but not IDF or harmonized definition, was associated with rectal cancer (RR = 1.45; 95% CI: 1.02–2.06). Overall, these associations were stronger in women than in men. However, the association between MetS and colorectal cancer was accounted for by abdominal obesity and abnormal glucose metabolism such that MetS did not provide risk information beyond these components (likelihood ratio test P = 0.10 for MetS by NCEP/ATPIII). These data suggest that simple assessment of abnormal glucose metabolism and/or abdominal obesity to identify individuals at colorectal cancer risk may have higher clinical utility than applying more complex MetS definitions. Cancer Prev Res; 4(11); 1873–83. ©2011 AACR.","DOI":"10.1158/1940-6207.CAPR-11-0218","journalAbbreviation":"Cancer Prev Res (Phila)","author":[{"family":"Aleksandrova","given":"Krasimira"},{"family":"Boeing","given":"Heiner"},{"family":"Jenab","given":"Mazda"},{"family":"Bas Bueno-de-Mesquita","given":"H."},{"family":"Jansen","given":"Eugene"},{"family":"Duijnhoven","given":"Fränzel J.B.","non-dropping-particle":"van"},{"family":"Fedirko","given":"Veronika"},{"family":"Rinaldi","given":"Sabina"},{"family":"Romieu","given":"Isabelle"},{"family":"Riboli","given":"Elio"},{"family":"Romaguera","given":"Dora"},{"family":"Overvad","given":"Kim"},{"family":"Østergaard","given":"Jane Nautrup"},{"family":"Olsen","given":"Anja"},{"family":"Tjønneland","given":"Anne"},{"family":"Boutron-Ruault","given":"Marie-Christine"},{"family":"Clavel-Chapelon","given":"Françoise"},{"family":"Morois","given":"Sophie"},{"family":"Masala","given":"Giovanna"},{"family":"Agnoli","given":"Claudia"},{"family":"Panico","given":"Salvatore"},{"family":"Tumino","given":"Rosario"},{"family":"Vineis","given":"Paolo"},{"family":"Kaaks","given":"Rudolf"},{"family":"Lukanova","given":"Annekatrin"},{"family":"Trichopoulou","given":"Antonia"},{"family":"Naska","given":"Androniki"},{"family":"Bamia","given":"Christina"},{"family":"Peeters","given":"Petra H."},{"family":"Rodríguez","given":"Laudina"},{"family":"Buckland","given":"Genevieve"},{"family":"Sánchez","given":"María-José"},{"family":"Dorronsoro","given":"Miren"},{"family":"Huerta","given":"Jose-María"},{"family":"Barricarte","given":"Aurelio"},{"family":"Hallmans","given":"Göran"},{"family":"Palmqvist","given":"Richard"},{"family":"Khaw","given":"Kay-Tee"},{"family":"Wareham","given":"Nicholas"},{"family":"Allen","given":"Naomi E."},{"family":"Tsilidis","given":"Konstantinos K"},{"family":"Pischon","given":"Tobias"}],"issued":{"date-parts":[["2011",11,2]]}}},{"id":100,"uris":["http://zotero.org/users/2724931/items/XN37VDV8"],"uri":["http://zotero.org/users/2724931/items/XN37VDV8"],"itemData":{"id":100,"type":"article-journal","title":"Visceral Obesity and Insulin Resistance as Risk Factors for Colorectal Adenoma: A Cross-Sectional, Case–Control Study","container-title":"The American Journal of Gastroenterology","page":"178-

187","volume":"105","issue":"1","source":"www.nature.com","abstract":"OBJECTIVES: Colorectal adenoma is known to be associated with obesity, but the association between colorectal adenoma and visceral adipose tissue (VAT) area measured by abdominal computed tomography (CT) has not been documented clearly. In addition, the relationship between insulin resistance and colorectal adenomas, which underlies the mechanism that links obesity and colorectal adenoma, has not been studied extensively. The aim of this study was to examine VAT area and insulin resistance as risk factors of colorectal adenoma.\nMETHODS: A cross-sectional, case–control study was conducted in Koreans that presented for health check-ups. Subjects underwent various laboratory tests, abdominal CT, and colonoscopy. VAT, subcutaneous adipose tissue (SAT), and homeostatic metabolic assessment (HOMA) index were evaluated as potential risk factors of colorectal adenoma in 2,244 age- and sex-matched subjects.\nRESULTS: According to univariate analysis, the prevalences of smoking, hypertension, metabolic syndrome, and family history of colorectal cancer were higher in the adenoma group than in the normal control group. In addition, body mass index, waist circumference, triglyceride, high-density lipoprotein cholesterol, and VAT and SAT areas were significantly different in the two groups. According to the multivariate analysis adjusted for multiple confounders, VAT area was independently associated with the risk of colorectal adenoma (odds ratio (OR)=3.09, 95% confidence interval (CI): 2.19–4.36, highest quintile vs. lowest quintile). Mean HOMA index was higher in the adenoma group than in the control group (OR=1.99, 95% CI: 1.35–2.92, highest vs. lowest quintile).\nCONCLUSIONS: Visceral obesity was found to be an independent risk factor of colorectal adenoma, and insulin resistance was associated with the presence of colorectal adenoma.","DOI":"10.1038/ajg.2009.541","ISSN":"0002-9270","shortTitle":"Visceral Obesity and Insulin Resistance as Risk Factors for Colorectal Adenoma","journalAbbreviation":"Am J Gastroenterol","language":"en","author":[{"family":"Kang","given":"Hyoun Woo"},{"family":"Kim","given":"Donghee"},{"family":"Kim","given":"Hwa Jung"},{"family":"Kim","given":"Chung Hyeon"},{"family":"Kim","given":"Young Sun"},{"family":"Park","given":"Min Jung"},{"family":"Kim","given":"Joo Sung"},{"family":"Cho","given":"Sang-Heon"},{"family":"Sung","given":"Myung-Whun"},{"family":"Jung","given":"Hyun Chae"},{"family":"Lee","given":"Hyo-Suk"},{"family":"Song","given":"In Sung"}],"issued":{"date-parts":[["2009",9,15]]}}},{"id":179,"uris":["http://zotero.org/users/2724931/items/G83HJCGN"],"uri":["http://zotero.org/users/2724931/items/G83HJCGN"],"itemData":{"id":179,"type":"article-journal","title":"Prevalence and risk factors of advanced colorectal neoplasms in asymptomatic Korean people between 40 and 49

years of age","container-title":"Journal of Gastroenterology and Hepatology","page":"98-105","volume":"32","issue":"1","source":"PubMed","abstract":"BACKGROUND AND AIM: Current guidelines recommend colon cancer screening for persons aged over 50

years. However, there are few data on colorectal cancer screening in 40- to 49-year-olds. This study assessed the prevalence and risk factors of colorectal neoplasms in 40- to 49-year-old Koreans.\nMETHODS: We analyzed the results of screening colonoscopies of 6680 persons 40-59

years of age (2206 aged 40-49 and 4474 aged 50-59

years).\nRESULTS: The prevalence of overall and advanced neoplasms in the 40- to 49-year age group was lower than in the 50- to 59-year age group (26.7% and 2.4% vs 37.8% and 3.5%, respectively). However, the prevalence of overall and advanced neoplasms increased to 39.1% and 5.4%, respectively, in 45- to 49-year-old individuals with metabolic syndrome. In the 40- to 49-year age group, age, current smoking, and metabolic syndrome were associated with an increased risk of advanced neoplasms (odds ratio [OR] 1.16, 95% confidence interval [CI] 1.04-1.30; OR 3.12, 95% CI 1.20-8.12; and OR 2.00, 95% CI 1.09-3.67, respectively).\nCONCLUSIONS: Individuals aged 40-49

years had a lower prevalence of colorectal neoplasms than those aged 50-59

years, but some 40- to 49-year-olds showed a similar prevalence to those aged 50-59

years. Age, current smoking habits, and metabolic syndrome are associated with an increased risk of advanced neoplasms in subjects aged 40-49

years. Further studies are needed to stratify the risks of colon cancer and guide targeted screening in persons younger than 50

years old.","DOI":"10.1111/jgh.13454","ISSN":"1440-1746","note":"PMID: 27197805","journalAbbreviation":"J. Gastroenterol. Hepatol.","language":"eng","author":[{"family":"Koo","given":"Ja Eun"},{"family":"Kim","given":"Kyung-Jo"},{"family":"Park","given":"Hye Won"},{"family":"Kim","given":"Hong-Kyu"},{"family":"Choe","given":"Jae Won"},{"family":"Chang","given":"Hye-Sook"},{"family":"Lee","given":"Ji Young"},{"family":"Myung","given":"Seung-Jae"},{"family":"Yang","given":"Suk-Kyun"},{"family":"Kim","given":"Jin-Ho"}],"issued":{"date-parts":[["2017",1]]}}},{"id":176,"uris":["http://zotero.org/users/2724931/items/G5JJS8K5"],"uri":["http://zotero.org/users/2724931/items/G5JJS8K5"],"itemData":{"id":176,"type":"article-journal","title":"Uric Acid Is a Risk Indicator for Metabolic Syndrome-related Colorectal Adenoma: Results in a Korean Population Receiving Screening Colonoscopy","container-title":"The Korean Journal of Gastroenterology = Taehan Sohwagi Hakhoe Chi","page":"202-208","volume":"66","issue":"4","source":"PubMed","abstract":"BACKGROUND/AIMS: An association between serum uric acid and cancer risk has been noted over the past few decades. There is ongoing debate about whether hyperuricemia represents an independent risk factor for colorectal neoplasm. We investigated the association between serum uric acid and prevalence of colorectal adenoma considering numerous confounding factors.\nMETHODS: A cross-sectional study was performed with individuals who underwent a routine health check-up examination, including a screening colonoscopy and blood chemistry. The association between serum uric acid and prevalence of colorectal adenoma was estimated from the results of a logistic regression analysis.\nRESULTS: Of the 1,066 participants, 402 had colorectal adenoma (37.7%). In univariate models, the prevalence of colorectal adenoma was higher in participants in the fourth quartile uric acid level, compared to those in the first quartile uric acid level (OR, 1.67; 95% CI, 1.17-2.42; p=0.004). However, no significant association was detected between serum uric acid and prevalence of colorectal adenoma in multiple logistic regression analysis. A number of metabolic syndrome components exhibited a strong association with the prevalence of colorectal adenoma in the multivariate model (OR, 3.46 for highest vs. lowest; 95% CI, 1.30-9.20; p=0.021). Moreover, serum uric acid was strongly associated with metabolic syndrome-associated variables, including waist circumference, fasting blood glucose, systolic blood pressure, diastolic blood pressure, triglyceride, and high-density lipoprotein.\nCONCLUSIONS: Uric acid is not an independent risk factor for colorectal adenoma but is a risk indicator for metabolic syndrome-related colorectal adenoma.","DOI":"10.4166/kjg.2015.66.4.202","ISSN":"2233-6869","note":"PMID: 26493505","shortTitle":"Uric Acid Is a Risk Indicator for Metabolic Syndrome-related Colorectal Adenoma","journalAbbreviation":"Korean J Gastroenterol","language":"eng","author":[{"family":"Kim","given":"Hyo Jin"},{"family":"Kim","given":"Jee Eun"},{"family":"Jung","given":"Ji Hye"},{"family":"Kim","given":"Eun Ran"},{"family":"Hong","given":"Sung Noh"},{"family":"Chang","given":"Dong Kyung"},{"family":"Son","given":"Hee Jung"},{"family":"Rhee","given":"Poong Lyul"},{"family":"Kim","given":"Jae J."},{"family":"Kim","given":"Young Ho"}],"issued":{"date-parts":[["2015",10]]}}},{"id":169,"uris":["http://zotero.org/users/2724931/items/M9QUET6C"],"uri":

["http://zotero.org/users/2724931/items/M9QUET6C"],"itemData":{"id":169,"type":"article-journal","title":"Metabolic syndrome and smoking may justify earlier colorectal cancer screening in men","container-title":"Gastrointestinal Endoscopy","page":"961-969","volume":"79","issue":"6","abstract":"Background\nGender, smoking, and metabolic syndrome (MetS) are important risk factors of colorectal neoplasm. Whether presence of these factors may warrant earlier screening remains unclear.\nObjective\nTo compare age- and gender-specific risk of colorectal neoplasms in association with smoking and MetS under endoscopic or stool-based screening.\nDesign\nCross-sectional observational study.\nSetting\nScreening center in a university hospital in Taiwan.\nPatients\nA cohort of 10,884 average-risk individuals who received concurrent screening colonoscopy and fecal immunochemical testing (FIT).\nMain Outcome Measurements\nFirst, the prevalence of colorectal neoplasms and positive predictive value of FIT relative to age, gender, smoking, and MetS. Second, the number of colonoscopies needed to detect 1 advanced neoplasm with different strategies.\nResults\nMale smokers aged 40 to 49 years had a significantly higher prevalence of advanced neoplasms and positive predictive value of stool tests than nonsmoking counterparts. The prevalence of advanced neoplasms in concurrent MetS and smoking (6.2%) or smoking alone (3.8%) men aged 40 to 49 years was higher than that of average-risk women aged 50 to 59 years (2.1%) (P = .03 and .04, respectively). The number of colonoscopies needed to detect 1 advanced neoplasm in men aged 40 to 49 years with concurrent MetS and smoking, smoking, MetS, and women aged 50 to 59 years was, respectively, 14.6, 24.8, 39.8, and 47.4 in the colonoscopy scenario and 1.7, 4.6, 5.7, and 8.3 in the FIT scenario.\nLimitation\nSelf-selective bias may exist for subjects voluntarily submitted to health check-ups.\nConclusions\nMetS and smoking significantly impact both the prevalence of colorectal neoplasms and the diagnostic yields of screening tests in men aged 40 to 49 years. Whether our findings justify earlier screening in this subgroup requires further study.","DOI":"10.1016/j.gie.2013.11.035","ISSN":"0016-5107","journalAbbreviation":"Gastrointestinal Endoscopy","author":[{"family":"Chang","given":"Li-Chun"},{"family":"Wu","given":"Ming-Shiang"},{"family":"Tu","given":"Chia-Hung"},{"family":"Lee","given":"Yi-Chia"},{"family":"Shun","given":"Chia-Tung"},{"family":"Chiu","given":"Han-Mo"}],"issued":{"date-parts":[["2014",6]]}}},{"id":168,"uris":["http://zotero.org/users/2724931/items/HXJHWUI6"],"uri":["http://zotero.org/users/2724931/items/HXJHWUI6"],"itemData":{"id":168,"type":"article-journal","title":"Vegetarianism as a Protective Factor for Colorectal Adenoma and Advanced Adenoma in Asians","container-title":"Digestive Diseases and Sciences","page":"1025-1035","volume":"59","issue":"5","abstract":"Although epidemiologic and animal studies suggest a vegetarian diet protects against the development of colorectal cancer, the relationship between vegetarian diet and incidence of colorectal adenoma is not yet conclusive, especially for Asians.","DOI":"10.1007/s10620-013-2974-5","ISSN":"1573-2568","journalAbbreviation":"Digestive Diseases and Sciences","author":[{"family":"Lee","given":"Chang Geun"},{"family":"Hahn","given":"Suk Jae"},{"family":"Song","given":"Min Keun"},{"family":"Lee","given":"Jun Kyu"},{"family":"Kim","given":"Jae Hak"},{"family":"Lim","given":"Yun Jeong"},{"family":"Koh","given":"Moon-Soo"},{"family":"Lee","given":"Jin Ho"},{"family":"Kang","given":"Hyoun Woo"}],"issued":{"date-parts":[["2014"]]}}},{"id":310,"uris":["http://zotero.org/users/2724931/items/9BZ8ICKP"],"uri":["http://zotero.org/users/2724931/items/9BZ8ICKP"],"itemData":{"id":310,"type":"article-journal","title":"Stepwise Relationship Between Components of Metabolic Syndrome and Risk of Colorectal Adenoma in a Taiwanese Population Receiving Screening Colonoscopy","container-title":"Journal of the Formosan Medical Association","page":"100-108","volume":"110","issue":"2","source":"CrossRef","DOI":"10.1016/S0929-6646(11)60016-8","ISSN":"09296646","language":"en","author":[{"family":"Hu","given":"Nien-Chih"},{"family":"Chen","given":"Jong-Dar"},{"family":"Lin","given":"Yu-Min"},{"family":"Chang","given":"Jun-Yih"},{"family":"Chen","given":"Yu-Hung"}],"issued":{"date-parts":[["2011",2]]}}},{"id":77,"uris":["http://zotero.org/users/2724931/items/QQRBWQMX"],"uri":["http://zotero.org/users/2724931/items/QQRBWQMX"],"itemData":{"id":77,"type":"article-journal","title":"Association between colorectal adenoma and coronary atherosclerosis detected by CT coronary angiography in Korean men; a cross-sectional study.","container-title":"Journal of gastroenterology and hepatology","page":"1795-1799","volume":"25","issue":"11","abstract":"BACKGROUND: Colorectal adenoma and coronary artery disease (CAD) appear to share common risk factors, such as male gender, diabetes mellitus, smoking, and obesity. We investigated the relationship between colorectal adenoma and coronary atherosclerosis, as a risk factor for colorectal adenoma. METHODS: A cross-sectional study was conducted on Korean men who presented for a health check-up. The subjects were 488 men (217 colorectal adenoma and 271 normal colonoscopic findings) who underwent colonoscopy and coronary computed tomography angiography (CTA) on the same day as a screening examination. Advanced colonic lesion was defined as a presence of adenoma with villous component, high-grade dysplasia, and/or with size of >/=1 cm. CTA findings were classified as normal, mild (low-grade atherosclerosis or <50% stenosis), and significant CAD (>/=50% stenosis). Abnormal CTA findings included mild and significant CAD. RESULTS: Patients with abnormal CTA findings were more likely to have colorectal adenoma compared with those with normal CTA findings (P < 0.005). Furthermore, presence of advanced adenoma was significantly associated with significant CAD (P < 0.01). On multivariate analyses, abnormal CTA findings (OR = 1.66, 95% CI: 1.14-2.41, P < 0.01) and significant CAD (OR = 1.96, 95% CI: 1.15-3.35, P < 0.05) were found to be independent risk factors for colorectal adenoma after adjusting for age, current smoking, and metabolic syndrome. CONCLUSIONS: In this study, in the population who underwent CTA and colonoscopy for health check-up, prevalence of colorectal adenoma was greater in subjects with low-grade coronary atherosclerosis or significant CAD. The presence of advanced adenoma was significantly associated with significant CAD.","DOI":"10.1111/j.1440-1746.2010.06330.x","ISSN":"1440-1746 0815-9319","note":"PMID: 21039843","journalAbbreviation":"J Gastroenterol Hepatol","language":"eng","author":[{"family":"Yang","given":"Sun Young"},{"family":"Kim","given":"Young Sun"},{"family":"Chung","given":"Su Jin"},{"family":"Song","given":"Ji Hyun"},{"family":"Choi","given":"Su Yeon"},{"family":"Park","given":"Min Jung"},{"family":"Yim","given":"Jeong Yoon"},{"family":"Lim","given":"Seon Hee"},{"family":"Kim","given":"Donghee"},{"family":"Kim","given":"Chung Hyun"},{"family":"Kim","given":"Ju Sung"},{"family":"Song","given":"In Sung"}],"issued":{"date-parts":[["2010",11]]}}},{"id":163,"uris":["http://zotero.org/users/2724931/items/FX77VBWZ"],"uri":["http://zotero.org/users/2724931/items/FX77VBWZ"],"itemData":{"id":163,"type":"article-journal","title":"Prevalence and risk of colorectal neoplasms in asymptomatic, average-risk screenees 40 to 49 years of age","container-title":"Gastrointestinal Endoscopy","page":"480-489","volume":"72","issue":"3","abstract":"Background\nA paucity of information exists regarding colorectal neoplasm in asymptomatic, average-risk individuals 40 to 49 years of age.\nObjective\nTo evaluate the prevalence and risk factors of colorectal neoplasms in those in their 40s.\nDesign\nCross-sectional study.\nSetting\nResults offered to subjects of a health care provider that offers screening services as part of an employer-provided wellness program.\nPatients\nA consecutive series of 1761 asymptomatic, average-risk screenees 40 to 59 years of age.\nIntervention\nFirst screening colonoscopy.\nResults\nThe prevalence of overall colorectal neoplasm in subjects of ages 40 to 44 years, 45 to 49 years, 50 to 54 years, and 55 to 59 years increased significantly with increasing age (13.7%, 20.2%, 21.0%, and 23.8%, respectively; P < .001). The prevalence of advanced adenomas in subjects of ages 40 to 44 years, 45 to 49 years, 50 to 54 years, and 55 to 59 years increased significantly with age (1.9%, 3.0%, 3.2%, and 5.9%, respectively; P = .004). Multivariate analysis of data from the 40- to 49-year age group identified an increased risk of colorectal neoplasm associated with ages 45 years and older (odds ratio [OR], 1.68; 95% CI, 1.20-2.35), male sex (OR, 1.76; 95% CI, 1.15-2.69), presence of abdominal obesity (OR, 1.57; 95% CI, 1.12-2.21), and metabolic syndrome (OR, 1.56; 95% CI, 1.03-2.35), whereas for advanced adenomas, abdominal obesity (OR, 2.37; 95% CI, 1.06-5.27) and metabolic syndrome (OR, 2.83; 95% CI, 1.23-6.53) were the independent risk factors.\nLimitations\nSingle-center study and the cohort composed of ethnic Korean subjects who lived in the same geographic region.\nConclusion\nIn average-risk individuals 40 to 49 years of age, men with abdominal obesity or metabolic syndrome might benefit from screening colonoscopy starting at 45 years of age to detect colorectal neoplasm.","DOI":"10.1016/j.gie.2010.06.022","ISSN":"0016-

5107","journalAbbreviation":"Gastrointestinal Endoscopy","author":[{"family":"Hong","given":"Sung Noh"},{"family":"Kim","given":"Jeong Hwan"},{"family":"Choe","given":"Won Hyeok"},{"family":"Han","given":"Hye Seung"},{"family":"Sung","given":"In Kyung"},{"family":"Park","given":"Hyung Seok"},{"family":"Shim","given":"Chan Sup"}],"issued":{"date-parts":[["2010",9]]}}},{"id":76,"uris":["http://zotero.org/users/2724931/items/3DEUV37V"],"uri":["http://zotero.org/users/2724931/items/3DEUV37V"],"itemData":{"id":76,"type":"article-journal","title":"Relationship of non-alcoholic fatty liver disease to colorectal adenomatous polyps.","container-title":"Journal of gastroenterology and hepatology","page":"562-567","volume":"25","issue":"3","abstract":"BACKGROUND AND AIMS: Metabolic syndrome and insulin resistance are associated with a higher risk of colon cancer. Non-alcoholic fatty liver disease (NAFLD) is regarded as a manifestation of metabolic syndrome in the liver. This investigation was initiated to determine whether NAFLD has a relationship to colorectal adenomatous polyps. METHODS: We examined the 2917 participants who underwent a routine colonoscopy at Kangbuk Samsung Hospital in 2007. We divided the 2917 subjects into the adenomatous polyp group (n = 556) and the normal group (n = 2361). Anthropometric measurements, biochemical tests for liver and metabolic function, and abdominal ultrasonographs were assessed. RESULTS: The prevalence of NAFLD was 41.5% in the adenomatous polyp group and 30.2% in the control group. By multiple logistic regression analysis, NAFLD was found to be associated with an increased risk of colorectal adenomatous polyps (odds ratio, 1.28; 95% confidence interval, 1.03-1.60). An increased risk for NAFLD was more evident in patients with a greater number of adenomatous polyps. CONCLUSION: NAFLD was associated with colorectal adenomatous polyps. Further studies are needed to confirm whether NAFLD is a predictor for the development of colorectal adenomatous polyps and cancer.","DOI":"10.1111/j.1440-1746.2009.06117.x","ISSN":"1440-1746 0815-9319","note":"PMID: 20074156","journalAbbreviation":"J Gastroenterol Hepatol","language":"eng","author":[{"family":"Hwang","given":"Sang Tae"},{"family":"Cho","given":"Yong Kyun"},{"family":"Park","given":"Jung Ho"},{"family":"Kim","given":"Hong Joo"},{"family":"Park","given":"Dong Il"},{"family":"Sohn","given":"Chong Il"},{"family":"Jeon","given":"Woo Kyu"},{"family":"Kim","given":"Byung Ik"},{"family":"Won","given":"Kyoung Hee"},{"family":"Jin","given":"Wook"}],"issued":{"date-parts":[["2010",3]]}}},{"id":306,"uris":["http://zotero.org/users/2724931/items/FP3DWZMH"],"uri":["http://zotero.org/users/2724931/items/FP3DWZMH"],"itemData":{"id":306,"type":"article-journal","title":"Is Metabolic Syndrome A Risk Factor for Colorectal Adenoma?","container-title":"Cancer Epidemiology and Prevention Biomarkers","page":"1543-1546","volume":"16","issue":"8","journalAbbreviation":"Cancer Epidemiol Biomarkers Prev","author":[{"family":"Kim","given":"Jeong Hwan"},{"family":"Lim","given":"Yun Jeong"},{"family":"Kim","given":"Young-Ho"},{"family":"Sung","given":"In-Kyung"},{"family":"Shim","given":"Sang Goon"},{"family":"Oh","given":"Sung-Ook"},{"family":"Park","given":"Sin-Sil"},{"family":"Yang","given":"Sun"},{"family":"Son","given":"Hee Jung"},{"family":"Rhee","given":"Poong-Lyul"},{"family":"Kim","given":"Jae J."},{"family":"Rhee","given":"Jong Chul"},{"family":"Choi","given":"Yoon-Ho"}],"issued":{"date-parts":[["2007",8,7]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
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], six studies provided the exposure data in basis of the IDF definition of MetS
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CAs were identified through linkage to the Norwegian Cancer Register. A composite index of MetS as defined by the International Diabetes Federation (IDF) or/and the National Cholesterol Education Program's Adult Treatment Panel III (ATP III) and single components of MetS, including anthropometric factors, blood pressure, lipids, triglycerides, and glucose, were analyzed. Cox proportional hazards regression was performed to estimate hazard ratios and 95% confidence intervals. Significant associations between single MetS components and CA, except for reduced high-density lipoprotein cholesterol and nonfasting glucose levels, were observed. MetS defined by 2 criteria separately showed a similar association with CA in general, and MetS defined by both the IDF and ATP III showed consistent results. Stronger associations were observed in the proximal colon among men (IDF: hazard ratio (HR) = 1.51, 95% confidence interval (CI): 1.24, 1.84; ATP III: HR = 1.40, 95% CI: 1.15, 1.70) and in the rectum among women (IDF: HR = 1.42, 95% CI: 1.07, 1.89; ATP III: HR = 1.43, 95% CI: 1.08, 1.90).","DOI":"10.1093/aje/kwv141","ISSN":"0002-9262","journalAbbreviation":"American Journal of Epidemiology","author":[{"family":"Lu","given":"Yunxia"},{"family":"Ness-Jensen","given":"Eivind"},{"family":"Hveem","given":"Kristian"},{"family":"Martling","given":"Anna"}],"issued":{"date-parts":[["2015",11,15]]}}},{"id":49,"uris":["http://zotero.org/users/2724931/items/JZMISB9P"],"uri":["http://zotero.org/users/2724931/items/JZMISB9P"],"itemData":{"id":49,"type":"article-journal","title":"The Metabolic Syndrome, Inflammation, and Colorectal Cancer Risk: An Evaluation of Large Panels of Plasma Protein Markers Using Repeated, Prediagnostic Samples","container-title":"Mediators of Inflammation","page":"4803156","volume":"2017","archive":"PMC","archive_location":"PMC5381203","abstract":"Metabolic syndrome (MetS), a set of metabolic risk factors including obesity, dysglycemia, and dyslipidemia, is associated with increased colorectal cancer (CRC) risk. A putative biological mechanism is chronic, low-grade inflammation, both a feature of MetS and a CRC risk factor. However, excess body fat also induces a proinflammatory state and increases CRC risk. In order to explore the relationship between MetS, body size, inflammation, and CRC, we studied large panels of inflammatory and cancer biomarkers. We included 138 participants from the Västerbotten Intervention Programme with repeated sampling occasions, 10 years apart. Plasma samples were analyzed for 178 protein markers by proximity extension assay. To identify associations between plasma protein levels and MetS components, linear mixed models were fitted for each protein. Twelve proteins were associated with at least one MetS component, six of which were associated with MetS score. MetS alone was not related to any protein. Instead, BMI displayed by far the strongest associations with the biomarkers. One of the 12 MetS score-related proteins (FGF-21), also associated with BMI, was associated with an increased CRC risk (OR 1.71, 95% CI 1.19–2.47). We conclude that overweight and obesity, acting through both inflammation and other mechanisms, likely explain the MetS-CRC connection.","DOI":"10.1155/2017/4803156","ISSN":"0962-9351","author":[{"family":"Harlid","given":"Sophia"},{"family":"Myte","given":"Robin"},{"family":"Van Guelpen","given":"Bethany"}],"issued":{"date-parts":[["2017"]]}}},{"id":37,"uris":["http://zotero.org/users/2724931/items/B468CSCB"],"uri":["http://zotero.org/users/2724931/items/B468CSCB"],"itemData":{"id":37,"type":"article-journal","title":"Colorectal cancer and its association with the metabolic syndrome: a Malaysian multi-centric case-control study.","container-title":"Asian Pacific journal of cancer prevention : APJCP","page":"3873-3877","volume":"13","issue":"8","abstract":"OBJECTIVE: Colorectal cancer (CRC) and the metabolic syndrome (MetS) are both on the rise in Malaysia. A multi-centric case-control study was conducted from December 2009 to January 2011 to determine any relationship between the two. METHODS: Patients with confirmed CRC based on colonoscopy findings and cancer free controls from five local hospitals were assessed for MetS according to the International Diabetes Federation (IDF) definition. Each index case was matched for age, gender and ethnicity

with two controls (140: 280). RESULTS: MetS among cases was highly prevalent (70.7%), especially among women (68.7%). MetS as an entity increased CRC risk by almost three fold independently (OR=2.61, 95%CI=1.53-4.47). In men MetS increased the risk of CRC by two fold (OR=2.01, 95%CI, 1.43-4.56), demonstrating an increasing trend in risk with the number of Mets components observed. CONCLUSION: This study provides evidence for a positive association between the metabolic syndrome and colorectal cancer. A prospective study on the Malaysian population is a high priority to confirm these findings.","ISSN":"2476-762X 1513-7368","note":"PMID: 23098486","journalAbbreviation":"Asian Pac J Cancer Prev","language":"eng","author":[{"family":"Ulaganathan","given":"V."},{"family":"Kandiah","given":"M."},{"family":"Zalilah","given":"M. S."},{"family":"Faizal","given":"J. A."},{"family":"Fijeraid","given":"H."},{"family":"Normayah","given":"K."},{"family":"Gooi","given":"B. H."},{"family":"Othman","given":"R."}],"issued":{"date-parts":[["2012"]]}}},{"id":164,"uris":["http://zotero.org/users/2724931/items/9WXARXXK"],"uri":["http://zotero.org/users/2724931/items/9WXARXXK"],"itemData":{"id":164,"type":"article-journal","title":"Metabolic Syndrome and Risks of Colon and Rectal Cancer: The European Prospective Investigation into Cancer and Nutrition Study","container-title":"Cancer Prevention Research","page":"1873","volume":"4","issue":"11","abstract":"Metabolic syndrome (MetS) is purportedly related to risk of developing colorectal cancer; however, the association of MetS, as defined according to recent international criteria, and colorectal cancer has not been yet evaluated. In particular, it remains unclear to what extent the MetS components individually account for such an association. We addressed these issues in a nested case–control study that included 1,093 incident cases matched (1:1) to controls by using incidence density sampling. Conditional logistic regression was used to estimate relative risks (RR) and 95% CIs. MetS was defined according to the criteria of the National Cholesterol Education Program/Adult Treatment Panel III (NCEP/ATPIII), the International Diabetes Federation (IDF), and the 2009 harmonized definition. Among individual components, abdominal obesity (RR = 1.51; 95% CI: 1.16–1.96) was associated with colon cancer, whereas abnormal glucose metabolism was associated with both colon (RR = 2.05; 95% CI: 1.57–2.68) and rectal cancer (RR = 2.07; 95% CI: 1.45–2.96). MetS, as defined by each of the definitions, was similarly associated with colon cancer (e.g., RR = 1.91; 95% CI: 1.47–2.42 for MetS by NCEP/ATPIII), whereas MetS by NCEP/ATPIII, but not IDF or harmonized definition, was associated with rectal cancer (RR = 1.45; 95% CI: 1.02–2.06). Overall, these associations were stronger in women than in men. However, the association between MetS and colorectal cancer was accounted for by abdominal obesity and abnormal glucose metabolism such that MetS did not provide risk information beyond these components (likelihood ratio test P = 0.10 for MetS by NCEP/ATPIII). These data suggest that simple assessment of abnormal glucose metabolism and/or abdominal obesity to identify individuals at colorectal cancer risk may have higher clinical utility than applying more complex MetS definitions. Cancer Prev Res; 4(11); 1873–83. ©2011 AACR.","DOI":"10.1158/1940-6207.CAPR-11-0218","journalAbbreviation":"Cancer Prev Res (Phila)","author":[{"family":"Aleksandrova","given":"Krasimira"},{"family":"Boeing","given":"Heiner"},{"family":"Jenab","given":"Mazda"},{"family":"Bas Bueno-de-Mesquita","given":"H."},{"family":"Jansen","given":"Eugene"},{"family":"Duijnhoven","given":"Fränzel J.B.","non-dropping-particle":"van"},{"family":"Fedirko","given":"Veronika"},{"family":"Rinaldi","given":"Sabina"},{"family":"Romieu","given":"Isabelle"},{"family":"Riboli","given":"Elio"},{"family":"Romaguera","given":"Dora"},{"family":"Overvad","given":"Kim"},{"family":"Østergaard","given":"Jane Nautrup"},{"family":"Olsen","given":"Anja"},{"family":"Tjønneland","given":"Anne"},{"family":"Boutron-Ruault","given":"Marie-Christine"},{"family":"Clavel-Chapelon","given":"Françoise"},{"family":"Morois","given":"Sophie"},{"family":"Masala","given":"Giovanna"},{"family":"Agnoli","given":"Claudia"},{"family":"Panico","given":"Salvatore"},{"family":"Tumino","given":"Rosario"},{"family":"Vineis","given":"Paolo"},{"family":"Kaaks","given":"Rudolf"},{"family":"Lukanova","given":"Annekatrin"},{"family":"Trichopoulou","given":"Antonia"},{"family":"Naska","given":"Androniki"},{"family":"Bamia","given":"Christina"},{"family":"Peeters","given":"Petra H."},{"family":"Rodríguez","given":"Laudina"},{"family":"Buckland","given":"Genevieve"},{"family":"Sánchez","given":"María-José"},{"family":"Dorronsoro","given":"Miren"},{"family":"Huerta","given":"Jose-María"},{"family":"Barricarte","given":"Aurelio"},{"family":"Hallmans","given":"Göran"},{"family":"Palmqvist","given":"Richard"},{"family":"Khaw","given":"Kay-Tee"},{"family":"Wareham","given":"Nicholas"},{"family":"Allen","given":"Naomi E."},{"family":"Tsilidis","given":"Konstantinos K"},{"family":"Pischon","given":"Tobias"}],"issued":{"date-parts":[["2011",11,2]]}}},{"id":160,"uris":["http://zotero.org/users/2724931/items/6XNHFT4N"],"uri":["http://zotero.org/users/2724931/items/6XNHFT4N"],"itemData":{"id":160,"type":"article-journal","title":"Metabolic syndrome is associated with colorectal cancer in men","container-title":"European Journal of Cancer","page":"1866-1872","volume":"46","issue":"10","abstract":"Aim of the study\nWe assessed the relation between metabolic syndrome (MetS) and its components and colorectal cancer.\nMethods\nWe analysed data from a multicentre case–control study conducted in Italy and Switzerland, including 1378 cases of colon cancer, 878 cases of rectal cancer and 4661 controls. All cases were incident and histologically confirmed. Controls were subjects admitted to the same hospitals as cases with acute non-malignant conditions. MetS was defined according to the International Diabetes Federation criteria. Odds ratios (ORs) and the corresponding 95% confidence intervals (CIs) were estimated by multiple logistic regression models, including terms for major identified confounding factors for colorectal cancer.\nResults\nWith reference to each component of the MetS, the ORs of colorectal cancer in men were 1.27 (95% CI, 0.95–1.69) for diabetes, 1.24 (95% CI, 1.03–1.48) for hypertension, 1.14 (95% CI, 0.93–1.40) for hypercholesterolaemia and 1.26 (95% CI, 1.08–1.48) for overweight at age 30. The corresponding ORs in women were 1.20 (95% CI, 0.82–1.75), 0.87 (95% CI, 0.71–1.06), 0.83 (95% CI, 0.66–1.03) and 1.06 (95% CI, 0.86–1.30). Colorectal cancer risk was increased in men (OR = 1.86; 95% CI, 1.21–2.86), but not in women (OR = 1.13; 95% CI, 0.66–1.93), with MetS. The ORs were 2.09 (95% CI, 1.38–3.18) in men and 1.15 (95% CI, 0.68–1.94) in women with

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3 components of the MetS, as compared to no component. Results were similar for colon and rectal cancers.\nConclusion\nThis study supports a direct association between MetS and both colon and rectal cancers in men, but not in women.","DOI":"10.1016/j.ejca.2010.03.010","ISSN":"0959-8049","journalAbbreviation":"European Journal of Cancer","author":[{"family":"Pelucchi","given":"Claudio"},{"family":"Negri","given":"Eva"},{"family":"Talamini","given":"Renato"},{"family":"Levi","given":"Fabio"},{"family":"Giacosa","given":"Attilio"},{"family":"Crispo","given":"Anna"},{"family":"Bidoli","given":"Ettore"},{"family":"Montella","given":"Maurizio"},{"family":"Franceschi","given":"Silvia"},{"family":"La Vecchia","given":"Carlo"}],"issued":{"date-parts":[["2010",7]]}}},{"id":97,"uris":["http://zotero.org/users/2724931/items/566MKVT3"],"uri":["http://zotero.org/users/2724931/items/566MKVT3"],"itemData":{"id":97,"type":"article-journal","title":"Visceral obesity as a risk factor for colorectal neoplasm","container-title":"Journal of Gastroenterology and Hepatology","page":"411-417","volume":"23","issue":"3","abstract":"Background and Aim: Obesity as a risk factor for colorectal neoplasm (CRN) is controversial. In the present study, we evaluated visceral obesity as a risk factor for CRN. Methods: We prospectively enrolled 200 consecutive, asymptomatic adults (male : female = 133:67, mean age, 50.9 ± 8.5 years) undergoing both colonoscopy and abdominopelvic computed tomography (CT) scan for routine health evaluations. The presence or absence and the characteristics of CRN were determined during colonoscopy. The amount of visceral adipose tissue (VAT) and subcutaneous adipose tissue was measured by an abdominopelvic CT scan. Body mass index, waist circumference, and percentage of body fat were measured. Blood pressure and other blood markers for assessing the metabolic syndrome were also investigated. Results: Of the 200 patients, 53 (26.5%) had CRN. Old age, smoking, metabolic syndrome, and a high fasting plasma glucose level were associated with an increased risk of CRN. VAT (P < 0.01) and waist circumference (P = 0.01) were significantly higher in those with CRN. A multivariate analysis of the risks of CRN showed an odds ratio of 4.07 (95% confidence interval: 1.01–16.43, P = 0.03) for

those with VAT over 136.61 cm2 relative to those with VAT under 67.23 cm2. Waist circumference, metabolic syndrome, and fasting plasma glucose levels were not independent risk factors for CRN in the multivariate analysis. Conclusion: Increased VAT is an independent risk factor for CRN. Further large scale studies are needed to clarify the causal relationship between VAT and CRN.","DOI":"10.1111/j.1440-1746.2007.05125.x","ISSN":"1440-1746","author":[{"family":"Oh","given":"Tae-Hoon"},{"family":"Byeon","given":"Jeong-Sik"},{"family":"Myung","given":"Seung-Jae"},{"family":"Yang","given":"Suk-Kyun"},{"family":"Choi","given":"Kwi-Sook"},{"family":"Chung","given":"Jun-Won"},{"family":"Kim","given":"Benjamin"},{"family":"Lee","given":"Don"},{"family":"Byun","given":"Jae Ho"},{"family":"Jang","given":"Se Jin"},{"family":"Kim","given":"Jin-Ho"}],"issued":{"date-parts":[["2008",3,1]]}}},"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}

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], three used the harmonized definition [

ADDIN ZOTERO_ITEM CSL_CITATION {"citationID":"a1sqa92tpmh","properties":{"formattedCitation":"{\\rtf \\super 39,41,51\\nosupersub{}}","plainCitation":"39,41,51"},"citationItems":[{"id":80,"uris":["http://zotero.org/users/2724931/items/UJ5VD5FU"],"uri":["http://zotero.org/users/2724931/items/UJ5VD5FU"],"itemData":{"id":80,"type":"article-journal","title":"The role of resistin in colorectal cancer.","container-title":"Clinica chimica acta; international journal of clinical chemistry","page":"760-764","volume":"413","issue":"7-8","abstract":"BACKGROUND: To date the role of resistin in colorectal cancer (CRC) is far from being elucidated. The aim of this study was to investigate the association between serum resistin levels and CRC in relation to known risk/protective factors including anthropometric, metabolic, inflammatory parameters as well as lifestyle individual characteristics. METHODS: 40 CRC patients and 40 controls were enrolled. Body weight, height, waist circumference and blood pressure were recorded. Fasting plasma glucose, lipids, C-reactive protein (CRP) and resistin levels were measured. Metabolic Syndrome (MS) was defined according to the harmonized definition. RESULTS: Resistin levels were significantly higher in CRC patients than in controls (p=0.028) and gradually increased with tumor stage progression (p=0.042). A high resistin level was statistically significant determinant of CRC after adjusting for age, sex, body mass index and lifestyle parameters (p=0.029). Resistin showed a strong association with CRP levels (p </= 0.0001). In stepwise regression analysis CRP remained the only independent predictor of both resistin levels (p=0.001) and CRC risk (p=0.021). CONCLUSIONS: These results clarify the nature of the association between resistin and CRC risk suggesting that the proinflammatory state of cancer, rather than the clinical diagnosis of CRC itself or its link with obesity and MS, may govern this association.","DOI":"10.1016/j.cca.2012.01.019","ISSN":"1873-3492 0009-8981","note":"PMID: 22296675","journalAbbreviation":"Clin Chim Acta","language":"eng","author":[{"family":"Danese","given":"Elisa"},{"family":"Montagnana","given":"Martina"},{"family":"Minicozzi","given":"Anna Maria"},{"family":"Bonafini","given":"Sara"},{"family":"Ruzzenente","given":"Orazio"},{"family":"Gelati","given":"Matteo"},{"family":"De Manzoni","given":"Giovanni"},{"family":"Lippi","given":"Giuseppe"},{"family":"Guidi","given":"Gian Cesare"}],"issued":{"date-parts":[["2012",4,11]]}}},{"id":164,"uris":["http://zotero.org/users/2724931/items/9WXARXXK"],"uri":["http://zotero.org/users/2724931/items/9WXARXXK"],"itemData":{"id":164,"type":"article-journal","title":"Metabolic Syndrome and Risks of Colon and Rectal Cancer: The European Prospective Investigation into Cancer and Nutrition Study","container-title":"Cancer Prevention Research","page":"1873","volume":"4","issue":"11","abstract":"Metabolic syndrome (MetS) is purportedly related to risk of developing colorectal cancer; however, the association of MetS, as defined according to recent international criteria, and colorectal cancer has not been yet evaluated. In particular, it remains unclear to what extent the MetS components individually account for such an association. We addressed these issues in a nested case–control study that included 1,093 incident cases matched (1:1) to controls by using incidence density sampling. Conditional logistic regression was used to estimate relative risks (RR) and 95% CIs. MetS was defined according to the criteria of the National Cholesterol Education Program/Adult Treatment Panel III (NCEP/ATPIII), the International Diabetes Federation (IDF), and the 2009 harmonized definition. Among individual components, abdominal obesity (RR = 1.51; 95% CI: 1.16–1.96) was associated with colon cancer, whereas abnormal glucose metabolism was associated with both colon (RR = 2.05; 95% CI: 1.57–2.68) and rectal cancer (RR = 2.07; 95% CI: 1.45–2.96). MetS, as defined by each of the definitions, was similarly associated with colon cancer (e.g., RR = 1.91; 95% CI: 1.47–2.42 for MetS by NCEP/ATPIII), whereas MetS by NCEP/ATPIII, but not IDF or harmonized definition, was associated with rectal cancer (RR = 1.45; 95% CI: 1.02–2.06). Overall, these associations were stronger in women than in men. However, the association between MetS and colorectal cancer was accounted for by abdominal obesity and abnormal glucose metabolism such that MetS did not provide risk information beyond these components (likelihood ratio test P = 0.10 for MetS by NCEP/ATPIII). These data suggest that simple assessment of abnormal glucose metabolism and/or abdominal obesity to identify individuals at colorectal cancer risk may have higher clinical utility than applying more complex MetS definitions. Cancer Prev Res; 4(11); 1873–83. ©2011 AACR.","DOI":"10.1158/1940-6207.CAPR-11-0218","journalAbbreviation":"Cancer Prev Res (Phila)","author":[{"family":"Aleksandrova","given":"Krasimira"},{"family":"Boeing","given":"Heiner"},{"family":"Jenab","given":"Mazda"},{"family":"Bas Bueno-de-Mesquita","given":"H."},{"family":"Jansen","given":"Eugene"},{"family":"Duijnhoven","given":"Fränzel J.B.","non-dropping-particle":"van"},{"family":"Fedirko","given":"Veronika"},{"family":"Rinaldi","given":"Sabina"},{"family":"Romieu","given":"Isabelle"},{"family":"Riboli","given":"Elio"},{"family":"Romaguera","given":"Dora"},{"family":"Overvad","given":"Kim"},{"family":"Østergaard","given":"Jane Nautrup"},{"family":"Olsen","given":"Anja"},{"family":"Tjønneland","given":"Anne"},{"family":"Boutron-Ruault","given":"Marie-Christine"},{"family":"Clavel-Chapelon","given":"Françoise"},{"family":"Morois","given":"Sophie"},{"family":"Masala","given":"Giovanna"},{"family":"Agnoli","given":"Claudia"},{"family":"Panico","given":"Salvatore"},{"family":"Tumino","given":"Rosario"},{"family":"Vineis","given":"Paolo"},{"family":"Kaaks","given":"Rudolf"},{"family":"Lukanova","given":"Annekatrin"},{"family":"Trichopoulou","given":"Antonia"},{"family":"Naska","given":"Androniki"},{"family":"Bamia","given":"Christina"},{"family":"Peeters","given":"Petra H."},{"family":"Rodríguez","given":"Laudina"},{"family":"Buckland","given":"Genevieve"},{"family":"Sánchez","given":"María-José"},{"family":"Dorronsoro","given":"Miren"},{"family":"Huerta","given":"Jose-María"},{"family":"Barricarte","given":"Aurelio"},{"family":"Hallmans","given":"Göran"},{"family":"Palmqvist","given":"Richard"},{"family":"Khaw","given":"Kay-Tee"},{"family":"Wareham","given":"Nicholas"},{"family":"Allen","given":"Naomi E."},{"family":"Tsilidis","given":"Konstantinos K"},{"family":"Pischon","given":"Tobias"}],"issued":{"date-parts":[["2011",11,2]]}}},{"id":78,"uris":["http://zotero.org/users/2724931/items/TSAINUMV"],"uri":["http://zotero.org/users/2724931/items/TSAINUMV"],"itemData":{"id":78,"type":"article-journal","title":"Increased homeostasis model assessment-insulin resistance is a risk factor for colorectal adenoma in Japanese males.","container-title":"The Tohoku journal of experimental medicine","page":"297-303","volume":"223","issue":"4","abstract":"Many previous reports have documented a relationship between metabolic syndrome, in terms of insulin resistance, and colorectal cancer. However, the association of insulin resistance with colorectal adenoma has not been investigated in detail. To elucidate the association of metabolic syndrome components and insulin resistance with adenoma, we investigated homeostasis model assessment insulin resistance (HOMA-IR) in individuals with adenoma. A cross-sectional study was conducted involving individuals who underwent scheduled health examinations using total colonoscopy. Restricting the subjects to males, 261 with adenoma and 702 without adenoma were investigated. HOMA-IR was categorized into three groups: normal (< 1.6), intermediate (>/= 1.6 - < 2.5), and insulin resistance (2.5 </=). Metabolic syndrome was defined by a combination of any three of the following components: central obesity (waist circumference >/= 90 cm); elevated blood pressure (systolic blood pressure >/= 130 mmHg and/or diastolic blood pressure 85 mmHg); elevated fasting

plasma glucose (>/= 100 mg/dL); reduced high-density lipoprotein-cholesterol (< 40 mg/dL); and elevated triglyceride (>/= 150 mg/dL). Multivariate analysis of HOMA-IR showed that the intermediate and insulin resistance groups had a significantly increased risk for colorectal adenoma, even after adjustment for waist circumference (odds ratio, 1.62 and 2.23; 95% confidence interval, 1.07-2.45 and 1.31-3.79, respectively). Accumulation of any metabolic syndrome components increased the risk of colorectal adenoma (P trend = 0.001). However, none of the components alone demonstrated a significant risk for colorectal adenoma. Our data indicate that an increased level of HOMA-IR is a risk factor for colorectal adenoma in Japanese males.","ISSN":"1349-3329 0040-8727","note":"PMID: 21478654","journalAbbreviation":"Tohoku J Exp Med","language":"eng","author":[{"family":"Sato","given":"Takeshi"},{"family":"Takeda","given":"Hiroaki"},{"family":"Sasaki","given":"Yu"},{"family":"Kawata","given":"Sumio"}],"issued":{"date-parts":[["2011",4]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
39, 41, 51
], and nine presented
MetS
data patients using other definitions [
ADDIN ZOTERO_ITEM CSL_CITATION {"citationID":"a1b0306ttvq","properties":{"formattedCitation":"{\\rtf \\super 21,30,31,33,35,37,42,45,48\\nosupersub{}}","plainCitation":"21,30,31,33,35,37,42,45,48"},"citationItems":[{"id":36,"uris":["http://zotero.org/users/2724931/items/437ZFQED"],"uri":["http://zotero.org/users/2724931/items/437ZFQED"],"itemData":{"id":36,"type":"article-journal","title":"Clinico-epidemiologic study of the metabolic syndrome and lifestyle factors associated with the risk of colon adenoma and adenocarcinoma.","container-title":"Asian Pacific journal of cancer prevention : APJCP","page":"975-983","volume":"11","issue":"4","abstract":"BACKGROUND: The numbers of patients with colorectal cancer and associated deaths have been increasing in Japan, probably due to rapid lifestyle changes. Prevention is clearly important and the present study aimed to clarify risk factors and to promote colon cancer screening. METHODS: We investigated lifestyle factors, biochemical data, and pathological features of 727 individuals who underwent colonoscopy. Data were subjected to statistical analysis using SPSS software. RESULTS: Low-grade adenoma was more frequent among the elderly and in men. All of the men and 87.5% of the women with high-grade adenoma or adenocarcinoma were aged>/=45 and>/=50 years, respectively. In women, a larger waist circumference (=80 cm) increased the odds ratio for colon adenoma or adenocarcinoma (colon tumors) by 1.033 (95% confidence index (CI), 1.001-1.066; p=0.040). Metabolic syndrome significantly increased the odds ratio of colon tumors in men, but not in women. Cigarette smoking, drinking alcohol, and increased physical activity were significant risk factors for colon tumors in men, with odds ratios of 1.001 (95% CI, 1.000-1.002; p=0.001), 1.001 (95% CI, 1.000-1.003; p=0.047), and 1.406 (95% CI 1.038-1.904; p=0.028), respectively. CONCLUSIONS: Colon tumors have a high prevalence in the elderly. A larger waist circumference in women and metabolic syndrome in both men and women elevate the risk of colon tumors. In addition, smoking, drinking, and excessive physical activity are risk factors for adenoma and adenocarcinoma in men. For early detection of colorectal cancer, men older than 45 years and women older than 50 years with these risk factors are recommended to undergo colonoscopy.","ISSN":"2476-762X 1513-7368","note":"PMID: 21133610","journalAbbreviation":"Asian Pac J Cancer Prev","language":"eng","author":[{"family":"Kaneko","given":"Rena"},{"family":"Sato","given":"Yuzuru"},{"family":"An","given":"Yasuyosi"},{"family":"Nakagawa","given":"Motoki"},{"family":"Kusayanagi","given":"Satoshi"},{"family":"Kamisago","given":"Satoshi"},{"family":"Umeda","given":"Tomoyuki"},{"family":"Ogawa","given":"Masazumi"},{"family":"Munakata","given":"Kazuo"},{"family":"Mizuno","given":"Kyoichi"}],"issued":{"date-parts":[["2010"]]}}},{"id":161,"uris":["http://zotero.org/users/2724931/items/Q4DM498H"],"uri":["http://zotero.org/users/2724931/items/Q4DM498H"],"itemData":{"id":161,"type":"article-journal","title":"Central obesity and atherogenic dyslipidemia in metabolic syndrome are associated with increased risk for colorectal adenoma in a Chinese population","container-title":"BMC Gastroenterology","page":"51","volume":"10","source":"BioMed Central","abstract":"Metabolic syndrome (MetS) is composed of cardiovascular risk factors including insulin resistance, obesity, dyslipidemia, and hypertension. Most of the components of MetS have been linked to the development of neoplasm. The purpose of this study was to evaluate the relationship between individual components of MetS and colorectal adenoma.","DOI":"10.1186/1471-230X-10-51","ISSN":"1471-230X","journalAbbreviation":"BMC Gastroenterology","author":[{"family":"Liu","given":"Chiu-Shong"},{"family":"Hsu","given":"Hua-Shui"},{"family":"Li","given":"Chia-Ing"},{"family":"Jan","given":"Chia-Ing"},{"family":"Li","given":"Tsai-Chung"},{"family":"Lin","given":"Wen-Yuan"},{"family":"Lin","given":"Tsann"},{"family":"Chen","given":"Ya-Chien"},{"family":"Lee","given":"Cheng-Chun"},{"family":"Lin","given":"Cheng-Chieh"}],"issued":{"date-parts":[["2010"]]}}},{"id":282,"uris":["http://zotero.org/users/2724931/items/83RDVNWE"],"uri":["http://zotero.org/users/2724931/items/83RDVNWE"],"itemData":{"id":282,"type":"article-journal","title":"Metabolic syndrome components and colorectal adenoma in the CLUE II cohort","container-title":"Cancer causes & control : CCC","page":"1-10","volume":"21","issue":"1","source":"PubMed Central","abstract":"Background\nMetabolic syndrome components have been associated with colorectal cancer in several studies; however, the evidence for colorectal adenomas is limited. Thus, we evaluated the association between markers of the metabolic syndrome with colorectal adenoma development in a nested case-control study.\n\nMethods\nColorectal adenoma cases (n= 132) and matched controls who had had a negative sigmoidoscopy or a colonoscopy (n=260) were identified between baseline in 1989 and 2000 among participants in the CLUE II cohort of Washington County, Maryland. Concentrations of C-peptide, insulin-like growth factor binding protein-1, glycosylated hemoglobin, total cholesterol, high density lipoprotein-cholesterol, and triglycerides were measured in baseline blood specimens. Body mass index was calculated using baseline height and weight. Use of medications to treat diabetes mellitus was self-reported at baseline. Blood pressure was measured at baseline. Distributional cutpoints of the latter markers were used to define the metabolic syndrome components (hyperinsulinemia, hyperglycemia, obesity, dyslipidemia, and hypertension) present at baseline.\n\nResults\nNo statistically significant associations with adenomas were observed for the markers of the metabolic syndrome, with the exception of a strong positive association for use of diabetes medications (OR, 8.00; 95% CI, 1.70 – 37.67), albeit based on small numbers.\n\nConclusion\nOur findings do not support that components of the metabolic syndrome influence risk of colorectal adenomas, except possibly for severe diabetes mellitus warranting medical treatment.","DOI":"10.1007/s10552-009-9428-6","ISSN":"0957-5243","note":"PMID: 19774471\nPMCID: PMC3010872","journalAbbreviation":"Cancer Causes Control","author":[{"family":"Tsilidis","given":"Konstantinos K"},{"family":"Brancati","given":"Frederick L"},{"family":"Pollak","given":"Michael N"},{"family":"Rifai","given":"Nader"},{"family":"Clipp","given":"Sandra L"},{"family":"Hoffman-Bolton","given":"Judy"},{"family":"Helzlsouer","given":"Kathy J"},{"family":"Platz","given":"Elizabeth A"}],"issued":{"date-parts":[["2010",1]]}}},{"id":5,"uris":["http://zotero.org/users/2724931/items/QHPCVRZ8"],"uri":["http://zotero.org/users/2724931/items/QHPCVRZ8"],"itemData":{"id":5,"type":"article-journal","title":"Evaluation of the risk factors associated with rectal neuroendocrine tumors: a big data analytic study from a health screening center","container-title":"Journal of Gastroenterology","page":"1112-1121","volume":"51","issue":"12","abstract":"Rectal neuroendocrine tumor (NET) is the most common NET in Asia. The risk factors associated with rectal NETs are unclear because of the overall low incidence rate of these tumors and the associated difficulty in conducting large epidemiological studies on rare cases. The aim of this study was to exploit the benefits of big data analytics to assess the risk factors associated with rectal NET.","DOI":"10.1007/s00535-016-1198-9","ISSN":"1435-5922","journalAbbreviation":"Journal of Gastroenterology","author":[{"family":"Pyo","given":"Jeung Hui"},{"family":"Hong","given":"Sung Noh"},{"family":"Min","given":"Byung-Hoon"},{"family":"Lee","given":"Jun Haeng"},{"family":"Chang","given":"Dong Kyung"},{"family":"Rhee","given":"Poong-Lyul"},{"family":"Kim","given":"Jae Jun"},

{"family":"Choi","given":"Sun Kyu"},{"family":"Jung","given":"Sin-Ho"},{"family":"Son","given":"Hee Jung"},
{"family":"Kim","given":"Young-Ho"}],"issued":{"date-parts":[["2016",12,1]]}}},{"id":13,"uris":
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{"id":13,"type":"article-journal","title":"The Risk of Colorectal Neoplasia in Patients with Gallbladder Diseases","container-
title":"Journal of Korean Medical Science","page":"1288-
1294","volume":"30","issue":"9","archive":"PMC","archive_location":"PMC4553676","abstract":"Cholecystectomy is associated with an increased risk of colorectal cancer, but little is known about the relationship between gallbladder disease and colorectal adenoma. Gallbladder polyps and colorectal neoplasia (CRN) share several risk factors such as obesity, diabetes and metabolic syndrome, which might account for their association. In this study, we investigated whether asymptomatic patients with gallbladder disease are at increased risk of CRN and identified the factors to their association. The study population consisted of 4,626 consecutive, asymptomatic individuals drawn from a prospective health check-up cohort who underwent both ultrasonography and colonoscopy screening. The prevalence of CRNs in patients with gallbladder polyps or gallstones was significantly higher than that in the control group (32.1% vs. 26.8%; P = 0.032, 35.8% vs. 26.9%; P = 0.020). A multivariate regression analysis showed that gallbladder polyps were an independent risk factor for CRN [adjusted odds ratio (OR): 1.29; 95% confidence interval (CI); 1.03-1.62] whereas gallstones were not (adjusted OR: 1.14; 95% CI: 0.79-1.63). The adjusted OR for the risk of CRN was 1.12 for gallbladder polyps < 5 mm (95% CI, 0.85-1.46) and 1.79 for gallbladder polyps ≥ 5 mm (95% CI, 1.15-2.77). The prevalence of CRN increased with increasing polyp size (P trend = 0.022). Our results suggest that colorectal neoplasia is significantly related to gallbladder polyps, especially those ≥ 5 mm. GRAPHICAL ABSTRACT:","DOI":"10.3346/jkms.2015.30.9.1288","ISSN":"1011-8934","author":[{"family":"Hong","given":"Sung Noh"},
{"family":"Lee","given":"Tae Yoon"},{"family":"Yun","given":"Sung-Cheol"}],"issued":{"date-parts":[["2015",9]]}}},
{"id":85,"uris":["http://zotero.org/users/2724931/items/ENWMID8V"],"uri":
["http://zotero.org/users/2724931/items/ENWMID8V"],"itemData":{"id":85,"type":"article-journal","title":"Interplay between 3′
-UTR polymorphisms in the vascular endothelial growth factor (VEGF) gene and metabolic syndrome in determining the risk of colorectal cancer in Koreans","container-title":"BMC
Cancer","page":"881","volume":"14","archive":"PMC","archive_location":"PMC4289193","abstract":"BACKGROUND: Polymorphisms in angiogenesis-related genes and metabolic syndrome (MetS) risk factors play important roles in cancer development. Moreover, recent studies have reported associations between a number of 3′
-UTR polymorphisms and a variety of cancers. The aim of this study was to investigate the associations of three VEGF 3′
-UTR polymorphisms (1451C

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T [rs3025040], 1612G

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A [rs10434], and 1725G

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A [rs3025053]) and MetS with colorectal cancer (CRC) susceptibility in Koreans. METHODS: A total of 850 participants (450 CRC patients and 400 controls) were enrolled in the study. The genotyping of VEGF polymorphisms was performed by TaqMan allelic discrimination assays. Cancer risks of genetic variations and gene-environment interactions were assessed by adjusted odds ratios (AORs) and 95% confidence intervals (CIs) of multivariate logistic regression analyses. RESULTS: VEGF 1451C

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T was significantly associated with rectal cancer risk (Dominant model; AOR =1.58; 95% CI = 1.09 - 2.28; p = 0.015) whereas VEGF 1725G

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A correlated with MetS risk (Dominant model; AOR =1.61; 95% CI =1.06 - 2.46; p = 0.026). Of the gene-environment combined effects, the interaction of VEGF 1451C

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T and MetS contributed to increased rectal cancer risk (AOR = 3.15; 95% CI = 1.74 - 5.70; p <

.001) whereas the combination of VEGF 1725G

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A and MetS was involved with elevated colon cancer risk (AOR = 2.68; 95% CI = 1.30 - 1.55; p =0.008). CONCLUSIONS: Our results implicate that VEGF 1451C

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T and 1725G

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A may predispose to CRC susceptibility and the genetic contributions may be varied with the presence of MetS. ELECTRONIC SUPPLEMENTARY MATERIAL: The online version of this article (doi:10.1186/1471-2407-14-881) contains supplementary material, which is available to authorized users.","DOI":"10.1186/1471-2407-14-881","ISSN":"1471-2407","author":
[{"family":"Jeon","given":"Young Joo"},{"family":"Kim","given":"Jong Woo"},{"family":"Park","given":"Hye Mi"},
{"family":"Jang","given":"Hyo Geun"},{"family":"Kim","given":"Jung O"},{"family":"Oh","given":"Jisu"},
{"family":"Chong","given":"So Young"},{"family":"Kwon","given":"Sung Won"},{"family":"Kim","given":"Eo Jin"},
{"family":"Oh","given":"Doyeun"},{"family":"Kim","given":"Nam Keun"}],"issued":{"date-parts":[["2014"]]}}},

{"id":162,"uris":["http://zotero.org/users/2724931/items/R3KQJIJK"],"uri":["http://zotero.org/users/2724931/items/R3KQJIJK"],"itemData":{"id":162,"type":"article-journal","title":"Clinical study on the correlation between metabolic syndrome and colorectal carcinoma","container-title":"ANZ Journal of Surgery","page":"331-336","volume":"80","issue":"5","abstract":"Background: Although metabolic syndrome (MS) has received a lot of attention in recent years, the correlation between MS and colorectal carcinoma is still not very clear. This study aims at exploring the relationship between MS and colorectal carcinoma. Methods: Data was collected from 507 cases of colorectal carcinoma and 507 cases of healthy patients between January 2002 and March 2007 to establish the database. The patients with colorectal cancer were divided into two groups based on the presence of MS. Multivariate analysis of these data for the overall survival and recurrence was performed with the Cox proportional hazard model. Variables examined by multivariate analysis were sex , age, location, histotype, differentiation, tumour, node, metastasis (TNM) stage, the number of lymph nodes detected, etc. Results: The existence of MS in the colorectal carcinoma group was clearly more than that in the control group. The existence of two to four types of abnormal metabolic diseases was significantly more in the colorectal cancer group than in the control group. MS is one of the important elements that can independently influence the survival (odds ratio (OR) = 1.501, 95% confidence interval (CI) = 1.057–2.131) and have the highest risk with worse survival compared with other parameters. Conclusion: There is a close relationship between MS and colorectal carcinoma, and MS is a significantly independent element that influences the survival of the colorectal carcinoma. Decreasing the incidence of MS maybe play a role in improving therapeutic efficacy and prognosis of the cancer.","DOI":"10.1111/j.1445-2197.2009.05084.x","ISSN":"1445-2197","author":[{"family":"Shen","given":"Zhanlong"},{"family":"Wang","given":"Shan"},{"family":"Ye","given":"Yingjiang"},{"family":"Yin","given":"Mujun"},{"family":"Yang","given":"Xiaodong"},{"family":"Jiang","given":"Kewei"},{"family":"Liu","given":"Yan"}],"issued":{"date-parts":[["2010",5,1]]}}},{"id":87,"uris":["http://zotero.org/users/2724931/items/VESC9IC5"],"uri":["http://zotero.org/users/2724931/items/VESC9IC5"],"itemData":{"id":87,"type":"article-journal","title":"The relationship of nonalcoholic fatty liver disease and metabolic syndrome for colonoscopy colorectal neoplasm","container-title":"Medicine","page":"e5809","volume":"96","issue":"2","archive":"PMC","archive_location":"PMC5266168","abstract":"Col neoplasm is considered to have a strong association with nonalcoholic fatty liver disease (NAFLD) and metabolic syndrome (MetS), respectively. The relationship among NAFLD, MetS, and colorectal neoplasm was assessed in 1793 participants. Participants were divided into 4 groups based on the status of NAFLD and MetS. Relative excess risks of interaction (RERI), attributable proportion (AP), and synergy index (SI) were applied to evaluate the additive interaction. NAFLD and MetS were significantly correlated with colorectal neoplasm and colorectal cancer (CRC), respectively. The incidence of CRC in NAFLD (+) MetS (+) group was significantly higher than other 3 groups. The result of RERI, AP, and SI indicated the significant additive interaction of NAFLD and MetS on the development of CRC. NAFLD and MetS are risk factors for colorectal neoplasm and CRC, respectively. And NAFLD and MetS have an additive effect on the development of CRC.","DOI":"10.1097/MD.0000000000005809","ISSN":"0025-7974","author":[{"family":"Pan","given":"Shuang"},{"family":"Hong","given":"Wandong"},{"family":"Wu","given":"Wenzhi"},{"family":"Chen","given":"Qinfen"},{"family":"Zhao","given":"Qian"},{"family":"Wu","given":"Jiansheng"},{"family":"Jin","given":"Yin"}],"editor":[{"family":"Žarko.","given":"Babi
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"}],"issued":{"date-parts":[["2017",1]]}}},{"id":170,"uris":["http://zotero.org/users/2724931/items/2S89J5KW"],"uri":["http://zotero.org/users/2724931/items/2S89J5KW"],"itemData":{"id":170,"type":"article-journal","title":"Risk factors associated with rectal neuroendocrine tumors: a cross-sectional study.","container-title":"Cancer epidemiology, biomarkers & prevention : a publication of the American Association for Cancer Research, cosponsored by the American Society of Preventive Oncology","page":"1406-1413","volume":"23","issue":"7","abstract":"BACKGROUND: The incidence of rectal neuroendocrine tumors (NET) has been increasing since the implementation of the screening colonoscopy. However, very little is known about risk factors associated with rectal NETs. We examined the prevalence of and the risk factors for rectal NETs in a Korean population. METHODS: A cross-sectional study was performed on 62,171 Koreans who underwent screening colonoscopy. The clinical characteristics and serum biochemical parameters of subjects with rectal NET were compared with those of subjects without rectal NET using multivariate logistic regression. RESULTS: Of a total of 57,819 participants, 101 [OR, 0.17%; 95% confidence interval (CI), 0.14-0.20] had a rectal NET. Young age (<50 years; OR, 2.09; 95% CI, 1.06-4.15), male gender (OR, 1.92; 95% CI, 1.15-3.20), alcohol drinking [adjusted OR (AOR), 1.56; 95% CI, 1.01-2.42], and a low high-density lipoprotein-cholesterol (HDL-C) level (AOR, 1.85; 95% CI, 1.10-3.11) were independent risk factors for rectal NETs. Cigarette smoking, fatty liver, metabolic syndrome, higher triglyceride level (>/=150 mg/dL), and higher homeostasis model assessment of insulin resistance (>/=2.5) were not independently associated with rectal NETs, although these factors were more common in individuals with rectal NETs in the univariate analysis. CONCLUSIONS: Young age (<50 years), male gender, alcohol drinking, and a low","DOI":"10.1158/1055-9965.EPI-14-0132","ISSN":"1538-7755 1055-9965","note":"PMID: 24813818","journalAbbreviation":"Cancer Epidemiol Biomarkers Prev","language":"eng","author":[{"family":"Jung","given":"Yoon Suk"},{"family":"Yun","given":"Kyung Eun"},{"family":"Chang","given":"Yoosoo"},{"family":"Ryu","given":"Seungho"},{"family":"Park","given":"Jung Ho"},{"family":"Kim","given":"Hong Joo"},{"family":"Cho","given":"Yong Kyun"},{"family":"Sohn","given":"Chong Il"},{"family":"Jeon","given":"Woo Kyu"},{"family":"Kim","given":"Byung Ik"},{"family":"Park","given":"Dong Il"}],"issued":{"date-parts":[["2014",7]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
21, 30, 31, 33, 35, 37, 42, 45, 48
].
Association of
MetS
with CRA
A random effect meta-analysis model of 22 studies comprising 30 datasets of CRA incidence in individuals with
MetS
versus without
MetS
supported the association between
MetS
and CRA (RR = 1.43; 95% CI = 1.31, 1.57) (
Figure
2; Table 2). No evidence of pub
lication bias was observed (Figure
3). The risk estimation showed significant differences between cohort, case-control, and cross-sectional studies, this latter revealed a moderate heterogeneity (I
2
= 32%).

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Forest plot of association between
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and CRA risk
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Forest plot of association between
MetS
and CRA risk
AA Advanced Adenoma, ATPIII (NCEP-ATPIII) National Cholesterol Education Program-Adult Treatment Panel III, CRA Colorectal Adenoma, IDF International Diabetes Foundation, M Men, W Women.
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Funnel plot of the association between
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Funnel plot of the association between
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The summary of RRs for Asians was significant, but not for the other populations, similarly to studies reporting results for both sexes. The pooled analysis for risk estimates of studies using the NCEP/ATPIII definition of
MetS
were similar to studies using other definitions (RR = 1.43; 95% CI = 1.28, 1.59) and (RR = 1.45; 95% CI = 1.36, 1.55) respectively.

Table
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Characteristics of included studies

Cohorts Authors , year of publication [Ref]	Country	Years	Type of lesion	№ events / № total	№ of MetS patients	MetS definition
Lu et al , 2015 [ADDIN ZOTERO_ITEM CSL_CITATION {"citationID":"bq4oSzCk","properties":{"formattedCitation":"{\\rtf \\super 20\\nosupersub{}}","plainCitation":"20"},"citationItems":[{"id":177,"uris":["http://zotero.org/users/2724931/items/E2HN5VWH"],"uri":["http://zotero.org/users/2724931/items/E2HN5VWH"],"itemData":{"id":177,"type":"article-journal","title":"Metabolic Predispositions and Increased Risk of Colorectal Adenocarcinoma by Anatomical Location: A Large Population-Based Cohort Study in Norway","container-title":"American Journal of						

Epidemiology","page":"883-893","volume":"182","issue":"10","abstract":"Whether different definitions of metabolic syndrome (MetS) are differently associated with colorectal adenocarcinoma (CA) by anatomical location is unclear. A population-based cohort study, the Cohort of Norway (CONOR) Study, was conducted in Norway from 1995 to 2010. Anthropometric measurements, blood samples, and lifestyle data were collected at recruitment. CAs were identified through linkage to the Norwegian Cancer Register. A composite index of MetS as defined by the International Diabetes Federation (IDF) or/and the National Cholesterol Education Program's Adult Treatment Panel III (ATP III) and single components of MetS, including anthropometric factors, blood pressure, lipids, triglycerides, and glucose, were analyzed. Cox proportional hazards regression was performed to estimate hazard ratios and 95% confidence intervals. Significant associations between single MetS components and CA, except for reduced high-density lipoprotein cholesterol and nonfasting glucose levels, were observed. MetS defined by 2 criteria separately showed a similar association with CA in general, and MetS defined by both the IDF and ATP III showed consistent results. Stronger associations were observed in the proximal colon among men (IDF: hazard ratio (HR) = 1.51, 95% confidence interval (CI): 1.24, 1.84; ATP III: HR = 1.40, 95% CI: 1.15, 1.70) and in the rectum among women (IDF: HR = 1.42, 95% CI: 1.07, 1.89; ATP III: HR = 1.43, 95% CI: 1.08, 1.90).","DOI":"10.1093/aje/kwv141","ISSN":"0002-9262","journalAbbreviation":"American Journal of Epidemiology","author":[{"family":"Lu","given":"Yunxia"},{"family":"Ness-Jensen","given":"Eivind"},{"family":"Hveem","given":"Kristian"},{"family":"Martling","given":"Anna"}],"issued":{"date-parts":[["2015",11,15]]}}},"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
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Colorectal cancer
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a
40234
b
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epidemiologic study of the metabolic syndrome and lifestyle factors associated with the risk of colon adenoma and adenocarcinoma.","container-title":"Asian Pacific journal of cancer prevention : APJCP","page":"975-983","volume":"11","issue":"4","abstract":"BACKGROUND: The numbers of patients with colorectal cancer and associated deaths have been increasing in Japan, probably due to rapid lifestyle changes. Prevention is clearly important and the present study aimed to clarify risk factors and to promote colon cancer screening. METHODS: We investigated lifestyle factors, biochemical data, and pathological features of 727 individuals who underwent colonoscopy. Data were subjected to statistical analysis using SPSS software. RESULTS: Low-grade adenoma was more frequent among the elderly and in men. All of the men and 87.5% of the women with high-grade adenoma or adenocarcinoma were aged>/=45 and>/=50 years, respectively. In women, a larger waist circumference (=80 cm) increased the odds ratio for colon adenoma or adenocarcinoma (colon tumors) by 1.033 (95% confidence index (CI), 1.001-1.066; p=0.040). Metabolic syndrome significantly increased the odds ratio of colon tumors in men, but not in women. Cigarette smoking, drinking alcohol, and increased physical activity were significant risk factors for colon tumors in men, with odds ratios of 1.001 (95% CI, 1.000-1.002; p=0.001), 1.001 (95% CI, 1.000-1.003; p=0.047), and 1.406 (95% CI 1.038-1.904; p=0.028), respectively. CONCLUSIONS: Colon tumors have a high prevalence in the elderly. A larger waist circumference in women and metabolic syndrome in both men and women elevate the risk of colon tumors. In addition, smoking, drinking, and excessive physical activity are risk factors for adenoma and adenocarcinoma in men. For early detection of colorectal cancer, men older than 45 years and women older than 50 years with these risk factors are recommended to undergo colonoscopy.","ISSN":"2476-762X 1513-7368","note":"PMID: 21133610","journalAbbreviation":"Asian Pac J Cancer Prev","language":"eng","author":[{"family":"Kaneko","given":"Rena"},{"family":"Sato","given":"Yuzuru"},{"family":"An","given":"Yasuyosi"},{"family":"Nakagawa","given":"Motoki"},{"family":"Kusayanagi","given":"Satoshi"},{"family":"Kamisago","given":"Satoshi"},{"family":"Umeda","given":"Tomoyuki"},{"family":"Ogawa","given":"Masazumi"},{"family":"Munakata","given":"Kazuo"},{"family":"Mizuno","given":"Kyoichi"}],"issued":{"date-parts":[["2010"]]}}},"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
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metabolic syndrome, with the exception of a strong positive association for use of diabetes medications (OR, 8.00; 95% CI, 1.70 – 37.67), albeit based on small numbers.\n\nConclusion\nOur findings do not support that components of the metabolic syndrome influence risk of colorectal adenomas, except possibly for severe diabetes mellitus warranting medical treatment.","DOI":"10.1007/s10552-009-9428-6","ISSN":"0957-5243","note":"PMID: 19774471\nPMCID: PMC3010872","journalAbbreviation":"Cancer Causes Control","author":[{"family":"Tsilidis","given":"Konstantinos K"},{"family":"Brancati","given":"Frederick L"},{"family":"Pollak","given":"Michael N"},{"family":"Rifai","given":"Nader"},{"family":"Clipp","given":"Sandra L"},{"family":"Hoffman-Bolton","given":"Judy"},{"family":"Helzlsouer","given":"Kathy J"},{"family":"Platz","given":"Elizabeth A"}],"issued":{"date-parts":[["2010",1]]}}},"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
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syndrome (MetS), a set of metabolic risk factors including obesity, dysglycemia, and dyslipidemia, is associated with increased colorectal cancer (CRC) risk. A putative biological mechanism is chronic, low-grade inflammation, both a feature of MetS and a CRC risk factor. However, excess body fat also induces a proinflammatory state and increases CRC risk. In order to explore the relationship between MetS, body size, inflammation, and CRC, we studied large panels of inflammatory and cancer biomarkers. We included 138 participants from the Västerbotten Intervention Programme with repeated sampling occasions, 10 years apart. Plasma samples were analyzed for 178 protein markers by proximity extension assay. To identify associations between plasma protein levels and MetS components, linear mixed models were fitted for each protein. Twelve proteins were associated with at least one MetS component, six of which were associated with MetS score. MetS alone was not related to any protein. Instead, BMI displayed by far the strongest associations with the biomarkers. One of the 12 MetS score-related proteins (FGF-21), also associated with BMI, was associated with an increased CRC risk (OR 1.71, 95% CI 1.19 –2.47). We conclude that overweight and obesity, acting through both inflammation and other mechanisms, likely explain the MetS-CRC connection.","DOI":"10.1155/2017/4803156","ISSN":"0962-9351","author":[{"family":"Harlid","given":"Sophia"},{"family":"Myte","given":"Robin"},{"family":"Van Guelpen","given":"Bethany"}],"issued":{"date-parts":[["2017"]]}}},"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
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height a risk factor for colorectal adenoma?","container-title":"The Korean Journal of Internal
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659","volume":"31","issue":"4","archive":"PMC","archive_location":"PMC4939489","abstract":"BACKGROUNI
Although it is generally known that the risk for all types of cancer increases with adult height, combined and for
several common site-specific cancers (including colon and rectal), evidence is limited for adenomas, which are
precursors to colorectal cancer. We evaluated the association between height and risk of colorectal adenoma at
various stages of the adenoma-carcinoma pathway. METHODS:: We conducted a retrospective study using data
from patients who had undergone a complete colonoscopy as part of a health examination at the Health Promotion
Center of Samsung Medical Center between October 13, 2009 and December 31, 2011. A total of 1,347 male
subjects were included in our study. Multivariate logistic regression analysis was used to evaluate the association
between height and colorectal adenoma. RESULTS:: Each 5-cm increase in height was associated with 1.6% and
5.3% higher risks of advanced colorectal adenoma and high-risk colorectal adenoma, respectively, but associations
were not significant after adjusting for age, body mass index, metabolic syndrome, alcohol intake, smoking,
family history of colorectal cancer, and regular aspirin use (p = 0.840 and p = 0.472, respectively).
CONCLUSIONS:: No clear association was found between colorectal adenoma risk and height. Unlike other site-
specific tumors reported to have a consistent relationship with height, the association between colorectal tumor
and height remains controversial.","DOI":"10.3904/kjim.2014.313","ISSN":"1226-3303","author":
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Risk of Colorectal Neoplasia in Patients with Gallbladder Diseases","container-title":"Journal of Korean Medical
Science","page":"1288-
1294","volume":"30","issue":"9","archive":"PMC","archive_location":"PMC4553676","abstract":"Cholecystectom
is associated with an increased risk of colorectal cancer, but little is known about the relationship between
gallbladder disease and colorectal adenoma. Gallbladder polyps and colorectal neoplasia (CRN) share several risk
factors such as obesity, diabetes and metabolic syndrome, which might account for their association. In this study,
we investigated whether asymptomatic patients with gallbladder disease are at increased risk of CRN and
identified the factors to their association. The study population consisted of 4,626 consecutive, asymptomatic
individuals drawn from a prospective health check-up cohort who underwent both ultrasonography and
colonoscopy screening. The prevalence of CRNs in patients with gallbladder polyps or gallstones was
significantly higher than that in the control group (32.1% vs. 26.8%; P = 0.032, 35.8% vs. 26.9%; P = 0.020). A
multivariate regression analysis showed that gallbladder polyps were an independent risk factor for CRN [adjusted
odds ratio (OR): 1.29; 95% confidence interval (CI); 1.03-1.62] whereas gallstones were not (adjusted OR: 1.14;
95% CI: 0.79-1.63). The adjusted OR for the risk of CRN was 1.12 for gallbladder polyps < 5 mm (95% CI,
0.85-1.46) and 1.79 for gallbladder polyps ≥ 5 mm (95% CI, 1.15-2.77). The prevalence of CRN increased with
increasing polyp size (P trend = 0.022). Our results suggest that colorectal neoplasia is significantly related to
gallbladder polyps, especially those ≥ 5 mm. GRAPHICAL
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-UTR polymorphisms in the vascular endothelial growth factor (VEGF) gene and metabolic syndrome in determining the risk of colorectal cancer in Koreans","container-title":"BMC Cancer","page":"881","volume":"14","archive":"PMC","archive_location":"PMC4289193","abstract":"BACKGRO Polymorphisms in angiogenesis-related genes and metabolic syndrome (MetS) risk factors play important roles in cancer development. Moreover, recent studies have reported associations between a number of 3
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-UTR polymorphisms and a variety of cancers. The aim of this study was to investigate the associations of three VEGF 3
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-UTR polymorphisms (1451C

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T [rs3025040], 1612G

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A [rs10434], and 1725G

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A [rs3025053]) and MetS with colorectal cancer (CRC) susceptibility in Koreans. METHODS: A total of 850 participants (450 CRC patients and 400 controls) were enrolled in the study. The genotyping of VEGF polymorphisms was performed by TaqMan allelic discrimination assays. Cancer risks of genetic variations and gene-environment interactions were assessed by adjusted odds ratios (AORs) and 95% confidence intervals (CIs) of multivariate logistic regression analyses. RESULTS: VEGF 1451C

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T was significantly associated with rectal cancer risk (Dominant model; AOR =1.58; 95% CI = 1.09 - 2.28; p = 0.015) whereas VEGF 1725G

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A correlated with MetS risk (Dominant model; AOR =1.61; 95% CI =1.06 - 2.46; p = 0.026). Of the gene-environment combined effects, the interaction of VEGF 1451C

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T and MetS contributed to increased rectal cancer risk (AOR = 3.15; 95% CI = 1.74 - 5.70; p <

.001) whereas the combination of VEGF 1725G

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A and MetS was involved with elevated colon cancer risk (AOR = 2.68; 95% CI = 1.30 - 1.55; p =0.008). CONCLUSIONS: Our results implicate that VEGF 1451C

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T and 1725G

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A may predispose to CRC susceptibility and the genetic contributions may be varied with the presence of MetS. ELECTRONIC SUPPLEMENTARY MATERIAL: The online version of this article (doi:10.1186/1471-2407-14-881) contains supplementary material, which is available to authorized users.","DOI":"10.1186/1471-2407-14-881","ISSN":"1471-2407","author":[{"family":"Jeon","given":"Young Joo"},{"family":"Kim","given":"Jong Woo"},{"family":"Park","given":"Hye Mi"},{"family":"Jang","given":"Hyo Geun"},{"family":"Kim","given":"Jung O"},{"family":"Oh","given":"Jisu"},{"family":"Chong","given":"So Young"},{"family":"Kwon","given":"Sung Won"},{"family":"Kim","given":"Eo Jin"},{"family":"Oh","given":"Doyeun"},{"family":"Kim","given":"Nam Keun"}],"issued":{"date-parts":[["2014"]]}}},"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
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control study.","container-title":"Angiology","page":"390-396","volume":"63","issue":"5","abstract":"The effect
of Mediterranean diet on colorectal cancer, in the presence of the metabolic syndrome, was evaluated in 250
patients with first developed cancer (63 +/- 12 years, 59% males) and 250 age-gender-matched controls.
Adherence to the Mediterranean diet was evaluated with the modified-MedDietScore (theoretical range 0-75),
while assessment of the metabolic syndrome (MetS) was based on the third Adult Treatment Panel ([ATP III]
National Cholesterol Education Program) criteria. Presence of MetS (1.66, 95% confidence interval [CI] 1.02,
2.69), age (4.25, 95% CI 2.33, 7.77), smoking (1.85, 95% CI 1.27, 2.70), and family history of colorectal cancer
(3.37, 95% CI 1.69, 6.75) had a detrimental effect, whereas adherence to the Mediterranean diet (0.88, 95% CI
0.84, 0.92) and body mass index (0.93, 95%CI 0.89, 0.98) had a protective role regarding colorectal cancer.
Mediterranean diet had the same effect in relation to colorectal cancer, in both participants with (0.84, 95% CI
0.76, 0.93) and without MetS (0.89, 95% CI 0.85, 0.94).","DOI":"10.1177/0003319711421164","ISSN":"1940-
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Investigation into Cancer and Nutrition Study","container-title":"Cancer Prevention
Research","page":"1873","volume":"4","issue":"11","abstract":"Metabolic syndrome (MetS) is purportedly related
to risk of developing colorectal cancer; however, the association of MetS, as defined according to recent
international criteria, and colorectal cancer has not been yet evaluated. In particular, it remains unclear to what
extent the MetS components individually account for such an association. We addressed these issues in a nested
case–control study that included 1,093 incident cases matched (1:1) to controls by using incidence density
sampling. Conditional logistic regression was used to estimate relative risks (RR) and 95% CIs. MetS was defined
according to the criteria of the National Cholesterol Education Program/Adult Treatment Panel III
(NCEP/ATPIII), the International Diabetes Federation (IDF), and the 2009 harmonized definition. Among
individual components, abdominal obesity (RR = 1.51; 95% CI: 1.16–1.96) was associated with colon cancer,
whereas abnormal glucose metabolism was associated with both colon (RR = 2.05; 95% CI: 1.57–2.68) and rectal
cancer (RR = 2.07; 95% CI: 1.45–2.96). MetS, as defined by each of the definitions, was similarly associated with
colon cancer (e.g., RR = 1.91; 95% CI: 1.47–2.42 for MetS by NCEP/ATPIII), whereas MetS by NCEP/ATPIII,
but not IDF or harmonized definition, was associated with rectal cancer (RR = 1.45; 95% CI: 1.02–2.06). Overall,
these associations were stronger in women than in men. However, the association between MetS and colorectal
cancer was accounted for by abdominal obesity and abnormal glucose metabolism such that MetS did not provide
risk information beyond these components (likelihood ratio test P = 0.10 for MetS by NCEP/ATPIII). These data
suggest that simple assessment of abnormal glucose metabolism and/or abdominal obesity to identify individuals
at colorectal cancer risk may have higher clinical utility than applying more complex MetS definitions. Cancer
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journal","title":"Clinical study on the correlation between metabolic syndrome and colorectal
carcinoma","container-title":"ANZ Journal of Surgery","page":"331-
336","volume":"80","issue":"5","abstract":"Background: Although metabolic syndrome (MS) has received a lot of attention in recent years, the correlation between MS and colorectal carcinoma is still not very clear. This study aims at exploring the relationship between MS and colorectal carcinoma. Methods: Data was collected from 507 cases of colorectal carcinoma and 507 cases of healthy patients between January 2002 and March 2007 to establish the database. The patients with colorectal cancer were divided into two groups based on the presence of MS. Multivariate analysis of these data for the overall survival and recurrence was performed with the Cox proportional hazard model. Variables examined by multivariate analysis were sex , age, location, histotype, differentiation, tumour, node, metastasis (TNM) stage, the number of lymph nodes detected, etc. Results: The existence of MS in the colorectal carcinoma group was clearly more than that in the control group. The existence of two to four types of abnormal metabolic diseases was significantly more in the colorectal cancer group than in the control group. MS is one of the important elements that can independently influence the survival (odds ratio (OR) = 1.501, 95% confidence interval (CI) = 1.057–2.131) and have the highest risk with worse survival compared with other parameters. Conclusion: There is a close relationship between MS and colorectal carcinoma, and MS is a significantly independent element that influences the survival of the colorectal carcinoma. Decreasing the incidence of MS maybe play a role in improving therapeutic efficacy and prognosis of the cancer.","DOI":"10.1111/j.1445-2197.2009.05084.x","ISSN":"1445-2197","author":
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journal","title":"Metabolic syndrome is associated with colorectal cancer in men","container-title":"European Journal of Cancer","page":"1866-1872","volume":"46","issue":"10","abstract":"Aim of the study\nWe assessed the relation between metabolic syndrome (MetS) and its components and colorectal cancer.\nMethods\nWe analysed data from a multicentre case–control study conducted in Italy and Switzerland, including 1378 cases of colon cancer, 878 cases of rectal cancer and 4661 controls. All cases were incident and histologically confirmed.

Controls were subjects admitted to the same hospitals as cases with acute non-malignant conditions. MetS was defined according to the International Diabetes Federation criteria. Odds ratios (ORs) and the corresponding 95% confidence intervals (CIs) were estimated by multiple logistic regression models, including terms for major identified confounding factors for colorectal cancer.\nResults\nWith reference to each component of the MetS, the ORs of colorectal cancer in men were 1.27 (95% CI, 0.95–1.69) for diabetes, 1.24 (95% CI, 1.03–1.48) for hypertension, 1.14 (95% CI, 0.93–1.40) for hypercholesterolaemia and 1.26 (95% CI, 1.08–1.48) for overweight at age 30. The corresponding ORs in women were 1.20 (95% CI, 0.82–1.75), 0.87 (95% CI, 0.71–1.06), 0.83 (95% CI, 0.66–1.03) and 1.06 (95% CI, 0.86–1.30). Colorectal cancer risk was increased in men (OR = 1.86; 95% CI, 1.21–2.86), but not in women (OR = 1.13; 95% CI, 0.66–1.93), with MetS. The ORs were 2.09 (95% CI, 1.38 –3.18) in men and 1.15 (95% CI, 0.68–1.94) in women with
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3 components of the MetS, as compared to no component. Results were similar for colon and rectal cancers.\nConclusion\nThis study supports a direct association between MetS and both colon and rectal cancers in men, but not in women.","DOI":"10.1016/j.ejca.2010.03.010","ISSN":"0959-8049","journalAbbreviation":"European Journal of Cancer","author":[{"family":"Pelucchi","given":"Claudio"},{"family":"Negri","given":"Eva"},{"family":"Talamini","given":"Renato"},{"family":"Levi","given":"Fabio"},{"family":"Giacosa","given":"Attilio"},{"family":"Crispo","given":"Anna"},{"family":"Bidoli","given":"Ettore"},{"family":"Montella","given":"Maurizio"},{"family":"Franceschi","given":"Silvia"},{"family":"La Vecchia","given":"Carlo"}],"issued":{"date-parts":[["2010",7]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
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neoplasm is considered to have a strong association with nonalcoholic fatty liver disease (NAFLD) and metabolic syndrome (MetS), respectively. The relationship among NAFLD, MetS, and colorectal neoplasm was assessed in 1793 participants. Participants were divided into 4 groups based on the status of NAFLD and MetS. Relative excess risks of interaction (RERI), attributable proportion (AP), and synergy index (SI) were applied to evaluate the additive interaction. NAFLD and MetS were significantly correlated with colorectal neoplasm and colorectal cancer (CRC), respectively. The incidence of CRC in NAFLD (+) MetS (+) group was significantly higher than other 3 groups. The result of RERI, AP, and SI indicated the significant additive interaction of NAFLD and MetS on the development of CRC. NAFLD and MetS are risk factors for colorectal neoplasm and CRC, respectively. And NAFLD and MetS have an additive effect on the development of CRC.","DOI":"10.1097/MD.0000000000005809","ISSN":"0025-7974","author":[{"family":"Pan","given":"Shuang"},{"family":"Hong","given":"Wandong"},{"family":"Wu","given":"Wenzhi"},{"family":"Chen","given":"Qinfen"},{"family":"Zhao","given":"Qian"},{"family":"Wu","given":"Jiansheng"},{"family":"Jin","given":"Yin"}],"editor":[{"family":"Žarko.","given":"Babi
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years of age","container-title":"Journal of Gastroenterology and Hepatology","page":"98-105","volume":"32","issue":"1","source":"PubMed","abstract":"BACKGROUND AND AIM: Current guidelines recommend colon cancer screening for persons aged over 50

years. However, there are few data on colorectal cancer screening in 40- to 49-year-olds. This study assessed the prevalence and risk factors of colorectal neoplasms in 40- to 49-year-old Koreans.\nMETHODS: We analyzed the results of screening colonoscopies of 6680 persons 40-59

years of age (2206 aged 40-49 and 4474 aged 50-59

years).\nRESULTS: The prevalence of overall and advanced neoplasms in the 40- to 49-year age group was lower than in the 50- to 59-year age group (26.7% and 2.4% vs 37.8% and 3.5%, respectively). However, the prevalence of overall and advanced neoplasms increased to 39.1% and 5.4%, respectively, in 45- to 49-year-old individuals with metabolic syndrome. In the 40- to 49-year age group, age, current smoking, and metabolic syndrome were associated with an increased risk of advanced neoplasms (odds ratio [OR] 1.16, 95% confidence interval [CI] 1.04-1.30; OR 3.12, 95% CI 1.20-8.12; and OR 2.00, 95% CI 1.09-3.67, respectively).\nCONCLUSIONS: Individuals aged 40-49

years had a lower prevalence of colorectal neoplasms than those aged 50-59

years, but some 40- to 49-year-olds showed a similar prevalence to those aged 50-59

years. Age, current smoking habits, and metabolic syndrome are associated with an increased risk of advanced neoplasms in subjects aged 40-49

years. Further studies are needed to stratify the risks of colon cancer and guide targeted screening in persons younger than 50

years old.","DOI":"10.1111/jgh.13454","ISSN":"1440-1746","note":"PMID: 27197805","journalAbbreviation":"J. Gastroenterol. Hepatol.","language":"eng","author":[{"family":"Koo","given":"Ja Eun"},{"family":"Kim","given":"Kyung-Jo"},{"family":"Park","given":"Hye Won"},{"family":"Kim","given":"Hong-Kyu"},{"family":"Choe","given":"Jae Won"},{"family":"Chang","given":"Hye-Sook"},

{"family":"Lee","given":"Ji Young"},{"family":"Myung","given":"Seung-Jae"},{"family":"Yang","given":"Suk-Kyun"},{"family":"Kim","given":"Jin-Ho"}],"issued":{"date-parts":[["2017",1]]}}},"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
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{"family":"Park","given":"Jung Ho"},{"family":"Kim","given":"Hong Joo"},{"family":"Cho","given":"Yong Kyun"},{"family":"Sohn","given":"Chong Il"},{"family":"Jeon","given":"Woo Kyu"},{"family":"Kim","given":"Byung Ik"},{"family":"Park","given":"Dong Il"}],"issued":{"date-parts":[["2014",7]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
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and colonoscopy for health check-up, prevalence of colorectal adenoma was greater in subjects with low-grade coronary atherosclerosis or significant CAD. The presence of advanced adenoma was significantly associated with significant CAD.","DOI":"10.1111/j.1440-1746.2010.06330.x","ISSN":"1440-1746 0815-9319","note":"PMID: 21039843","journalAbbreviation":"J Gastroenterol Hepatol","language":"eng","author":[{"family":"Yang","given":"Sun Young"},{"family":"Kim","given":"Young Sun"},{"family":"Chung","given":"Su Jin"},{"family":"Song","given":"Ji Hyun"},{"family":"Choi","given":"Su Yeon"},{"family":"Park","given":"Min Jung"},{"family":"Yim","given":"Jeong Yoon"},{"family":"Lim","given":"Seon Hee"},{"family":"Kim","given":"Donghee"},{"family":"Kim","given":"Chung Hyun"},{"family":"Kim","given":"Ju Sung"},{"family":"Song","given":"In Sung"}],"issued":{"date-parts":[["2010",11]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"} 53

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Kyun"},{"family":"Park","given":"Jung Ho"},{"family":"Kim","given":"Hong Joo"},{"family":"Park","given":"Dong Il"},{"family":"Sohn","given":"Chong Il"},{"family":"Jeon","given":"Woo Kyu"},{"family":"Kim","given":"Byung Ik"},{"family":"Won","given":"Kyoung Hee"},{"family":"Jin","given":"Wook"}],"issued":{"date-parts":[["2010",3]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
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Colorectal adenomas
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South Korea
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Colorectal adenomas
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NCEP-ATPIII

AC adenocarcinomas, AHA/NHLBI America Heart Association and National Heart Lung Blood Institute, CC colon cancer, CRA colorectal adenoma, CRC colorectal cancer, IDF International Diabetes Foundation,
MetS
metabolic syndrome, NCEP-ATPIII National Cholesterol Education Program-Adult Treatment Panel III, RC rectal cancer.
a
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d

According to IDF definition.
b
, f According to the NCEP-ATPIII definition.
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Participants are from Denmark, France, Germany, Greece, Italy, Spain, the Netherlands, and the United Kingdom.
e
According to the harmonized definition.
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Results of subgroup analysis

Subgroups	№ of studies (№ of datasets) [References]	Meta-analysis model RR (95% CI)	Z-test	Heterogeneity I 2 (%)	T 2	X 2
Colorectal adenomas						
All studies	22 (30) [					

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high-risk group at 3 years. Subjects with metabolic syndrome had a significantly higher risk for subsequent advanced neoplasms (P < .0001). After stratification based on findings from baseline colonoscopies, the risk for neoplasm was significant in the normal (P < .001) and low-risk groups (P = .04), but not in the high-risk group (P = .48). In Cox regression analysis, metabolic syndrome had significant effects on the risk for advanced neoplasms in the normal (HR, 2.07; 95% confidence interval, 1.13–3.81) and low-risk groups (HR, 2.34; 95% confidence interval, 1.01–5.41), but not in the high-risk group.\nConclusions\nMetabolic syndrome is a significant risk factor for occurrence of an advanced adenoma after a negative or low-risk finding from a baseline colonoscopy. Metabolic syndrome should be considered in risk stratification for surveillance intervals.","DOI":"10.1016/j.cgh.2014.10.022","ISSN":"1542-3565","journalAbbreviation":"Clinical Gastroenterology and Hepatology","author":[{"family":"Chiu","given":"Han-Mo"},{"family":"Lee","given":"Yi-Chia"},{"family":"Tu","given":"Chia-Hung"},{"family":"Chang","given":"Li-Chun"},{"family":"Hsu","given":"Wen-Feng"},{"family":"Chou","given":"Chu-Kuang"},{"family":"Tsai","given":"Kun-Feng"},{"family":"Liang","given":"Jin-Tung"},{"family":"Shun","given":"Chia-Tung"},{"family":"Wu","given":"Ming-Shiang"}],"issued":{"date-parts":[["2015",6]]}},{"id":163,"uris":["http://zotero.org/users/2724931/items/FX77VBWZ"],"uri":["http://zotero.org/users/2724931/items/FX77VBWZ"],"itemData":{"id":163,"type":"article-journal","title":"Prevalence and risk of colorectal neoplasms in asymptomatic, average-risk screenees 40 to 49 years of age","container-title":"Gastrointestinal Endoscopy","page":"480-489","volume":"72","issue":"3","abstract":"Background\nA paucity of information exists regarding colorectal neoplasm in asymptomatic, average-risk individuals 40 to 49 years of age.\nObjective\nTo evaluate the prevalence and risk factors of colorectal neoplasms in those in their 40s.\nDesign\nCross-sectional study.\nSetting\nResults offered to subjects of a health care provider that offers screening services as part of an employer-provided wellness program.\nPatients\nA consecutive series of 1761 asymptomatic, average-risk screenees 40 to 59 years of age.\nIntervention\nFirst screening colonoscopy.\nResults\nThe prevalence of overall colorectal neoplasm in subjects of ages 40 to 44 years, 45 to 49 years, 50 to 54 years, and 55 to 59 years increased significantly with increasing age (13.7%, 20.2%, 21.0%, and 23.8%, respectively; P < .001). The prevalence of advanced adenomas in subjects of ages 40 to 44 years, 45 to 49 years, 50 to 54 years, and 55 to 59 years increased significantly with age (1.9%, 3.0%, 3.2%, and 5.9%, respectively; P = .004). Multivariate analysis of data from the 40- to 49-year age group identified an increased risk of colorectal neoplasm associated with ages 45 years and older (odds ratio [OR], 1.68; 95% CI, 1.20-2.35), male sex (OR, 1.76; 95% CI, 1.15-2.69), presence of abdominal obesity (OR, 1.57; 95% CI, 1.12-2.21), and metabolic syndrome (OR, 1.56; 95% CI, 1.03-2.35), whereas for advanced adenomas, abdominal obesity (OR, 2.37; 95% CI, 1.06-5.27) and metabolic syndrome (OR, 2.83; 95% CI, 1.23-6.53) were the independent risk factors.\nLimitations\nSingle-center study and the cohort composed of ethnic Korean subjects who lived in the same geographic region.\nConclusion\nIn average-risk individuals 40 to 49 years of age, men with abdominal obesity or metabolic syndrome might benefit from screening colonoscopy starting at 45 years of age to detect colorectal neoplasm.","DOI":"10.1016/j.gie.2010.06.022","ISSN":"0016-5107","journalAbbreviation":"Gastrointestinal Endoscopy","author":[{"family":"Hong","given":"Sung Noh"},{"family":"Kim","given":"Jeong Hwan"},{"family":"Choe","given":"Won Hyeok"},{"family":"Han","given":"Hye Seung"},{"family":"Sung","given":"In Kyung"},{"family":"Park","given":"Hyung Seok"},{"family":"Shim","given":"Chan Sup"}],"issued":{"date-parts":[["2010",9]]}},{"id":13,"uris":["http://zotero.org/users/2724931/items/7IV5ACIY"],"uri":["http://zotero.org/users/2724931/items/7IV5ACIY"],"itemData":{"id":13,"type":"article-journal","title":"The Risk of Colorectal Neoplasia in Patients with Gallbladder Diseases","container-title":"Journal of Korean Medical Science","page":"1288-1294","volume":"30","issue":"9","archive":"PMC","archive_location":"PMC4553676","abstract":"Cholecystectom is associated with an increased risk of colorectal cancer, but little is known about the relationship between gallbladder disease and colorectal adenoma. Gallbladder polyps and colorectal neoplasia (CRN) share several risk factors such as obesity, diabetes and metabolic syndrome, which might account for their association. In this study, we investigated whether asymptomatic patients with gallbladder disease are at increased risk of CRN and identified the factors to their association. The study population consisted of 4,626 consecutive, asymptomatic individuals drawn from a prospective health check-up cohort who underwent both ultrasonography and colonoscopy screening. The prevalence of CRNs in patients with gallbladder polyps or gallstones was significantly higher than that in the control group (32.1% vs. 26.8%; P = 0.032, 35.8% vs. 26.9%; P = 0.020). A multivariate regression analysis showed that gallbladder polyps were an independent risk factor for CRN [adjusted odds ratio (OR): 1.29; 95% confidence interval (CI); 1.03-1.62] whereas gallstones were not (adjusted OR: 1.14; 95% CI: 0.79-1.63). The adjusted OR for the risk of CRN was 1.12 for gallbladder polyps < 5 mm (95% CI, 0.85-1.46) and 1.79 for gallbladder polyps ≥ 5 mm (95% CI, 1.15-2.77). The prevalence of CRN increased with increasing polyp size (P trend = 0.022). Our results suggest that colorectal neoplasia is significantly related to gallbladder polyps, especially those ≥ 5 mm. GRAPHICAL ABSTRACT:","DOI":"10.3346/jkms.2015.30.9.1288","ISSN":"1011-8934","author":[{"family":"Hong","given":"Sung Noh"},{"family":"Lee","given":"Tae Yoon"},{"family":"Yun","given":"Sung-Cheol"}],"issued":{"date-parts":[["2015",9]]}},{"id":310,"uris":["http://zotero.org/users/2724931/items/9BZ8ICKP"],"uri":["http://zotero.org/users/2724931/items/9BZ8ICKP"],"itemData":{"id":310,"type":"article-journal","title":"Stepwise Relationship Between Components of Metabolic Syndrome and Risk of Colorectal Adenoma in a Taiwanese Population Receiving Screening Colonoscopy","container-title":"Journal of the Formosan Medical Association","page":"100-108","volume":"110","issue":"2","source":"CrossRef","DOI":"10.1016/S0929-6646(11)60016-8","ISSN":"09296646","language":"en","author":[{"family":"Hu","given":"Nien-Chih"},{"family":"Chen","given":"Jong-Dar"},{"family":"Lin","given":"Yu-Min"},{"family":"Chang","given":"Jun-Yih"},{"family":"Chen","given":"Yu-Hung"}],"issued":{"date-parts":[["2011",2]]}},{"id":82,"uris":["http://zotero.org/users/2724931/items/K9AVA46D"],"uri":["http://zotero.org/users/2724931/items/K9AVA46D"],"itemData":{"id":82,"type":"article-journal","title":"Patients with nonalcoholic fatty liver disease have higher risk of colorectal adenoma after negative baseline colonoscopy.","container-title":"Colorectal disease : the official journal of the Association of Coloproctology of Great Britain and Ireland","page":"830-835","volume":"15","issue":"7","abstract":"AIM: The study aimed to determine whether nonalcoholic fatty liver disease (NAFLD) is an independent risk factor of adenoma after negative baseline colonoscopy. METHOD: A retrospective cohort study was conducted on 1522 health-check individuals who underwent two consecutive colonoscopies at Taipei Veterans General Hospital between 2003 and 2010. Those developing an adenoma after an initial negative baseline colonoscopy (adenoma group) were compared with those in whom the second colonoscopy was negative (nonadenoma group). Anthropometric measurements, biochemical tests and the presence of NAFLD were compared between the two

groups. RESULTS: The adenoma group had a higher prevalence of NAFLD than the nonadenoma group (55.6% vs 38.8%; P < 0.05). On multivariate logistic regression analysis, NAFLD was an independent risk factor (OR = 1.45, 95% CI: 1.07-1.98) for adenoma formation after a negative baseline colonoscopy. The risk of colorectal adenoma increased when NAFLD patients had other morbidities including metabolic syndrome, hypertension or smoking (OR = 2.85, 4.03 and 4.17). CONCLUSION: NAFLD is an independent risk factor for colorectal adenoma formation after a negative baseline colonoscopy. The risk is higher in individuals with NAFLD and other comorbidities, such as hypertension, smoking or metabolic syndrome.","DOI":"10.1111/codi.12172","ISSN":"1463-1318 1462-8910","note":"PMID: 23398678","journalAbbreviation":"Colorectal Dis","language":"eng","author":[{"family":"Huang","given":"K.-W."},{"family":"Leu","given":"H.-B."},{"family":"Wang","given":"Y.-J."},{"family":"Luo","given":"J.-C."},{"family":"Lin","given":"H.-C."},{"family":"Lee","given":"F.-Y."},{"family":"Chan","given":"W.-L."},{"family":"Lin","given":"J.-K."},{"family":"Chang","given":"F.-Y."}],"issued":{"date-parts":[["2013",7]]}},{"id":76,"uris":["http://zotero.org/users/2724931/items/3DEUV37V"],"uri":["http://zotero.org/users/2724931/items/3DEUV37V"],"itemData":{"id":76,"type":"article-journal","title":"Relationship of non-alcoholic fatty liver disease to colorectal adenomatous polyps.","container-title":"Journal of gastroenterology and hepatology","page":"562-567","volume":"25","issue":"3","abstract":"BACKGROUND AND AIMS: Metabolic syndrome and insulin resistance are associated with a higher risk of colon cancer. Non-alcoholic fatty liver disease (NAFLD) is regarded as a manifestation of metabolic syndrome in the liver. This investigation was initiated to determine whether NAFLD has a relationship to colorectal adenomatous polyps. METHODS: We examined the 2917 participants who underwent a routine colonoscopy at Kangbuk Samsung Hospital in 2007. We divided the 2917 subjects into the adenomatous polyp group (n = 556) and the normal group (n = 2361). Anthropometric measurements, biochemical tests for liver and metabolic function, and abdominal ultrasonographs were assessed. RESULTS: The prevalence of NAFLD was 41.5% in the adenomatous polyp group and 30.2% in the control group. By multiple logistic regression analysis, NAFLD was found to be associated with an increased risk of colorectal adenomatous polyps (odds ratio, 1.28; 95% confidence interval, 1.03-1.60). An increased risk for NAFLD was more evident in patients with a greater number of adenomatous polyps. CONCLUSION: NAFLD was associated with colorectal adenomatous polyps. Further studies are needed to confirm whether NAFLD is a predictor for the development of colorectal adenomatous polyps and cancer.","DOI":"10.1111/j.1440-1746.2009.06117.x","ISSN":"1440-1746 0815-9319","note":"PMID: 20074156","journalAbbreviation":"J Gastroenterol Hepatol","language":"eng","author":[{"family":"Hwang","given":"Sang Tae"},{"family":"Cho","given":"Yong Kyun"},{"family":"Park","given":"Jung Ho"},{"family":"Kim","given":"Hong Joo"},{"family":"Park","given":"Dong Il"},{"family":"Sohn","given":"Chong Il"},{"family":"Jeon","given":"Woo Kyu"},{"family":"Kim","given":"Byung Ik"},{"family":"Won","given":"Kyoung Hee"},{"family":"Jin","given":"Wook"}],"issued":{"date-parts":[["2010",3]]}},{"id":36,"uris":["http://zotero.org/users/2724931/items/437ZFQED"],"uri":["http://zotero.org/users/2724931/items/437ZFQED"],"itemData":{"id":36,"type":"article-journal","title":"Clinico-epidemiologic study of the metabolic syndrome and lifestyle factors associated with the risk of colon adenoma and adenocarcinoma.","container-title":"Asian Pacific journal of cancer prevention : APJCP","page":"975-983","volume":"11","issue":"4","abstract":"BACKGROUND: The numbers of patients with colorectal cancer and associated deaths have been increasing in Japan, probably due to rapid lifestyle changes. Prevention is clearly important and the present study aimed to clarify risk factors and to promote colon cancer screening. METHODS: We investigated lifestyle factors, biochemical data, and pathological features of 727 individuals who underwent colonoscopy. Data were subjected to statistical analysis using SPSS software. RESULTS: Low-grade adenoma was more frequent among the elderly and in men. All of the men and 87.5% of the women with high-grade adenoma or adenocarcinoma were aged>/=45 and>/=50 years, respectively. In women, a larger waist circumference (=80 cm) increased the odds ratio for colon adenoma or adenocarcinoma (colon tumors) by 1.033 (95% confidence index (CI), 1.001-1.066; p=0.040). Metabolic syndrome significantly increased the odds ratio of colon tumors in men, but not in women. Cigarette smoking, drinking alcohol, and increased physical activity were significant risk factors for colon tumors in men, with odds ratios of 1.001 (95% CI, 1.000-1.002; p=0.001), 1.001 (95% CI, 1.000-1.003; p=0.047), and 1.406 (95% CI 1.038-1.904; p=0.028), respectively. CONCLUSIONS: Colon tumors have a high prevalence in the elderly. A larger waist circumference in women and metabolic syndrome in both men and women elevate the risk of colon tumors. In addition, smoking, drinking, and excessive physical activity are risk factors for adenoma and adenocarcinoma in men. For early detection of colorectal cancer, men older than 45 years and women older than 50 years with these risk factors are recommended to undergo colonoscopy.","ISSN":"2476-762X 1513-7368","note":"PMID: 21133610","journalAbbreviation":"Asian Pac J Cancer Prev","language":"eng","author":[{"family":"Kaneko","given":"Rena"},{"family":"Sato","given":"Yuzuru"},{"family":"An","given":"Yasuyosi"},{"family":"Nakagawa","given":"Motoki"},{"family":"Kusayanagi","given":"Satoshi"},{"family":"Kamisago","given":"Satoshi"},{"family":"Umeda","given":"Tomoyuki"},{"family":"Ogawa","given":"Masazumi"},{"family":"Munakata","given":"Kazuo"},{"family":"Mizuno","given":"Kyoichi"}],"issued":{"date-parts":[["2010"]]}},{"id":100,"uris":["http://zotero.org/users/2724931/items/XN37VDV8"],"uri":["http://zotero.org/users/2724931/items/XN37VDV8"],"itemData":{"id":100,"type":"article-journal","title":"Visceral Obesity and Insulin Resistance as Risk Factors for Colorectal Adenoma: A Cross-Sectional, Case–Control Study","container-title":"The American Journal of Gastroenterology","page":"178-187","volume":"105","issue":"1","source":"www.nature.com","abstract":"OBJECTIVES: Colorectal adenoma is known to be associated with obesity, but the association between colorectal adenoma and visceral adipose tissue (VAT) area measured by abdominal computed tomography (CT) has not been documented clearly. In addition, the relationship between insulin resistance and colorectal adenomas, which underlies the mechanism that links obesity and colorectal adenoma, has not been studied extensively. The aim of this study was to examine VAT area and insulin resistance as risk factors of colorectal adenoma.\nMETHODS: A cross-sectional, case–control study was conducted in Koreans that presented for health check-ups. Subjects underwent various laboratory tests, abdominal CT, and colonoscopy. VAT, subcutaneous adipose tissue (SAT), and homeostatic metabolic assessment (HOMA) index were evaluated as potential risk factors of colorectal adenoma in 2,244 age- and sex-matched subjects.\nRESULTS: According to univariate analysis, the prevalences of smoking, hypertension, metabolic syndrome, and family history of colorectal cancer were higher in the adenoma group than in the normal control group. In addition, body mass index, waist circumference, triglyceride, high-density lipoprotein cholesterol, and VAT and SAT areas were significantly different in the two groups. According to the multivariate analysis adjusted for multiple confounders, VAT area was independently associated with the risk of colorectal adenoma (odds ratio (OR)=3.09, 95% confidence interval (CI): 2.19–4.36, highest quintile vs. lowest quintile). Mean HOMA index

was higher in the adenoma group than in the control group (OR=1.99, 95% CI: 1.35–2.92, highest vs. lowest quintile).\nCONCLUSIONS: Visceral obesity was found to be an independent risk factor of colorectal adenoma, and insulin resistance was associated with the presence of colorectal adenoma.","DOI":"10.1038/ajg.2009.541","ISSN":"0002-9270","shortTitle":"Visceral Obesity and Insulin Resistance as Risk Factors for Colorectal Adenoma","journalAbbreviation":"Am J Gastroenterol","language":"en","author":[{"family":"Kang","given":"Hyoun Woo"},{"family":"Kim","given":"Donghee"},{"family":"Kim","given":"Hwa Jung"},{"family":"Kim","given":"Chung Hyeon"},{"family":"Kim","given":"Young Sun"},{"family":"Park","given":"Min Jung"},{"family":"Kim","given":"Joo Sung"},{"family":"Cho","given":"Sang-Heon"},{"family":"Sung","given":"Myung-Whun"},{"family":"Jung","given":"Hyun Chae"},{"family":"Lee","given":"Hyo-Suk"},{"family":"Song","given":"In Sung"}],"issued":{"date-parts":[["2009",9,15]]}}},{"id":306,"uris":["http://zotero.org/users/2724931/items/FP3DWZMH"],"uri":["http://zotero.org/users/2724931/items/FP3DWZMH"],"itemData":{"id":306,"type":"article-journal","title":"Is Metabolic Syndrome A Risk Factor for Colorectal Adenoma?","container-title":"Cancer Epidemiology and Prevention Biomarkers","page":"1543-1546","volume":"16","issue":"8","journalAbbreviation":"Cancer Epidemiol Biomarkers Prev","author":[{"family":"Kim","given":"Jeong Hwan"},{"family":"Lim","given":"Yun Jeong"},{"family":"Kim","given":"Young-Ho"},{"family":"Sung","given":"In-Kyung"},{"family":"Shim","given":"Sang Goon"},{"family":"Oh","given":"Sung-Ook"},{"family":"Park","given":"Sin-Sil"},{"family":"Yang","given":"Sun"},{"family":"Son","given":"Hee Jung"},{"family":"Rhee","given":"Poong-Lyul"},{"family":"Kim","given":"Jae J."},{"family":"Rhee","given":"Jong Chul"},{"family":"Choi","given":"Yoon-Ho"}],"issued":{"date-parts":[["2007",8,7]]}}},{"id":81,"uris":["http://zotero.org/users/2724931/items/7FAPCFIV"],"uri":["http://zotero.org/users/2724931/items/7FAPCFIV"],"itemData":{"id":81,"type":"article-journal","title":"Association of colorectal adenoma with components of metabolic syndrome.","container-title":"Cancer causes & control : CCC","page":"727-735","volume":"23","issue":"5","abstract":"PURPOSE: Recently, some studies have shown that diabetes mellitus and metabolic syndrome increase the risk of colorectal neoplasms. Although the mechanism is not known, those have been proposed to contribute to this phenomenon, including insulin resistance, oxidative stress, and adipokine production. The objective of this study was to assess the association between metabolic risk factors and colorectal neoplasm. METHODS: Study participants visited the National Cancer Center, Korea, for screening (2007-2009). A total of 1,771 diagnosed adenoma patients and 4,667 polyp-free controls were included. The association between risk factors and colorectal neoplasm was evaluated using logistic regression models. RESULTS: High waist circumference, blood pressure, and serum triglyceride levels were associated with an increased risk of colorectal adenoma. Metabolic syndrome (MS) was associated with an increased risk of adenoma (OR = 1.44, 95 % CI = 1.23-1.70). The association between MS and colorectal adenoma was observed regardless of advanced/low-risk adenoma, and multiplicity. MS affected right colon adenomas (OR = 1.50, 95 % CI = 1.22-1.85), left colon adenomas (OR = 1.36, 95 % CI = 1.05-1.76), and adenomas in multiple anatomical locations (OR = 1.59, 95 % CI = 1.19-2.12), but was not associated with rectum. CONCLUSION: Central obesity, triglyceride level, and MS are risk factors for colorectal adenoma including advanced adenoma and multiplicity.","DOI":"10.1007/s10552-012-9942-9","ISSN":"1573-7225 0957-5243","note":"PMID: 22450737","journalAbbreviation":"Cancer Causes Control","language":"eng","author":[{"family":"Kim","given":"Byung Chang"},{"family":"Shin","given":"Aesun"},{"family":"Hong","given":"Chang Won"},{"family":"Sohn","given":"Dae Kyung"},{"family":"Han","given":"Kyung Su"},{"family":"Ryu","given":"Kum Hei"},{"family":"Park","given":"Bum Joon"},{"family":"Nam","given":"Ji Hyung"},{"family":"Park","given":"Ji Won"},{"family":"Chang","given":"Hee Jin"},{"family":"Choi","given":"Hyo Seong"},{"family":"Kim","given":"Jeongseon"},{"family":"Oh","given":"Jae Hwan"}],"issued":{"date-parts":[["2012",5]]}}},{"id":176,"uris":["http://zotero.org/users/2724931/items/G5JJS8K5"],"uri":["http://zotero.org/users/2724931/items/G5JJS8K5"],"itemData":{"id":176,"type":"article-journal","title":"Uric Acid Is a Risk Indicator for Metabolic Syndrome-related Colorectal Adenoma: Results in a Korean Population Receiving Screening Colonoscopy","container-title":"The Korean Journal of Gastroenterology = Taehan Sohwagi Hakhoe Chi","page":"202-208","volume":"66","issue":"4","source":"PubMed","abstract":"BACKGROUND/AIMS: An association between serum uric acid and cancer risk has been noted over the past few decades. There is ongoing debate about whether hyperuricemia represents an independent risk factor for colorectal neoplasm. We investigated the association between serum uric acid and prevalence of colorectal adenoma considering numerous confounding factors.\nMETHODS: A cross-sectional study was performed with individuals who underwent a routine health check-up examination, including a screening colonoscopy and blood chemistry. The association between serum uric acid and prevalence of colorectal adenoma was estimated from the results of a logistic regression analysis.\nRESULTS: Of the 1,066 participants, 402 had colorectal adenoma (37.7%). In univariate models, the prevalence of colorectal adenoma was higher in participants in the fourth quartile uric acid level, compared to those in the first quartile uric acid level (OR, 1.67; 95% CI, 1.17-2.42; p=0.004). However, no significant association was detected between serum uric acid and prevalence of colorectal adenoma in multiple logistic regression analysis. A number of metabolic syndrome components exhibited a strong association with the prevalence of colorectal adenoma in the multivariate model (OR, 3.46 for highest vs. lowest; 95% CI, 1.30-9.20; p=0.021). Moreover, serum uric acid was strongly associated with metabolic syndrome-associated variables, including waist circumference, fasting blood glucose, systolic blood pressure, diastolic blood pressure, triglyceride, and high-density lipoprotein.\nCONCLUSIONS: Uric acid is not an independent risk factor for colorectal adenoma but is a risk indicator for metabolic syndrome-related colorectal adenoma.","DOI":"10.4166/kjg.2015.66.4.202","ISSN":"2233-6869","note":"PMID: 26493505","shortTitle":"Uric Acid Is a Risk Indicator for Metabolic Syndrome-related Colorectal Adenoma","journalAbbreviation":"Korean J Gastroenterol","language":"eng","author":[{"family":"Kim","given":"Hyo Jin"},{"family":"Kim","given":"Jee Eun"},{"family":"Jung","given":"Ji Hye"},{"family":"Kim","given":"Eun Ran"},{"family":"Hong","given":"Sung Noh"},{"family":"Chang","given":"Dong Kyung"},{"family":"Son","given":"Hee Jung"},{"family":"Rhee","given":"Poong Lyul"},{"family":"Kim","given":"Jae J."},{"family":"Kim","given":"Young Ho"}],"issued":{"date-parts":[["2015",10]]}}},{"id":179,"uris":["http://zotero.org/users/2724931/items/G83HJCGN"],"uri":["http://zotero.org/users/2724931/items/G83HJCGN"],"itemData":{"id":179,"type":"article-journal","title":"Prevalence and risk factors of advanced colorectal neoplasms in asymptomatic Korean people between 40 and 49

years of age","container-title":"Journal of Gastroenterology and Hepatology","page":"98-105","volume":"32","issue":"1","source":"PubMed","abstract":"BACKGROUND AND AIM: Current guidelines recommend colon cancer screening for persons aged over 50

years. However, there are few data on colorectal cancer screening in 40- to 49-year-olds. This study assessed the prevalence and risk factors of colorectal neoplasms in 40- to 49-year-old Koreans.\nMETHODS: We analyzed the results of screening colonoscopies of 6680 persons 40-59

years of age (2206 aged 40-49 and 4474 aged 50-59

years).\nRESULTS: The prevalence of overall and advanced neoplasms in the 40- to 49-year age group was lower than in the 50- to 59-year age group (26.7% and 2.4% vs 37.8% and 3.5%, respectively). However, the prevalence of overall and advanced neoplasms increased to 39.1% and 5.4%, respectively, in 45- to 49-year-old individuals with metabolic syndrome. In the 40- to 49-year age group, age, current smoking, and metabolic syndrome were associated with an increased risk of advanced neoplasms (odds ratio [OR] 1.16, 95% confidence interval [CI] 1.04-1.30; OR 3.12, 95% CI 1.20-8.12; and OR 2.00, 95% CI 1.09-3.67, respectively).\nCONCLUSIONS: Individuals aged 40-49

years had a lower prevalence of colorectal neoplasms than those aged 50-59

years, but some 40- to 49-year-olds showed a similar prevalence to those aged 50-59

years. Age, current smoking habits, and metabolic syndrome are associated with an increased risk of advanced neoplasms in subjects aged 40-49

years. Further studies are needed to stratify the risks of colon cancer and guide targeted screening in persons younger than 50

years old.","DOI":"10.1111/jgh.13454","ISSN":"1440-1746","note":"PMID: 27197805","journalAbbreviation":"J. Gastroenterol. Hepatol.","language":"eng","author":[{"family":"Koo","given":"Ja Eun"},{"family":"Kim","given":"Kyung-Jo"},{"family":"Park","given":"Hye Won"},{"family":"Kim","given":"Hong-Kyu"},{"family":"Choe","given":"Jae Won"},{"family":"Chang","given":"Hye-Sook"},{"family":"Lee","given":"Ji Young"},{"family":"Myung","given":"Seung-Jae"},{"family":"Yang","given":"Suk-Kyun"},{"family":"Kim","given":"Jin-Ho"}],"issued":{"date-parts":[["2017",1]]}},{"id":168,"uris":["http://zotero.org/users/2724931/items/HXJHWUI6"],"uri":["http://zotero.org/users/2724931/items/HXJHWUI6"],"itemData":{"id":168,"type":"article-journal","title":"Vegetarianism as a Protective Factor for Colorectal Adenoma and Advanced Adenoma in Asians","container-title":"Digestive Diseases and Sciences","page":"1025-1035","volume":"59","issue":"5","abstract":"Although epidemiologic and animal studies suggest a vegetarian diet protects against the development of colorectal cancer, the relationship between vegetarian diet and incidence of colorectal adenoma is not yet conclusive, especially for Asians.","DOI":"10.1007/s10620-013-2974-5","ISSN":"1573-2568","journalAbbreviation":"Digestive Diseases and Sciences","author":[{"family":"Lee","given":"Chang Geun"},{"family":"Hahn","given":"Suk Jae"},{"family":"Song","given":"Min Keun"},{"family":"Lee","given":"Jun Kyu"},{"family":"Kim","given":"Jae Hak"},{"family":"Lim","given":"Yun Jeong"},{"family":"Koh","given":"Moon-Soo"},{"family":"Lee","given":"Jin Ho"},{"family":"Kang","given":"Hyoun Woo"}],"issued":{"date-parts":[["2014"]]}},{"id":83,"uris":["http://zotero.org/users/2724931/items/33PI99M5"],"uri":["http://zotero.org/users/2724931/items/33PI99M5"],"itemData":{"id":83,"type":"article-journal","title":"Increased risk of colorectal malignant neoplasm in patients with nonalcoholic fatty liver disease: a large study","container-title":"Molecular Biology Reports","page":"2989-2997","volume":"41","issue":"5","abstract":"Nonalcoholic fatty liver disease (NAFLD) has been suggested to be a strong risk factor of colorectal benign adenomas and advanced neoplasms. The aim of this large cohort study was to further investigate the prevalence of colorectal malignant neoplasm (CRMN) in patients with NAFLD and determine whether association between NAFLD and CRMN exists. 2,315 community subjects (1,370 males and 945 females) who underwent a routine colonoscopy according to international colorectal cancer screening guideline were recruited. Nature of colorectal lesions determined by biopsy and NAFLD was diagnosed by ultrasound. Binary logistic regression analysis was applied to explore the related associations. Prevalence of CRMN was 29.3 % (77/263) in patients with NAFLD, which was significantly higher than 18.0 % (369/2,052) in the control group (P < 0.05). In addition, malignant neoplasm in NAFLD group occurred more frequently at sigmoid colon than in control group (14.3 vs. 11.9 %). The incidence of highly-differentiated colorectal adenocarcinoma in NAFLD group was significantly higher than control group (62.3 vs. 9.8 %). Univariate analysis showed that NAFLD had strong association with CRMN (OR 2.043; 95 % CI 1.512–2.761; P < 0.05). After adjusting for metabolic and other confounding factors, NAFLD remained as an independent risk factor for CRMN (OR 1.868; 95 % CI 1.360–2.567; P < 0.05). NAFLD was an independent risk factor for CRMN. Sigmoid carcinoma and highly differentiated colorectal adenocarcinoma were more commonly found in NAFLD. (ClinicalTrials.gov number, NCT01657773, website: http://clinicaltrials.gov/ct2/show/NCT01657773?term=zheng+minghua&rank=1)."},"DOI":"10.1007/s11033-014-3157-y","ISSN":"1573-4978","journalAbbreviation":"Molecular Biology Reports","author":[{"family":"Lin","given":"Xian-Feng"},{"family":"Shi","given":"Ke-Qing"},{"family":"You","given":"Jie"},{"family":"Liu","given":"Wen-Yue"},{"family":"Luo","given":"Ying-Wan"},{"family":"Wu","given":"Fa-Ling"},{"family":"Chen","given":"Yong-Ping"},{"family":"Wong","given":"Danny Ka-Ho"},{"family":"Yuen","given":"Man-Fung"},{"family":"Zheng","given":"Ming-Hua"}],"issued":{"date-parts":[["2014"]]}},{"id":161,"uris":["http://zotero.org/users/2724931/items/Q4DM498H"],"uri":["http://zotero.org/users/2724931/items/Q4DM498H"],"itemData":{"id":161,"type":"article-journal","title":"Central obesity and atherogenic dyslipidemia in metabolic syndrome are associated with increased risk for colorectal adenoma in a Chinese population","container-title":"BMC Gastroenterology","page":"51","volume":"10","source":"BioMed Central","abstract":"Metabolic syndrome (MetS) is composed of cardiovascular risk factors including insulin resistance, obesity, dyslipidemia, and hypertension. Most of the components of MetS have been linked to the development of neoplasm. The purpose of this study was to evaluate the relationship between individual components of MetS and colorectal adenoma.","DOI":"10.1186/1471-230X-10-51","ISSN":"1471-230X","journalAbbreviation":"BMC Gastroenterology","author":[{"family":"Liu","given":"Chiu-Shong"},{"family":"Hsu","given":"Hua-Shui"},

{"family":"Li","given":"Chia-Ing"},{"family":"Jan","given":"Chia-Ing"},{"family":"Li","given":"Tsai-Chung"},{"family":"Lin","given":"Wen-Yuan"},{"family":"Lin","given":"Tsann"},{"family":"Chen","given":"Ya-Chien"},{"family":"Lee","given":"Cheng-Chun"},{"family":"Lin","given":"Cheng-Chieh"}],"issued":{"date-parts":[["2010"]]}}},{"id":97,"uris":["http://zotero.org/users/2724931/items/566MKVT3"],"uri":["http://zotero.org/users/2724931/items/566MKVT3"],"itemData":{"id":97,"type":"article-journal","title":"Visceral obesity as a risk factor for colorectal neoplasm","container-title":"Journal of Gastroenterology and Hepatology","page":"411-417","volume":"23","issue":"3","abstract":"Background and Aim: Obesity as a risk factor for colorectal neoplasm (CRN) is controversial. In the present study, we evaluated visceral obesity as a risk factor for CRN. Methods: We prospectively enrolled 200 consecutive, asymptomatic adults (male : female = 133:67, mean age, 50.9 ± 8.5 years) undergoing both colonoscopy and abdominopelvic computed tomography (CT) scan for routine health evaluations. The presence or absence and the characteristics of CRN were determined during colonoscopy. The amount of visceral adipose tissue (VAT) and subcutaneous adipose tissue was measured by an abdominopelvic CT scan. Body mass index, waist circumference, and percentage of body fat were measured. Blood pressure and other blood markers for assessing the metabolic syndrome were also investigated. Results: Of the 200 patients, 53 (26.5%) had CRN. Old age, smoking, metabolic syndrome, and a high fasting plasma glucose level were associated with an increased risk of CRN. VAT (P < 0.01) and waist circumference (P = 0.01) were significantly higher in those with CRN. A multivariate analysis of the risks of CRN showed an odds ratio of 4.07 (95% confidence interval: 1.01–16.43, P = 0.03) for those with VAT over 136.61 cm2 relative to those with VAT under 67.23 cm2. Waist circumference, metabolic syndrome, and fasting plasma glucose levels were not independent risk factors for CRN in the multivariate analysis. Conclusion: Increased VAT is an independent risk factor for CRN. Further large scale studies are needed to clarify the causal relationship between VAT and CRN.","DOI":"10.1111/j.1440-1746.2007.05125.x","ISSN":"1440-1746","author":[{"family":"Oh","given":"Tae-Hoon"},{"family":"Byeon","given":"Jeong-Sik"},{"family":"Myung","given":"Seung-Jae"},{"family":"Yang","given":"Suk-Kyun"},{"family":"Choi","given":"Kwi-Sook"},{"family":"Chung","given":"Jun-Won"},{"family":"Kim","given":"Benjamin"},{"family":"Lee","given":"Don"},{"family":"Byun","given":"Jae Ho"},{"family":"Jang","given":"Se Jin"},{"family":"Kim","given":"Jin-Ho"}],"issued":{"date-parts":[["2008",3,1]]}}},{"id":78,"uris":["http://zotero.org/users/2724931/items/TSAINUMV"],"uri":["http://zotero.org/users/2724931/items/TSAINUMV"],"itemData":{"id":78,"type":"article-journal","title":"Increased homeostasis model assessment-insulin resistance is a risk factor for colorectal adenoma in Japanese males.","container-title":"The Tohoku journal of experimental medicine","page":"297-303","volume":"223","issue":"4","abstract":"Many previous reports have documented a relationship between metabolic syndrome, in terms of insulin resistance, and colorectal cancer. However, the association of insulin resistance with colorectal adenoma has not been investigated in detail. To elucidate the association of metabolic syndrome components and insulin resistance with adenoma, we investigated homeostasis model assessment insulin resistance (HOMA-IR) in individuals with adenoma. A cross-sectional study was conducted involving individuals who underwent scheduled health examinations using total colonoscopy. Restricting the subjects to males, 261 with adenoma and 702 without adenoma were investigated. HOMA-IR was categorized into three groups: normal (< 1.6), intermediate (>/= 1.6 - < 2.5), and insulin resistance (2.5 </=). Metabolic syndrome was defined by a combination of any three of the following components: central obesity (waist circumference >/= 90 cm); elevated blood pressure (systolic blood pressure >/= 130 mmHg and/or diastolic blood pressure 85 mmHg); elevated fasting plasma glucose (>/= 100 mg/dL); reduced high-density lipoprotein-cholesterol (< 40 mg/dL); and elevated triglyceride (>/= 150 mg/dL). Multivariate analysis of HOMA-IR showed that the intermediate and insulin resistance groups had a significantly increased risk for colorectal adenoma, even after adjustment for waist circumference (odds ratio, 1.62 and 2.23; 95% confidence interval, 1.07-2.45 and 1.31-3.79, respectively). Accumulation of any metabolic syndrome components increased the risk of colorectal adenoma (P trend = 0.001). However, none of the components alone demonstrated a significant risk for colorectal adenoma. Our data indicate that an increased level of HOMA-IR is a risk factor for colorectal adenoma in Japanese males.","ISSN":"1349-3329 0040-8727","note":"PMID: 21478654","journalAbbreviation":"Tohoku J Exp Med","language":"eng","author":[{"family":"Sato","given":"Takeshi"},{"family":"Takeda","given":"Hiroaki"},{"family":"Sasaki","given":"Yu"},{"family":"Kawata","given":"Sumio"}],"issued":{"date-parts":[["2011",4]]}}},{"id":175,"uris":["http://zotero.org/users/2724931/items/SMIADFP7"],"uri":["http://zotero.org/users/2724931/items/SMIADFP7"],"itemData":{"id":175,"type":"article-journal","title":"Metabolic syndrome and colorectal neoplasms: An ominous association","container-title":"World Journal of Gastroenterology","page":"5320","volume":"21","issue":"17","source":"CrossRef","DOI":"10.3748/wjg.v21.i17.5327","shortTitle":"Metabolic syndrome and colorectal neoplasms","language":"en","author":[{"family":"Trabulo","given":"Daniel"}],"issued":{"date-parts":[["2015"]]}}},{"id":282,"uris":["http://zotero.org/users/2724931/items/83RDVNWE"],"uri":["http://zotero.org/users/2724931/items/83RDVNWE"],"itemData":{"id":282,"type":"article-journal","title":"Metabolic syndrome components and colorectal adenoma in the CLUE II cohort","container-title":"Cancer causes & control : CCC","page":"1-10","volume":"21","issue":"1","source":"PubMed Central","abstract":"Background\nMetabolic syndrome components have been associated with colorectal cancer in several studies; however, the evidence for colorectal adenomas is limited. Thus, we evaluated the association between markers of the metabolic syndrome with colorectal adenoma development in a nested case-control study.\n\nMethods\nColorectal adenoma cases (n= 132) and matched controls who had had a negative sigmoidoscopy or a colonoscopy (n=260) were identified between baseline in 1989 and 2000 among participants in the CLUE II cohort of Washington County, Maryland. Concentrations of C-peptide, insulin-like growth factor binding protein-1, glycosylated hemoglobin, total cholesterol, high density lipoprotein-cholesterol, and triglycerides were measured in baseline blood specimens. Body mass index was calculated using baseline height and weight. Use of medications to treat diabetes mellitus was self-reported at baseline. Blood pressure was measured at baseline. Distributional cutpoints of the latter markers were used to define the metabolic syndrome components (hyperinsulinemia, hyperglycemia, obesity, dyslipidemia, and hypertension) present at baseline.\n\nResults\nNo statistically significant associations with adenomas were observed for the markers of the metabolic syndrome, with the exception of a strong positive association for use of diabetes medications (OR, 8.00; 95% CI, 1.70 – 37.67), albeit based on small numbers.\n\nConclusion\nOur findings do not support that components of the metabolic syndrome influence risk of colorectal adenomas, except possibly for severe diabetes mellitus warranting medical treatment.","DOI":"10.1007/s10552-009-9428-6","ISSN":"0957-5243","note":"PMID: 19774471\nPMCID: PMC3010872","journalAbbreviation":"Cancer Causes Control","author":[{"family":"Tsilidis","given":"Konstantinos K"},{"family":"Brancati","given":"Frederick L"},{"family":"Pollak","given":"Michael N"},{"family":"Rifai","given":"Nader"},{"family":"Clipp","given":"Sandra L"},{"family":"Hoffman-Bolton","given":"Judy"},{"family":"Helzlsouer","given":"Kathy J"},

{"family":"Platz","given":"Elizabeth A"}],"issued":{"date-parts":[["2010",1]]}}},{"id":77,"uris":["http://zotero.org/users/2724931/items/QQRBWQMX"],"uri":["http://zotero.org/users/2724931/items/QQRBWQMX"],"itemData":{"id":77,"type":"article-journal","title":"Association between colorectal adenoma and coronary atherosclerosis detected by CT coronary angiography in Korean men; a cross-sectional study.","container-title":"Journal of gastroenterology and hepatology","page":"1795-1799","volume":"25","issue":"11","abstract":"BACKGROUND: Colorectal adenoma and coronary artery disease (CAD) appear to share common risk factors, such as male gender, diabetes mellitus, smoking, and obesity. We investigated the relationship between colorectal adenoma and coronary atherosclerosis, as a risk factor for colorectal adenoma. METHODS: A cross-sectional study was conducted on Korean men who presented for a health check-up. The subjects were 488 men (217 colorectal adenoma and 271 normal colonoscopic findings) who underwent colonoscopy and coronary computed tomography angiography (CTA) on the same day as a screening examination. Advanced colonic lesion was defined as a presence of adenoma with villous component, high-grade dysplasia, and/or with size of >/=1 cm. CTA findings were classified as normal, mild (low-grade atherosclerosis or <50% stenosis), and significant CAD (>/=50% stenosis). Abnormal CTA findings included mild and significant CAD. RESULTS: Patients with abnormal CTA findings were more likely to have colorectal adenoma compared with those with normal CTA findings (P < 0.005). Furthermore, presence of advanced adenoma was significantly associated with significant CAD (P < 0.01). On multivariate analyses, abnormal CTA findings (OR = 1.66, 95% CI: 1.14-2.41, P < 0.01) and significant CAD (OR = 1.96, 95% CI: 1.15-3.35, P < 0.05) were found to be independent risk factors for colorectal adenoma after adjusting for age, current smoking, and metabolic syndrome. CONCLUSIONS: In this study, in the population who underwent CTA and colonoscopy for health check-up, prevalence of colorectal adenoma was greater in subjects with low-grade coronary atherosclerosis or significant CAD. The presence of advanced adenoma was significantly associated with significant CAD.","DOI":"10.1111/j.1440-1746.2010.06330.x","ISSN":"1440-1746 0815-9319","note":"PMID: 21039843","journalAbbreviation":"J Gastroenterol Hepatol","language":"eng","author":[{"family":"Yang","given":"Sun Young"},{"family":"Kim","given":"Young Sun"},{"family":"Chung","given":"Su Jin"},{"family":"Song","given":"Ji Hyun"},{"family":"Choi","given":"Su Yeon"},{"family":"Park","given":"Min Jung"},{"family":"Yim","given":"Jeong Yoon"},{"family":"Lim","given":"Seon Hee"},{"family":"Kim","given":"Donghee"},{"family":"Kim","given":"Chung Hyun"},{"family":"Kim","given":"Ju Sung"},{"family":"Song","given":"In Sung"}],"issued":{"date-parts":[["2010",11]]}}},{"id":86,"uris":["http://zotero.org/users/2724931/items/HH3ENCP2"],"uri":["http://zotero.org/users/2724931/items/HH3ENCP2"],"itemData":{"id":86,"type":"article-journal","title":"Is height a risk factor for colorectal adenoma?","container-title":"The Korean Journal of Internal Medicine","page":"653-659","volume":"31","issue":"4","archive":"PMC","archive_location":"PMC4939489","abstract":"BACKGROUND Although it is generally known that the risk for all types of cancer increases with adult height, combined and for several common site-specific cancers (including colon and rectal), evidence is limited for adenomas, which are precursors to colorectal cancer. We evaluated the association between height and risk of colorectal adenoma at various stages of the adenoma-carcinoma pathway. METHODS:: We conducted a retrospective study using data from patients who had undergone a complete colonoscopy as part of a health examination at the Health Promotion Center of Samsung Medical Center between October 13, 2009 and December 31, 2011. A total of 1,347 male subjects were included in our study. Multivariate logistic regression analysis was used to evaluate the association between height and colorectal adenoma. RESULTS:: Each 5-cm increase in height was associated with 1.6% and 5.3% higher risks of advanced colorectal adenoma and high-risk colorectal adenoma, respectively, but associations were not significant after adjusting for age, body mass index, metabolic syndrome, alcohol intake, smoking, family history of colorectal cancer, and regular aspirin use (p = 0.840 and p = 0.472, respectively). CONCLUSIONS:: No clear association was found between colorectal adenoma risk and height. Unlike other site-specific tumors reported to have a consistent relationship with height, the association between colorectal tumor and height remains controversial.","DOI":"10.3904/kjim.2014.313","ISSN":"1226-3303","author":[{"family":"Pyo","given":"Jeung Hui"},{"family":"Hong","given":"Sung Noh"},{"family":"Min","given":"Byung-Hoon"},{"family":"Chang","given":"Dong Kyung"},{"family":"Son","given":"Hee Jung"},{"family":"Rhee","given":"Poong-Lyul"},{"family":"Kim","given":"Jae J"},{"family":"Kim","given":"Young-Ho"}],"issued":{"date-parts":[["2016",7]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
21, 25, 26, 28–31, 34–36, 44, 46, 47, 49–57

]

RE

1.43 [1.31, 1.57]

7.94

(P < 0.00001)

87

0.04

218.91, df = 29

(P < 0.00001)

Type of study

Cohort

7 (11)

[

ADDIN ZOTERO_ITEM CSL_CITATION {"citationID":"a260qbd70lf","properties":{"formattedCitation":"{\\rtf \\super 21,25,26,28\\uc0\\u8211{}31\\nosupersub{}}","plainCitation":"21,25,26,28–31"},"citationItems":[{"id":172,"uris":["http://zotero.org/users/2724931/items/Z38D9WWB"],"uri":["http://zotero.org/users/2724931/items/Z38D9WWB"],"itemData":{"id":172,"type":"article-journal","title":"Effects of Metabolic Syndrome and Findings From Baseline Colonoscopies on Occurrence of Colorectal Neoplasms","container-title":"Clinical Gastroenterology and Hepatology","page":"1134-1142.e8","volume":"13","issue":"6","abstract":"Background & Aims\nMetabolic syndrome is associated with increased risk of colorectal neoplasm, but little is known about its effects on the occurrence of neoplasm after colonoscopy. We investigated the effects of metabolic syndrome on the risk of advanced neoplasm after colonoscopy.\nMethods\nWe performed a prospective study of 4483 subjects age 50 years and older who underwent screening and surveillance colonoscopies as part of an annual health check-up at National Taiwan University Hospital. Baseline demographic data and colonoscopic findings were recorded. Subjects with either advanced adenoma or 3 or more adenomas detected at baseline were classified as high risk; those with fewer than 3 nonadvanced adenomas were classified as low risk; and those without any neoplastic lesions were classified as normal. The cumulative risk of detecting an advanced neoplasm during surveillance colonoscopies (3 and 5 years

later) was correlated with risk group and metabolic syndrome. Hazard ratios (HRs) were calculated for occurrence of neoplasm according to baseline colonoscopic findings and clinical risk factors, including metabolic syndrome.\nResults\nAdvanced neoplasms were detected during the surveillance colonoscopies in 1.3% of subjects in the normal group and in 2.4% of those in the low-risk group at 5 years, and in 8.5% of subjects in the high-risk group at 3 years. Subjects with metabolic syndrome had a significantly higher risk for subsequent advanced neoplasms (P < .0001). After stratification based on findings from baseline colonoscopies, the risk for neoplasm was significant in the normal (P < .001) and low-risk groups (P = .04), but not in the high-risk group (P = .48). In Cox regression analysis, metabolic syndrome had significant effects on the risk for advanced neoplasms in the normal (HR, 2.07; 95% confidence interval, 1.13–3.81) and low-risk groups (HR, 2.34; 95% confidence interval, 1.01–5.41), but not in the high-risk group.\nConclusions\nMetabolic syndrome is a significant risk factor for occurrence of an advanced adenoma after a negative or low-risk finding from a baseline colonoscopy. Metabolic syndrome should be considered in risk stratification for surveillance intervals.","DOI":"10.1016/j.cgh.2014.10.022","ISSN":"1542-3565","journalAbbreviation":"Clinical Gastroenterology and Hepatology","author":[{"family":"Chiu","given":"Han-Mo"},{"family":"Lee","given":"Yi-Chia"},{"family":"Tu","given":"Chia-Hung"},{"family":"Chang","given":"Li-Chun"},{"family":"Hsu","given":"Wen-Feng"},{"family":"Chou","given":"Chu-Kuang"},{"family":"Tsai","given":"Kun-Feng"},{"family":"Liang","given":"Jin-Tung"},{"family":"Shun","given":"Chia-Tung"},{"family":"Wu","given":"Ming-Shiang"}],"issued":{"date-parts":[["2015",6]]}},{"id":82,"uris":["http://zotero.org/users/2724931/items/K9AVA46D"],"uri":["http://zotero.org/users/2724931/items/K9AVA46D"],"itemData":{"id":82,"type":"article-journal","title":"Patients with nonalcoholic fatty liver disease have higher risk of colorectal adenoma after negative baseline colonoscopy.","container-title":"Colorectal disease : the official journal of the Association of Coloproctology of Great Britain and Ireland","page":"830-835","volume":"15","issue":"7","abstract":"AIM: The study aimed to determine whether nonalcoholic fatty liver disease (NAFLD) is an independent risk factor of adenoma after negative baseline colonoscopy. METHOD: A retrospective cohort study was conducted on 1522 health-check individuals who underwent two consecutive colonoscopies at Taipei Veterans General Hospital between 2003 and 2010. Those developing an adenoma after an initial negative baseline colonoscopy (adenoma group) were compared with those in whom the second colonoscopy was negative (nonadenoma group). Anthropometric measurements, biochemical tests and the presence of NAFLD were compared between the two groups. RESULTS: The adenoma group had a higher prevalence of NAFLD than the nonadenoma group (55.6% vs 38.8%; P < 0.05). On multivariate logistic regression analysis, NAFLD was an independent risk factor (OR = 1.45, 95% CI: 1.07-1.98) for adenoma formation after a negative baseline colonoscopy. The risk of colorectal adenoma increased when NAFLD patients had other morbidities including metabolic syndrome, hypertension or smoking (OR = 2.85, 4.03 and 4.17). CONCLUSION: NAFLD is an independent risk factor for colorectal adenoma formation after a negative baseline colonoscopy. The risk is higher in individuals with NAFLD and other comorbidities, such as hypertension, smoking or metabolic syndrome.","DOI":"10.1111/codi.12172","ISSN":"1463-1318 1462-8910","note":"PMID: 23398678","journalAbbreviation":"Colorectal Dis","language":"eng","author":[{"family":"Huang","given":"K.-W."},{"family":"Leu","given":"H.-B."},{"family":"Wang","given":"Y.-J."},{"family":"Luo","given":"J.-C."},{"family":"Lin","given":"H.-C."},{"family":"Lee","given":"F.-Y."},{"family":"Chan","given":"W.-L."},{"family":"Lin","given":"J.-K."},{"family":"Chang","given":"F.-Y."}],"issued":{"date-parts":[["2013",7]]}}},{"id":36,"uris":["http://zotero.org/users/2724931/items/437ZFQED"],"uri":["http://zotero.org/users/2724931/items/437ZFQED"],"itemData":{"id":36,"type":"article-journal","title":"Clinico-epidemiologic study of the metabolic syndrome and lifestyle factors associated with the risk of colon adenoma and adenocarcinoma.","container-title":"Asian Pacific journal of cancer prevention : APJCP","page":"975-983","volume":"11","issue":"4","abstract":"BACKGROUND: The numbers of patients with colorectal cancer and associated deaths have been increasing in Japan, probably due to rapid lifestyle changes. Prevention is clearly important and the present study aimed to clarify risk factors and to promote colon cancer screening. METHODS: We investigated lifestyle factors, biochemical data, and pathological features of 727 individuals who underwent colonoscopy. Data were subjected to statistical analysis using SPSS software. RESULTS: Low-grade adenoma was more frequent among the elderly and in men. All of the men and 87.5% of the women with high-grade adenoma or adenocarcinoma were aged>/=45 and>/=50 years, respectively. In women, a larger waist circumference (=80 cm) increased the odds ratio for colon adenoma or adenocarcinoma (colon tumors) by 1.033 (95% confidence index (CI), 1.001-1.066; p=0.040). Metabolic syndrome significantly increased the odds ratio of colon tumors in men, but not in women. Cigarette smoking, drinking alcohol, and increased physical activity were significant risk factors for colon tumors in men, with odds ratios of 1.001 (95% CI, 1.000-1.002; p=0.001), 1.001 (95% CI, 1.000-1.003; p=0.047), and 1.406 (95% CI 1.038-1.904; p=0.028), respectively. CONCLUSIONS: Colon tumors have a high prevalence in the elderly. A larger waist circumference in women and metabolic syndrome in both men and women elevate the risk of colon tumors. In addition, smoking, drinking, and excessive physical activity are risk factors for adenoma and adenocarcinoma in men. For early detection of colorectal cancer, men older than 45 years and women older than 50 years with these risk factors are recommended to undergo colonoscopy.","ISSN":"2476-762X 1513-7368","note":"PMID: 21133610","journalAbbreviation":"Asian Pac J Cancer Prev","language":"eng","author":[{"family":"Kaneko","given":"Rena"},{"family":"Sato","given":"Yuzuru"},{"family":"An","given":"Yasuyosi"},{"family":"Nakagawa","given":"Motoki"},{"family":"Kusayanagi","given":"Satoshi"},{"family":"Kamisago","given":"Satoshi"},{"family":"Umeda","given":"Tomoyuki"},{"family":"Ogawa","given":"Masazumi"},{"family":"Munakata","given":"Kazuo"},{"family":"Mizuno","given":"Kyoichi"}],"issued":{"date-parts":[["2010"]]}}},{"id":81,"uris":["http://zotero.org/users/2724931/items/7FAPCFIV"],"uri":["http://zotero.org/users/2724931/items/7FAPCFIV"],"itemData":{"id":81,"type":"article-journal","title":"Association of colorectal adenoma with components of metabolic syndrome.","container-title":"Cancer causes & control : CCC","page":"727-735","volume":"23","issue":"5","abstract":"PURPOSE: Recently, some studies have shown that diabetes mellitus and metabolic syndrome increase the risk of colorectal neoplasms. Although the mechanism is not known, those have been proposed to contribute to this phenomenon, including insulin resistance, oxidative stress, and adipokine production. The objective of this study was to assess the association between metabolic risk factors and colorectal neoplasm. METHODS: Study participants visited the National Cancer Center, Korea, for screening (2007-2009). A total of 1,771 diagnosed adenoma patients and 4,667 polyp-free controls were included. The association between risk factors and colorectal neoplasm was evaluated using logistic regression models. RESULTS: High waist circumference, blood pressure, and serum triglyceride levels were associated with an increased risk of colorectal adenoma. Metabolic syndrome (MS) was associated with an increased risk of adenoma (OR = 1.44, 95 % CI = 1.23-1.70). The association between MS and colorectal

adenoma was observed regardless of advanced/low-risk adenoma, and multiplicity. MS affected right colon adenomas (OR = 1.50, 95 % CI = 1.22-1.85), left colon adenomas (OR = 1.36, 95 % CI = 1.05-1.76), and adenomas in multiple anatomical locations (OR = 1.59, 95 % CI = 1.19-2.12), but was not associated with rectum. CONCLUSION: Central obesity, triglyceride level, and MS are risk factors for colorectal adenoma including advanced adenoma and multiplicity.","DOI":"10.1007/s10552-012-9942-9","ISSN":"1573-7225 0957-5243","note":"PMID: 22450737","journalAbbreviation":"Cancer Causes Control","language":"eng","author":[{"family":"Kim","given":"Byung Chang"},{"family":"Shin","given":"Aesun"},{"family":"Hong","given":"Chang Won"},{"family":"Sohn","given":"Dae Kyung"},{"family":"Han","given":"Kyung Su"},{"family":"Ryu","given":"Kum Hei"},{"family":"Park","given":"Bum Joon"},{"family":"Nam","given":"Ji Hyung"},{"family":"Park","given":"Ji Won"},{"family":"Chang","given":"Hee Jin"},{"family":"Choi","given":"Hyo Seong"},{"family":"Kim","given":"Jeongseon"},{"family":"Oh","given":"Jae Hwan"}],"issued":{"date-parts":[["2012",5]]}}},{"id":83,"uris":["http://zotero.org/users/2724931/items/33PI99M5"],"uri":["http://zotero.org/users/2724931/items/33PI99M5"],"itemData":{"id":83,"type":"article-journal","title":"Increased risk of colorectal malignant neoplasm in patients with nonalcoholic fatty liver disease: a large study","container-title":"Molecular Biology Reports","page":"2989-2997","volume":"41","issue":"5","abstract":"Nonalcoholic fatty liver disease (NAFLD) has been suggested to be a strong risk factor of colorectal benign adenomas and advanced neoplasms. The aim of this large cohort study was to further investigate the prevalence of colorectal malignant neoplasm (CRMN) in patients with NAFLD and determine whether association between NAFLD and CRMN exists. 2,315 community subjects (1,370 males and 945 females) who underwent a routine colonoscopy according to international colorectal cancer screening guideline were recruited. Nature of colorectal lesions determined by biopsy and NAFLD was diagnosed by ultrasound. Binary logistic regression analysis was applied to explore the related associations. Prevalence of CRMN was 29.3 % (77/263) in patients with NAFLD, which was significantly higher than 18.0 % (369/2,052) in the control group (P < 0.05). In addition, malignant neoplasm in NAFLD group occurred more frequently at sigmoid colon than in control group (14.3 vs. 11.9 %). The incidence of highly-differentiated colorectal adenocarcinoma in NAFLD group was significantly higher than control group (62.3 vs. 9.8 %). Univariate analysis showed that NAFLD had strong association with CRMN (OR 2.043; 95 % CI 1.512–2.761; P < 0.05). After adjusting for metabolic and other confounding factors, NAFLD remained as an independent risk factor for CRMN (OR 1.868; 95 % CI 1.360–2.567; P < 0.05). NAFLD was an independent risk factor for CRMN. Sigmoid carcinoma and highly differentiated colorectal adenocarcinoma were more commonly found in NAFLD. (ClinicalTrials.gov number, NCT01657773, website: http://clinicaltrials.gov/ct2/show/NCT01657773?term=zheng+minghua&rank=1).","DOI":"10.1007/s11033-014-3157-y","ISSN":"1573-4978","journalAbbreviation":"Molecular Biology Reports","author":[{"family":"Lin","given":"Xian-Feng"},{"family":"Shi","given":"Ke-Qing"},{"family":"You","given":"Jie"},{"family":"Liu","given":"Wen-Yue"},{"family":"Luo","given":"Ying-Wan"},{"family":"Wu","given":"Fa-Ling"},{"family":"Chen","given":"Yong-Ping"},{"family":"Wong","given":"Danny Ka-Ho"},{"family":"Yuen","given":"Man-Fung"},{"family":"Zheng","given":"Ming-Hua"}],"issued":{"date-parts":[["2014"]]}}},{"id":161,"uris":["http://zotero.org/users/2724931/items/Q4DM498H"],"uri":["http://zotero.org/users/2724931/items/Q4DM498H"],"itemData":{"id":161,"type":"article-journal","title":"Central obesity and atherogenic dyslipidemia in metabolic syndrome are associated with increased risk for colorectal adenoma in a Chinese population","container-title":"BMC Gastroenterology","page":"51","volume":"10","source":"BioMed Central","abstract":"Metabolic syndrome (MetS) is composed of cardiovascular risk factors including insulin resistance, obesity, dyslipidemia, and hypertension. Most of the components of MetS have been linked to the development of neoplasm. The purpose of this study was to evaluate the relationship between individual components of MetS and colorectal adenoma.","DOI":"10.1186/1471-230X-10-51","ISSN":"1471-230X","journalAbbreviation":"BMC Gastroenterology","author":[{"family":"Liu","given":"Chiu-Shong"},{"family":"Hsu","given":"Hua-Shui"},{"family":"Li","given":"Chia-Ing"},{"family":"Jan","given":"Chia-Ing"},{"family":"Li","given":"Tsai-Chung"},{"family":"Lin","given":"Wen-Yuan"},{"family":"Lin","given":"Tsann"},{"family":"Chen","given":"Ya-Chien"},{"family":"Lee","given":"Cheng-Chun"},{"family":"Lin","given":"Cheng-Chieh"}],"issued":{"date-parts":[["2010"]]}}},{"id":282,"uris":["http://zotero.org/users/2724931/items/83RDVNWE"],"uri":["http://zotero.org/users/2724931/items/83RDVNWE"],"itemData":{"id":282,"type":"article-journal","title":"Metabolic syndrome components and colorectal adenoma in the CLUE II cohort","container-title":"Cancer causes & control : CCC","page":"1-10","volume":"21","issue":"1","source":"PubMed Central","abstract":"Background\nMetabolic syndrome components have been associated with colorectal cancer in several studies; however, the evidence for colorectal adenomas is limited. Thus, we evaluated the association between markers of the metabolic syndrome with colorectal adenoma development in a nested case-control study.\n\nMethods\nColorectal adenoma cases (n= 132) and matched controls who had had a negative sigmoidoscopy or a colonoscopy (n=260) were identified between baseline in 1989 and 2000 among participants in the CLUE II cohort of Washington County, Maryland. Concentrations of C-peptide, insulin-like growth factor binding protein-1, glycosylated hemoglobin, total cholesterol, high density lipoprotein-cholesterol, and triglycerides were measured in baseline blood specimens. Body mass index was calculated using baseline height and weight. Use of medications to treat diabetes mellitus was self-reported at baseline. Blood pressure was measured at baseline. Distributional cutpoints of the latter markers were used to define the metabolic syndrome components (hyperinsulinemia, hyperglycemia, obesity, dyslipidemia, and hypertension) present at baseline.\n\nResults\nNo statistically significant associations with adenomas were observed for the markers of the metabolic syndrome, with the exception of a strong positive association for use of diabetes medications (OR, 8.00; 95% CI, 1.70 – 37.67), albeit based on small numbers.\n\nConclusion\nOur findings do not support that components of the metabolic syndrome influence risk of colorectal adenomas, except possibly for severe diabetes mellitus warranting medical treatment.","DOI":"10.1007/s10552-009-9428-6","ISSN":"0957-5243","note":"PMID: 19774471\nPMCID: PMC3010872","journalAbbreviation":"Cancer Causes Control","author":[{"family":"Tsilidis","given":"Konstantinos K"},{"family":"Brancati","given":"Frederick L"},{"family":"Pollak","given":"Michael N"},{"family":"Rifai","given":"Nader"},{"family":"Clipp","given":"Sandra L"},{"family":"Hoffman-Bolton","given":"Judy"},{"family":"Helzlsouer","given":"Kathy J"},{"family":"Platz","given":"Elizabeth A"}],"issued":{"date-parts":[["2010",1]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
21, 25, 26, 28–31

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RE

1.36 [1.15, 1.61]

3.62

(P = 0.0003)
93
0.06
143.81, df = 10
(P < 0.00001)
Case-control
4 (4)
[
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In this study, we investigated whether asymptomatic patients with gallbladder disease are at increased risk of CRN and identified the factors to their association. The study population consisted of 4,626 consecutive, asymptomatic individuals drawn from a prospective health check-up cohort who underwent both ultrasonography and colonoscopy screening. The prevalence of CRNs in patients with gallbladder polyps or gallstones was significantly higher than that in the control group (32.1% vs. 26.8%; P = 0.032, 35.8% vs. 26.9%; P = 0.020). A multivariate regression analysis showed that gallbladder polyps were an independent risk factor for CRN [adjusted odds ratio (OR): 1.29; 95% confidence interval (CI); 1.03-1.62] whereas gallstones were not (adjusted OR: 1.14; 95% CI: 0.79-1.63). The adjusted OR for the risk of CRN was 1.12 for gallbladder polyps < 5 mm (95% CI, 0.85-1.46) and 1.79 for gallbladder polyps ≥ 5 mm (95% CI, 1.15-2.77). The prevalence of CRN increased with increasing polyp size (P trend = 0.022). Our results suggest that colorectal neoplasia is significantly related to gallbladder polyps, especially those ≥ 5 mm. GRAPHICAL ABSTRACT:","DOI":"10.3346/jkms.2015.30.9.1288","ISSN":"1011-8934","author":[{"family":"Hong","given":"Sung Noh"},{"family":"Lee","given":"Tae Yoon"},{"family":"Yun","given":"Sung-Cheol"}],"issued":{"date-parts":[["2015",9]]}}},{"id":100,"uris":["http://zotero.org/users/2724931/items/XN37VDV8"],"uri":["http://zotero.org/users/2724931/items/XN37VDV8"],"itemData":{"id":100,"type":"article-journal","title":"Visceral Obesity and Insulin Resistance as Risk Factors for Colorectal Adenoma: A Cross-Sectional, Case–Control Study","container-title":"The American Journal of Gastroenterology","page":"178-187","volume":"105","issue":"1","source":"www.nature.com","abstract":"OBJECTIVES: Colorectal adenoma is known to be associated with obesity, but the association between colorectal adenoma and visceral adipose tissue (VAT) area measured by abdominal computed tomography (CT) has not been documented clearly. In addition, the relationship between insulin resistance and colorectal adenomas, which underlies the mechanism that links obesity and colorectal adenoma, has not been studied extensively. The aim of this study was to examine VAT area and insulin resistance as risk factors of colorectal adenoma.\nMETHODS: A cross-sectional, case–control study was conducted in Koreans that presented for health check-ups. Subjects underwent various laboratory tests, abdominal CT, and colonoscopy. VAT, subcutaneous adipose tissue (SAT), and homeostatic metabolic assessment (HOMA) index were evaluated as potential risk factors of colorectal adenoma in 2,244 age- and sex-matched subjects.\nRESULTS: According to univariate analysis, the prevalences of smoking, hypertension, metabolic syndrome, and family history of colorectal cancer were higher in the adenoma group than in the normal control group. In addition, body mass index, waist circumference, triglyceride, high-density lipoprotein cholesterol, and VAT and SAT areas were significantly different in the two groups. According to the multivariate analysis adjusted for multiple confounders, VAT area was independently associated with the risk of colorectal adenoma (odds ratio (OR)=3.09, 95% confidence interval (CI): 2.19–4.36, highest quintile vs. lowest quintile). Mean HOMA index was higher in the adenoma group than in the control group (OR=1.99, 95% CI: 1.35–2.92, highest vs. lowest quintile).\nCONCLUSIONS: Visceral obesity was found to be an independent risk factor of colorectal adenoma, and insulin resistance was associated with the presence of colorectal adenoma.","DOI":"10.1038/ajg.2009.541","ISSN":"0002-9270","shortTitle":"Visceral Obesity and Insulin Resistance as Risk Factors for Colorectal Adenoma","journalAbbreviation":"Am J Gastroenterol","language":"en","author":[{"family":"Kang","given":"Hyoun Woo"},{"family":"Kim","given":"Donghee"},{"family":"Kim","given":"Hwa Jung"},{"family":"Kim","given":"Chung Hyeon"},{"family":"Kim","given":"Young Sun"},{"family":"Park","given":"Min Jung"},{"family":"Kim","given":"Joo Sung"},{"family":"Cho","given":"Sang-Heon"},{"family":"Sung","given":"Myung-Whun"},{"family":"Jung","given":"Hyun Chae"},{"family":"Lee","given":"Hyo-Suk"},{"family":"Song","given":"In Sung"}],"issued":{"date-parts":[["2009",9,15]]}}},{"id":86,"uris":["http://zotero.org/users/2724931/items/HH3ENCP2"],"uri":["http://zotero.org/users/2724931/items/HH3ENCP2"],"itemData":{"id":86,"type":"article-journal","title":"Is height a risk factor for colorectal adenoma?","container-title":"The Korean Journal of Internal Medicine","page":"653-659","volume":"31","issue":"4","archive":"PMC","archive_location":"PMC4939489","abstract":"BACKGROUNI Although it is generally known that the risk for all types of cancer increases with adult height, combined and for several common site-specific cancers (including colon and rectal), evidence is limited for adenomas, which are precursors to colorectal cancer. We evaluated the association between height and risk of colorectal adenoma at various stages of the adenoma-carcinoma pathway. METHODS:: We conducted a retrospective study using data from patients who had undergone a complete colonoscopy as part of a health examination at the Health Promotion Center of Samsung Medical Center between October 13, 2009 and December 31, 2011. A total of 1,347 male subjects were included in our study. Multivariate logistic regression analysis was used to evaluate the association between height and colorectal adenoma. RESULTS:: Each 5-cm increase in height was associated with 1.6% and 5.3% higher risks of advanced colorectal adenoma and high-risk colorectal adenoma, respectively, but associations were not significant after adjusting for age, body mass index, metabolic syndrome, alcohol intake, smoking, family history of colorectal cancer, and regular aspirin use (p = 0.840 and p = 0.472, respectively). CONCLUSIONS:: No clear association was found between colorectal adenoma risk and height. Unlike other site-specific tumors reported to have a consistent relationship with height, the association between colorectal tumor and height remains controversial.","DOI":"10.3904/kjim.2014.313","ISSN":"1226-3303","author":[{"family":"Pyo","given":"Jeung Hui"},{"family":"Hong","given":"Sung Noh"},

{"family":"Min","given":"Byung-Hoon"},{"family":"Chang","given":"Dong Kyung"},
{"family":"Son","given":"Hee Jung"},{"family":"Rhee","given":"Poong-Lyul"},{"family":"Kim","given":"Jae J"},{"family":"Kim","given":"Young-Ho"}],"issued":{"date-parts":[["2016",7]]}}},{"id":175,"uris":["http://zotero.org/users/2724931/items/SMIADFP7"],"uri":["http://zotero.org/users/2724931/items/SMIADFP7"],"itemData":{"id":175,"type":"article-journal","title":"Metabolic syndrome and colorectal neoplasms: An ominous association","container-title":"World Journal of Gastroenterology","page":"5320","volume":"21","issue":"17","source":"CrossRef","DOI":"10.3748/wjg.v21.i17.5
9327","shortTitle":"Metabolic syndrome and colorectal neoplasms","language":"en","author":[{"family":"Trabulo","given":"Daniel"}],"issued":{"date-parts":[["2015"]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
34–36, 44
]
RE
1.27 [1.11, 1.46]
3.47
(P = 0.0005)
75
0.01
11.89, df = 3
(P = 0.008)
Cross-sectional
11 (15)
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ADDIN ZOTERO_ITEM CSL_CITATION {"citationID":"YfLOdUvn","properties":{"formattedCitation":"{\\rtf \\super 46,47,49\\uc0\\u8211{}57\\nosupersub{}}","plainCitation":"46,47,49–57"},"citationItems":[{"id":169,"uris":["http://zotero.org/users/2724931/items/M9QUET6C"],"uri":["http://zotero.org/users/2724931/items/M9QUET6C"],"itemData":{"id":169,"type":"article-journal","title":"Metabolic syndrome and smoking may justify earlier colorectal cancer screening in men","container-title":"Gastrointestinal Endoscopy","page":"961-969","volume":"79","issue":"6","abstract":"Background\nGender, smoking, and metabolic syndrome (MetS) are important risk factors of colorectal neoplasm. Whether presence of these factors may warrant earlier screening remains unclear.\nObjective\nTo compare age- and gender-specific risk of colorectal neoplasms in association with smoking and MetS under endoscopic or stool-based screening.\nDesign\nCross-sectional observational study.\nSetting\nScreening center in a university hospital in Taiwan.\nPatients\nA cohort of 10,884 average-risk individuals who received concurrent screening colonoscopy and fecal immunochemical testing (FIT).\nMain Outcome Measurements\nFirst, the prevalence of colorectal neoplasms and positive predictive value of FIT relative to age, gender, smoking, and MetS. Second, the number of colonoscopies needed to detect 1 advanced neoplasm with different strategies.\nResults\nMale smokers aged 40 to 49 years had a significantly higher prevalence of advanced neoplasms and positive predictive value of stool tests than nonsmoking counterparts. The prevalence of advanced neoplasms in concurrent MetS and smoking (6.2%) or smoking alone (3.8%) men aged 40 to 49 years was higher than that of average-risk women aged 50 to 59 years (2.1%) (P = .03 and .04, respectively). The number of colonoscopies needed to detect 1 advanced neoplasm in men aged 40 to 49 years with concurrent MetS and smoking, smoking, MetS, and women aged 50 to 59 years was, respectively, 14.6, 24.8, 39.8, and 47.4 in the colonoscopy scenario and 1.7, 4.6, 5.7, and 8.3 in the FIT scenario.\nLimitation\nSelf-selective bias may exist for subjects voluntarily submitted to health check-ups.\nConclusions\nMetS and smoking significantly impact both the prevalence of colorectal neoplasms and the diagnostic yields of screening tests in men aged 40 to 49 years. Whether our findings justify earlier screening in this subgroup requires further study.","DOI":"10.1016/j.gie.2013.11.035","ISSN":"0016-5107","journalAbbreviation":"Gastrointestinal Endoscopy","author":[{"family":"Chang","given":"Li-Chun"},{"family":"Wu","given":"Ming-Shiang"},{"family":"Tu","given":"Chia-Hung"},{"family":"Lee","given":"Yi-Chia"},{"family":"Shun","given":"Chia-Tung"},{"family":"Chiu","given":"Han-Mo"}],"issued":{"date-parts":[["2014",6]]}}},{"id":163,"uris":["http://zotero.org/users/2724931/items/FX77VBWZ"],"uri":["http://zotero.org/users/2724931/items/FX77VBWZ"],"itemData":{"id":163,"type":"article-journal","title":"Prevalence and risk of colorectal neoplasms in asymptomatic, average-risk screenees 40 to 49 years of age","container-title":"Gastrointestinal Endoscopy","page":"480-489","volume":"72","issue":"3","abstract":"Background\nA paucity of information exists regarding colorectal neoplasm in asymptomatic, average-risk individuals 40 to 49 years of age.\nObjective\nTo evaluate the prevalence and risk factors of colorectal neoplasms in those in their 40s.\nDesign\nCross-sectional study.\nSetting\nResults offered to subjects of a health care provider that offers screening services as part of an employer-provided wellness program.\nPatients\nA consecutive series of 1761 asymptomatic, average-risk screenees 40 to 59 years of age.\nIntervention\nFirst screening colonoscopy.\nResults\nThe prevalence of overall colorectal neoplasm in subjects of ages 40 to 44 years, 45 to 49 years, 50 to 54 years, and 55 to 59 years increased significantly with increasing age (13.7%, 20.2%, 21.0%, and 23.8%, respectively; P < .001). The prevalence of advanced adenomas in subjects of ages 40 to 44 years, 45 to 49 years, 50 to 54 years, and 55 to 59 years increased significantly with age (1.9%, 3.0%, 3.2%, and 5.9%, respectively; P = .004). Multivariate analysis of data from the 40- to 49-year age group identified an increased risk of colorectal neoplasm associated with ages 45 years and older (odds ratio [OR], 1.68; 95% CI, 1.20-2.35), male sex (OR, 1.76; 95% CI, 1.15-2.69), presence of abdominal obesity (OR, 1.57; 95% CI, 1.12-2.21), and metabolic syndrome (OR, 1.56; 95% CI, 1.03-2.35), whereas for advanced adenomas, abdominal obesity (OR, 2.37; 95% CI, 1.06-5.27) and metabolic syndrome (OR, 2.83; 95% CI, 1.23-6.53) were the independent risk factors.\nLimitations\nSingle-center study and the cohort composed of ethnic Korean subjects who lived in the same geographic region.\nConclusion\nIn average-risk individuals 40 to 49 years of age, men with abdominal obesity or metabolic syndrome might benefit from screening colonoscopy starting at 45 years of age to detect colorectal neoplasm.","DOI":"10.1016/j.gie.2010.06.022","ISSN":"0016-5107","journalAbbreviation":"Gastrointestinal Endoscopy","author":[{"family":"Hong","given":"Sung Noh"},{"family":"Kim","given":"Jeong Hwan"},{"family":"Choe","given":"Won Hyeok"},{"family":"Han","given":"Hye Seung"},{"family":"Sung","given":"In Kyung"},{"family":"Park","given":"Hyung Seok"},{"family":"Shim","given":"Chan Sup"}],"issued":{"date-parts":[["2010",9]]}}},{"id":310,"uris":["http://zotero.org/users/2724931/items/9BZ8ICKP"],"uri":["http://zotero.org/users/2724931/items/9BZ8ICKP"],"itemData":{"id":310,"type":"article-journal","title":"Stepwise Relationship Between Components of Metabolic Syndrome and Risk of Colorectal Adenoma in a Taiwanese Population Receiving Screening Colonoscopy","container-title":"Journal of the

Formosan Medical Association","page":"100-108","volume":"110","issue":"2","source":"CrossRef","DOI":"10.1016/S0929-6646(11)60016-8","ISSN":"09296646","language":"en","author":[{"family":"Hu","given":"Nien-Chih"},{"family":"Chen","given":"Jong-Dar"},{"family":"Lin","given":"Yu-Min"},{"family":"Chang","given":"Jun-Yih"},{"family":"Chen","given":"Yu-Hung"}],"issued":{"date-parts":[["2011",2]]}}},{"id":76,"uris":["http://zotero.org/users/2724931/items/3DEUV37V"],"uri":["http://zotero.org/users/2724931/items/3DEUV37V"],"itemData":{"id":76,"type":"article-journal","title":"Relationship of non-alcoholic fatty liver disease to colorectal adenomatous polyps.","container-title":"Journal of gastroenterology and hepatology","page":"562-567","volume":"25","issue":"3","abstract":"BACKGROUND AND AIMS: Metabolic syndrome and insulin resistance are associated with a higher risk of colon cancer. Non-alcoholic fatty liver disease (NAFLD) is regarded as a manifestation of metabolic syndrome in the liver. This investigation was initiated to determine whether NAFLD has a relationship to colorectal adenomatous polyps. METHODS: We examined the 2917 participants who underwent a routine colonoscopy at Kangbuk Samsung Hospital in 2007. We divided the 2917 subjects into the adenomatous polyp group (n = 556) and the normal group (n = 2361). Anthropometric measurements, biochemical tests for liver and metabolic function, and abdominal ultrasonographs were assessed. RESULTS: The prevalence of NAFLD was 41.5% in the adenomatous polyp group and 30.2% in the control group. By multiple logistic regression analysis, NAFLD was found to be associated with an increased risk of colorectal adenomatous polyps (odds ratio, 1.28; 95% confidence interval, 1.03-1.60). An increased risk for NAFLD was more evident in patients with a greater number of adenomatous polyps. CONCLUSION: NAFLD was associated with colorectal adenomatous polyps. Further studies are needed to confirm whether NAFLD is a predictor for the development of colorectal adenomatous polyps and cancer.","DOI":"10.1111/j.1440-1746.2009.06117.x","ISSN":"1440-1746 0815-9319","note":"PMID: 20074156","journalAbbreviation":"J Gastroenterol Hepatol","language":"eng","author":[{"family":"Hwang","given":"Sang Tae"},{"family":"Cho","given":"Yong Kyun"},{"family":"Park","given":"Jung Ho"},{"family":"Kim","given":"Hong Joo"},{"family":"Park","given":"Dong Il"},{"family":"Sohn","given":"Chong Il"},{"family":"Jeon","given":"Woo Kyu"},{"family":"Kim","given":"Byung Ik"},{"family":"Won","given":"Kyoung Hee"},{"family":"Jin","given":"Wook"}],"issued":{"date-parts":[["2010",3]]}}},{"id":306,"uris":["http://zotero.org/users/2724931/items/FP3DWZMH"],"uri":["http://zotero.org/users/2724931/items/FP3DWZMH"],"itemData":{"id":306,"type":"article-journal","title":"Is Metabolic Syndrome A Risk Factor for Colorectal Adenoma?","container-title":"Cancer Epidemiology and Prevention Biomarkers","page":"1543-1546","volume":"16","issue":"8","journalAbbreviation":"Cancer Epidemiol Biomarkers Prev","author":[{"family":"Kim","given":"Jeong Hwan"},{"family":"Lim","given":"Yun Jeong"},{"family":"Kim","given":"Young-Ho"},{"family":"Sung","given":"In-Kyung"},{"family":"Shim","given":"Sang Goon"},{"family":"Oh","given":"Sung-Ook"},{"family":"Park","given":"Sin-Sil"},{"family":"Yang","given":"Sun"},{"family":"Son","given":"Hee Jung"},{"family":"Rhee","given":"Poong-Lyul"},{"family":"Kim","given":"Jae J."},{"family":"Rhee","given":"Jong Chul"},{"family":"Choi","given":"Yoon-Ho"}],"issued":{"date-parts":[["2007",8,7]]}}},{"id":176,"uris":["http://zotero.org/users/2724931/items/G5JJS8K5"],"uri":["http://zotero.org/users/2724931/items/G5JJS8K5"],"itemData":{"id":176,"type":"article-journal","title":"Uric Acid Is a Risk Indicator for Metabolic Syndrome-related Colorectal Adenoma: Results in a Korean Population Receiving Screening Colonoscopy","container-title":"The Korean Journal of Gastroenterology = Taehan Sohwagi Hakhoe Chi","page":"202-208","volume":"66","issue":"4","source":"PubMed","abstract":"BACKGROUND/AIMS: An association between serum uric acid and cancer risk has been noted over the past few decades. There is ongoing debate about whether hyperuricemia represents an independent risk factor for colorectal neoplasm. We investigated the association between serum uric acid and prevalence of colorectal adenoma considering numerous confounding factors.\nMETHODS: A cross-sectional study was performed with individuals who underwent a routine health check-up examination, including a screening colonoscopy and blood chemistry. The association between serum uric acid and prevalence of colorectal adenoma was estimated from the results of a logistic regression analysis.\nRESULTS: Of the 1,066 participants, 402 had colorectal adenoma (37.7%). In univariate models, the prevalence of colorectal adenoma was higher in participants in the fourth quartile uric acid level, compared to those in the first quartile uric acid level (OR, 1.67; 95% CI, 1.17-2.42; p=0.004). However, no significant association was detected between serum uric acid and prevalence of colorectal adenoma in multiple logistic regression analysis. A number of metabolic syndrome components exhibited a strong association with the prevalence of colorectal adenoma in the multivariate model (OR, 3.46 for highest vs. lowest; 95% CI, 1.30-9.20; p=0.021). Moreover, serum uric acid was strongly associated with metabolic syndrome-associated variables, including waist circumference, fasting blood glucose, systolic blood pressure, diastolic blood pressure, triglyceride, and high-density lipoprotein.\nCONCLUSIONS: Uric acid is not an independent risk factor for colorectal adenoma but is a risk indicator for metabolic syndrome-related colorectal adenoma.","DOI":"10.4166/kjg.2015.66.4.202","ISSN":"2233-6869","note":"PMID: 26493505","shortTitle":"Uric Acid Is a Risk Indicator for Metabolic Syndrome-related Colorectal Adenoma","journalAbbreviation":"Korean J Gastroenterol","language":"eng","author":[{"family":"Kim","given":"Hyo Jin"},{"family":"Kim","given":"Jee Eun"},{"family":"Jung","given":"Ji Hye"},{"family":"Kim","given":"Eun Ran"},{"family":"Hong","given":"Sung Noh"},{"family":"Chang","given":"Dong Kyung"},{"family":"Son","given":"Hee Jung"},{"family":"Rhee","given":"Poong Lyul"},{"family":"Kim","given":"Jae J."},{"family":"Kim","given":"Young Ho"}],"issued":{"date-parts":[["2015",10]]}}},{"id":179,"uris":["http://zotero.org/users/2724931/items/G83HJCGN"],"uri":["http://zotero.org/users/2724931/items/G83HJCGN"],"itemData":{"id":179,"type":"article-journal","title":"Prevalence and risk factors of advanced colorectal neoplasms in asymptomatic Korean people between 40 and 49

years of age","container-title":"Journal of Gastroenterology and Hepatology","page":"98-105","volume":"32","issue":"1","source":"PubMed","abstract":"BACKGROUND AND AIM: Current guidelines recommend colon cancer screening for persons aged over 50

years. However, there are few data on colorectal cancer screening in 40- to 49-year-olds. This study assessed the prevalence and risk factors of colorectal neoplasms in 40- to 49-year-old Koreans.\nMETHODS: We analyzed the results of screening colonoscopies of 6680 persons 40-59

years of age (2206 aged 40-49 and 4474 aged 50-59

years).\nRESULTS: The prevalence of overall and advanced neoplasms in the 40- to 49-year age group was lower than in the 50- to 59-year age group (26.7% and 2.4% vs 37.8% and 3.5%, respectively). However, the prevalence of overall and advanced neoplasms increased to 39.1% and 5.4%, respectively, in 45- to 49-year-old individuals with metabolic syndrome. In the 40- to 49-year age group, age, current smoking, and metabolic syndrome were associated with an increased risk of advanced neoplasms (odds ratio [OR] 1.16, 95% confidence interval [CI] 1.04-1.30; OR 3.12, 95% CI 1.20-8.12; and OR 2.00, 95% CI 1.09-3.67, respectively).\nCONCLUSIONS: Individuals aged 40-49

years had a lower prevalence of colorectal neoplasms than those aged 50-59

years, but some 40- to 49-year-olds showed a similar prevalence to those aged 50-59

years. Age, current smoking habits, and metabolic syndrome are associated with an increased risk of advanced neoplasms in subjects aged 40-49

years. Further studies are needed to stratify the risks of colon cancer and guide targeted screening in persons younger than 50

years old.","DOI":"10.1111/jgh.13454","ISSN":"1440-1746","note":"PMID: 27197805","journalAbbreviation":"J. Gastroenterol. Hepatol.","language":"eng","author":[{"family":"Koo","given":"Ja Eun"},{"family":"Kim","given":"Kyung-Jo"},{"family":"Park","given":"Hye Won"},{"family":"Kim","given":"Hong-Kyu"},{"family":"Choe","given":"Jae Won"},{"family":"Chang","given":"Hye-Sook"},{"family":"Lee","given":"Ji Young"},{"family":"Myung","given":"Seung-Jae"},{"family":"Yang","given":"Suk-Kyun"},{"family":"Kim","given":"Jin-Ho"}],"issued":{"date-parts":[["2017",1]]}},{"id":168,"uris":["http://zotero.org/users/2724931/items/HXJHWUI6"],"uri":["http://zotero.org/users/2724931/items/HXJHWUI6"],"itemData":{"id":168,"type":"article-journal","title":"Vegetarianism as a Protective Factor for Colorectal Adenoma and Advanced Adenoma in Asians","container-title":"Digestive Diseases and Sciences","page":"1025-1035","volume":"59","issue":"5","abstract":"Although epidemiologic and animal studies suggest a vegetarian diet protects against the development of colorectal cancer, the relationship between vegetarian diet and incidence of colorectal adenoma is not yet conclusive, especially for Asians.","DOI":"10.1007/s10620-013-2974-5","ISSN":"1573-2568","journalAbbreviation":"Digestive Diseases and Sciences","author":[{"family":"Lee","given":"Chang Geun"},{"family":"Hahn","given":"Suk Jae"},{"family":"Song","given":"Min Keun"},{"family":"Lee","given":"Jun Kyu"},{"family":"Kim","given":"Jae Hak"},{"family":"Lim","given":"Yun Jeong"},{"family":"Koh","given":"Moon-Soo"},{"family":"Lee","given":"Jin Ho"},{"family":"Kang","given":"Hyoun Woo"}],"issued":{"date-parts":[["2014"]]}}},{"id":97,"uris":["http://zotero.org/users/2724931/items/566MKVT3"],"uri":["http://zotero.org/users/2724931/items/566MKVT3"],"itemData":{"id":97,"type":"article-journal","title":"Visceral obesity as a risk factor for colorectal neoplasm","container-title":"Journal of Gastroenterology and Hepatology","page":"411-417","volume":"23","issue":"3","abstract":"Background and Aim: Obesity as a risk factor for colorectal neoplasm (CRN) is controversial. In the present study, we evaluated visceral obesity as a risk factor for CRN. Methods: We prospectively enrolled 200 consecutive, asymptomatic adults (male : female = 133:67, mean age, 50.9 ± 8.5 years) undergoing both colonoscopy and abdominopelvic computed tomography (CT) scan for routine health evaluations. The presence or absence and the characteristics of CRN were determined during colonoscopy. The amount of visceral adipose tissue (VAT) and subcutaneous adipose tissue was measured by an abdominopelvic CT scan. Body mass index, waist circumference, and percentage of body fat were measured. Blood pressure and other blood markers for assessing the metabolic syndrome were also investigated. Results: Of the 200 patients, 53 (26.5%) had CRN. Old age, smoking, metabolic syndrome, and a high fasting plasma glucose level were associated with an increased risk of CRN. VAT (P < 0.01) and waist circumference (P = 0.01) were significantly higher in those with CRN. A multivariate analysis of the risks of CRN showed an odds ratio of 4.07 (95% confidence interval: 1.01–16.43, P = 0.03) for those with VAT over 136.61 cm2 relative to those with VAT under 67.23 cm2. Waist circumference, metabolic syndrome, and fasting plasma glucose levels were not independent risk factors for CRN in the multivariate analysis. Conclusion: Increased VAT is an independent risk factor for CRN. Further large scale studies are needed to clarify the causal relationship between VAT and CRN.","DOI":"10.1111/j.1440-1746.2007.05125.x","ISSN":"1440-1746","author":[{"family":"Oh","given":"Tae-Hoon"},{"family":"Byeon","given":"Jeong-Sik"},{"family":"Myung","given":"Seung-Jae"},{"family":"Yang","given":"Suk-Kyun"},{"family":"Choi","given":"Kwi-Sook"},{"family":"Chung","given":"Jun-Won"},{"family":"Kim","given":"Benjamin"},{"family":"Lee","given":"Don"},{"family":"Byun","given":"Jae Ho"},{"family":"Jang","given":"Se Jin"},{"family":"Kim","given":"Jin-Ho"}],"issued":{"date-parts":[["2008",3,1]]}}},{"id":78,"uris":["http://zotero.org/users/2724931/items/TSAINUMV"],"uri":["http://zotero.org/users/2724931/items/TSAINUMV"],"itemData":{"id":78,"type":"article-journal","title":"Increased homeostasis model assessment-insulin resistance is a risk factor for colorectal adenoma in Japanese males.","container-title":"The Tohoku journal of experimental medicine","page":"297-303","volume":"223","issue":"4","abstract":"Many previous reports have documented a relationship between metabolic syndrome, in terms of insulin resistance, and colorectal cancer. However, the association of insulin resistance with colorectal adenoma has not been investigated in detail. To elucidate the association of metabolic syndrome components and insulin resistance with adenoma, we investigated homeostasis model assessment insulin resistance (HOMA-IR) in individuals with adenoma. A cross-sectional study was conducted involving individuals who underwent scheduled health examinations using total colonoscopy. Restricting the subjects to males, 261 with adenoma and 702 without adenoma were investigated. HOMA-IR was categorized into three groups: normal (< 1.6), intermediate (>/= 1.6 - < 2.5), and insulin resistance (2.5 </=). Metabolic syndrome was defined by a combination of any three of the following components: central obesity (waist circumference >/= 90 cm); elevated blood pressure (systolic blood pressure >/= 130 mmHg and/or diastolic blood pressure 85 mmHg); elevated fasting plasma glucose (>/= 100 mg/dL); reduced high-density lipoprotein-cholesterol (< 40 mg/dL); and elevated triglyceride (>/= 150 mg/dL). Multivariate analysis of HOMA-IR showed that the intermediate and insulin resistance groups had a significantly increased risk for colorectal adenoma, even after adjustment for waist circumference (odds ratio, 1.62 and 2.23; 95% confidence interval, 1.07-2.45 and 1.31-3.79, respectively). Accumulation of any metabolic syndrome components increased the risk of colorectal adenoma (P trend = 0.001). However, none of the components alone demonstrated a significant risk for colorectal adenoma. Our data indicate that an increased level of HOMA-IR is a risk factor for colorectal adenoma in Japanese males.","ISSN":"1349-3329 0040-8727","note":"PMID: 21478654","journalAbbreviation":"Tohoku J Exp

Med","language":"eng","author":[{"family":"Sato","given":"Takeshi"},{"family":"Takeda","given":"Hiroaki"},{"family":"Sasaki","given":"Yu"},{"family":"Kawata","given":"Sumio"}],"issued":{"date-parts":[["2011",4]]}}},{"id":77,"uris":["http://zotero.org/users/2724931/items/QQRBWQMX"],"uri":["http://zotero.org/users/2724931/items/QQRBWQMX"],"itemData":{"id":77,"type":"article-journal","title":"Association between colorectal adenoma and coronary atherosclerosis detected by CT coronary angiography in Korean men; a cross-sectional study.","container-title":"Journal of gastroenterology and hepatology","page":"1795-1799","volume":"25","issue":"11","abstract":"BACKGROUND: Colorectal adenoma and coronary artery disease (CAD) appear to share common risk factors, such as male gender, diabetes mellitus, smoking, and obesity. We investigated the relationship between colorectal adenoma and coronary atherosclerosis, as a risk factor for colorectal adenoma. METHODS: A cross-sectional study was conducted on Korean men who presented for a health check-up. The subjects were 488 men (217 colorectal adenoma and 271 normal colonoscopic findings) who underwent colonoscopy and coronary computed tomography angiography (CTA) on the same day as a screening examination. Advanced colonic lesion was defined as a presence of adenoma with villous component, high-grade dysplasia, and/or with size of >/=1 cm. CTA findings were classified as normal, mild (low-grade atherosclerosis or <50% stenosis), and significant CAD (>/=50% stenosis). Abnormal CTA findings included mild and significant CAD. RESULTS: Patients with abnormal CTA findings were more likely to have colorectal adenoma compared with those with normal CTA findings (P < 0.005). Furthermore, presence of advanced adenoma was significantly associated with significant CAD (P < 0.01). On multivariate analyses, abnormal CTA findings (OR = 1.66, 95% CI: 1.14-2.41, P < 0.01) and significant CAD (OR = 1.96, 95% CI: 1.15-3.35, P < 0.05) were found to be independent risk factors for colorectal adenoma after adjusting for age, current smoking, and metabolic syndrome. CONCLUSIONS: In this study, in the population who underwent CTA and colonoscopy for health check-up, prevalence of colorectal adenoma was greater in subjects with low-grade coronary atherosclerosis or significant CAD. The presence of advanced adenoma was significantly associated with significant CAD.","DOI":"10.1111/j.1440-1746.2010.06330.x","ISSN":"1440-1746 0815-9319","note":"PMID: 21039843","journalAbbreviation":"J Gastroenterol Hepatol","language":"eng","author":[{"family":"Yang","given":"Sun Young"},{"family":"Kim","given":"Young Sun"},{"family":"Chung","given":"Su Jin"},{"family":"Song","given":"Ji Hyun"},{"family":"Choi","given":"Su Yeon"},{"family":"Park","given":"Min Jung"},{"family":"Yim","given":"Jeong Yoon"},{"family":"Lim","given":"Seon Hee"},{"family":"Kim","given":"Donghee"},{"family":"Kim","given":"Chung Hyun"},{"family":"Kim","given":"Ju Sung"},{"family":"Song","given":"In Sung"}],"issued":{"date-parts":[["2010",11]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"} 46, 47, 49–57

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1.52 [1.40, 1.64]

10.38

(P < 0.00001)

32

0.01

20.49, df = 14

(P = 0.12)

Study location

Asia

20 (28)

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ADDIN ZOTERO_ITEM CSL_CITATION {"citationID":"a20uhrd3l55","properties":{"formattedCitation":"{\\rtf \\super 25,26,28\\uc0\\u8211{}31,34,35,44,46,47,49\\uc0\\u8211{}57\\nosupersub{}}","plainCitation":"25,26,28–31,34,35,44,46,47,49–57"},"citationItems":[{"id":169,"uris":["http://zotero.org/users/2724931/items/M9QUET6C"],"uri":["http://zotero.org/users/2724931/items/M9QUET6C"],"itemData":{"id":169,"type":"article-journal","title":"Metabolic syndrome and smoking may justify earlier colorectal cancer screening in men","container-title":"Gastrointestinal Endoscopy","page":"961-969","volume":"79","issue":"6","abstract":"Background\nGender, smoking, and metabolic syndrome (MetS) are important risk factors of colorectal neoplasm. Whether presence of these factors may warrant earlier screening remains unclear.\nObjective\nTo compare age- and gender-specific risk of colorectal neoplasms in association with smoking and MetS under endoscopic or stool-based screening.\nDesign\nCross-sectional observational study.\nSetting\nScreening center in a university hospital in Taiwan.\nPatients\nA cohort of 10,884 average-risk individuals who received concurrent screening colonoscopy and fecal immunochemical testing (FIT).\nMain Outcome Measurements\nFirst, the prevalence of colorectal neoplasms and positive predictive value of FIT relative to age, gender, smoking, and MetS. Second, the number of colonoscopies needed to detect 1 advanced neoplasm with different strategies.\nResults\nMale smokers aged 40 to 49 years had a significantly higher prevalence of advanced neoplasms and positive predictive value of stool tests than nonsmoking counterparts. The prevalence of advanced neoplasms in concurrent MetS and smoking (6.2%) or smoking alone (3.8%) men aged 40 to 49 years was higher than that of average-risk women aged 50 to 59 years (2.1%) (P = .03 and .04, respectively). The number of colonoscopies needed to detect 1 advanced neoplasm in men aged 40 to 49 years with concurrent MetS and smoking, smoking, MetS, and women aged 50 to 59 years was, respectively, 14.6, 24.8, 39.8, and 47.4 in the colonoscopy scenario and 1.7, 4.6, 5.7, and 8.3 in the FIT scenario.\nLimitation\nSelf-selective bias may exist for subjects voluntarily submitted to health check-ups.\nConclusions\nMetS and smoking significantly impact both the prevalence of colorectal neoplasms and the diagnostic yields of screening tests in men aged 40 to 49 years. Whether our findings justify earlier screening in this subgroup requires further study.","DOI":"10.1016/j.gie.2013.11.035","ISSN":"0016-5107","journalAbbreviation":"Gastrointestinal Endoscopy","author":[{"family":"Chang","given":"Li-Chun"},{"family":"Wu","given":"Ming-Shiang"},{"family":"Tu","given":"Chia-Hung"},{"family":"Lee","given":"Yi-Chia"},{"family":"Shun","given":"Chia-Tung"},{"family":"Chiu","given":"Han-Mo"}],"issued":{"date-parts":[["2014",6]]}}},{"id":172,"uris":["http://zotero.org/users/2724931/items/Z38D9WWB"],"uri":["http://zotero.org/users/2724931/items/Z38D9WWB"],"itemData":{"id":172,"type":"article-journal","title":"Effects of Metabolic Syndrome and Findings From Baseline Colonoscopies on Occurrence of Colorectal Neoplasms","container-title":"Clinical Gastroenterology and Hepatology","page":"1134-1142.e8","volume":"13","issue":"6","abstract":"Background & Aims\nMetabolic syndrome is associated with increased risk of colorectal neoplasm, but little is known about its effects on the occurrence of neoplasm after colonoscopy. We investigated the effects of metabolic syndrome on the risk of advanced neoplasm after colonoscopy.\nMethods\nWe performed a prospective study of 4483 subjects age 50 years and older who

underwent screening and surveillance colonoscopies as part of an annual health check-up at National Taiwan University Hospital. Baseline demographic data and colonoscopic findings were recorded. Subjects with either advanced adenoma or 3 or more adenomas detected at baseline were classified as high risk; those with fewer than 3 nonadvanced adenomas were classified as low risk; and those without any neoplastic lesions were classified as normal. The cumulative risk of detecting an advanced neoplasm during surveillance colonoscopies (3 and 5 years later) was correlated with risk group and metabolic syndrome. Hazard ratios (HRs) were calculated for occurrence of neoplasm according to baseline colonoscopic findings and clinical risk factors, including metabolic syndrome.\nResults\nAdvanced neoplasms were detected during the surveillance colonoscopies in 1.3% of subjects in the normal group and in 2.4% of those in the low-risk group at 5 years, and in 8.5% of subjects in the high-risk group at 3 years. Subjects with metabolic syndrome had a significantly higher risk for subsequent advanced neoplasms (P < .0001). After stratification based on findings from baseline colonoscopies, the risk for neoplasm was significant in the normal (P < .001) and low-risk groups (P = .04), but not in the high-risk group (P = .48). In Cox regression analysis, metabolic syndrome had significant effects on the risk for advanced neoplasms in the normal (HR, 2.07; 95% confidence interval, 1.13–3.81) and low-risk groups (HR, 2.34; 95% confidence interval, 1.01–5.41), but not in the high-risk group.\nConclusions\nMetabolic syndrome is a significant risk factor for occurrence of an advanced adenoma after a negative or low-risk finding from a baseline colonoscopy. Metabolic syndrome should be considered in risk stratification for surveillance intervals.","DOI":"10.1016/j.cgh.2014.10.022","ISSN":"1542-3565","journalAbbreviation":"Clinical Gastroenterology and Hepatology","author":[{"family":"Chiu","given":"Han-Mo"},{"family":"Lee","given":"Yi-Chia"},{"family":"Tu","given":"Chia-Hung"},{"family":"Chang","given":"Li-Chun"},{"family":"Hsu","given":"Wen-Feng"},{"family":"Chou","given":"Chu-Kuang"},{"family":"Tsai","given":"Kun-Feng"},{"family":"Liang","given":"Jin-Tung"},{"family":"Shun","given":"Chia-Tung"},{"family":"Wu","given":"Ming-Shiang"}],"issued":{"date-parts":[["2015",6]]}}},{"id":163,"uris":["http://zotero.org/users/2724931/items/FX77VBWZ"],"uri":["http://zotero.org/users/2724931/items/FX77VBWZ"],"itemData":{"id":163,"type":"article-journal","title":"Prevalence and risk of colorectal neoplasms in asymptomatic, average-risk screenees 40 to 49 years of age","container-title":"Gastrointestinal Endoscopy","page":"480-489","volume":"72","issue":"3","abstract":"Background\nA paucity of information exists regarding colorectal neoplasm in asymptomatic, average-risk individuals 40 to 49 years of age.\nObjective\nTo evaluate the prevalence and risk factors of colorectal neoplasms in those in their 40s.\nDesign\nCross-sectional study.\nSetting\nResults offered to subjects of a health care provider that offers screening services as part of an employer-provided wellness program.\nPatients\nA consecutive series of 1761 asymptomatic, average-risk screenees 40 to 59 years of age.\nIntervention\nFirst screening colonoscopy.\nResults\nThe prevalence of overall colorectal neoplasm in subjects of ages 40 to 44 years, 45 to 49 years, 50 to 54 years, and 55 to 59 years increased significantly with increasing age (13.7%, 20.2%, 21.0%, and 23.8%, respectively; P < .001). The prevalence of advanced adenomas in subjects of ages 40 to 44 years, 45 to 49 years, 50 to 54 years, and 55 to 59 years increased significantly with age (1.9%, 3.0%, 3.2%, and 5.9%, respectively; P = .004). Multivariate analysis of data from the 40- to 49-year age group identified an increased risk of colorectal neoplasm associated with ages 45 years and older (odds ratio [OR], 1.68; 95% CI, 1.20-2.35), male sex (OR, 1.76; 95% CI, 1.15-2.69), presence of abdominal obesity (OR, 1.57; 95% CI, 1.12-2.21), and metabolic syndrome (OR, 1.56; 95% CI, 1.03-2.35), whereas for advanced adenomas, abdominal obesity (OR, 2.37; 95% CI, 1.06-5.27) and metabolic syndrome (OR, 2.83; 95% CI, 1.23-6.53) were the independent risk factors.\nLimitations\nSingle-center study and the cohort composed of ethnic Korean subjects who lived in the same geographic region.\nConclusion\nIn average-risk individuals 40 to 49 years of age, men with abdominal obesity or metabolic syndrome might benefit from screening colonoscopy starting at 45 years of age to detect colorectal neoplasm.","DOI":"10.1016/j.gie.2010.06.022","ISSN":"0016-5107","journalAbbreviation":"Gastrointestinal Endoscopy","author":[{"family":"Hong","given":"Sung Noh"},{"family":"Kim","given":"Jeong Hwan"},{"family":"Choe","given":"Won Hyeok"},{"family":"Han","given":"Hye Seung"},{"family":"Sung","given":"In Kyung"},{"family":"Park","given":"Hyung Seok"},{"family":"Shim","given":"Chan Sup"}],"issued":{"date-parts":[["2010",9]]}}},{"id":13,"uris":["http://zotero.org/users/2724931/items/7IV5ACIY"],"uri":["http://zotero.org/users/2724931/items/7IV5ACIY"],"itemData":{"id":13,"type":"article-journal","title":"The Risk of Colorectal Neoplasia in Patients with Gallbladder Diseases","container-title":"Journal of Korean Medical Science","page":"1288-1294","volume":"30","issue":"9","archive":"PMC","archive_location":"PMC4553676","abstract":"Cholecystectom is associated with an increased risk of colorectal cancer, but little is known about the relationship between gallbladder disease and colorectal adenoma. Gallbladder polyps and colorectal neoplasia (CRN) share several risk factors such as obesity, diabetes and metabolic syndrome, which might account for their association. In this study, we investigated whether asymptomatic patients with gallbladder disease are at increased risk of CRN and identified the factors to their association. The study population consisted of 4,626 consecutive, asymptomatic individuals drawn from a prospective health check-up cohort who underwent both ultrasonography and colonoscopy screening. The prevalence of CRNs in patients with gallbladder polyps or gallstones was significantly higher than that in the control group (32.1% vs. 26.8%; P = 0.032, 35.8% vs. 26.9%; P = 0.020). A multivariate regression analysis showed that gallbladder polyps were an independent risk factor for CRN [adjusted odds ratio (OR): 1.29; 95% confidence interval (CI); 1.03-1.62] whereas gallstones were not (adjusted OR: 1.14; 95% CI: 0.79-1.63). The adjusted OR for the risk of CRN was 1.12 for gallbladder polyps < 5 mm (95% CI, 0.85-1.46) and 1.79 for gallbladder polyps ≥ 5 mm (95% CI, 1.15-2.77). The prevalence of CRN increased with increasing polyp size (P trend = 0.022). Our results suggest that colorectal neoplasia is significantly related to gallbladder polyps, especially those ≥ 5 mm. GRAPHICAL ABSTRACT:","DOI":"10.3346/jkms.2015.30.9.1288","ISSN":"1011-8934","author":[{"family":"Hong","given":"Sung Noh"},{"family":"Lee","given":"Tae Yoon"},{"family":"Yun","given":"Sung-Cheol"}],"issued":{"date-parts":[["2015",9]]}}},{"id":310,"uris":["http://zotero.org/users/2724931/items/9BZ8ICKP"],"uri":["http://zotero.org/users/2724931/items/9BZ8ICKP"],"itemData":{"id":310,"type":"article-journal","title":"Stepwise Relationship Between Components of Metabolic Syndrome and Risk of Colorectal Adenoma in a Taiwanese Population Receiving Screening Colonoscopy","container-title":"Journal of the Formosan Medical Association","page":"100-108","volume":"110","issue":"2","source":"CrossRef","DOI":"10.1016/S0929-6646(11)60016-8","ISSN":"09296646","language":"en","author":[{"family":"Hu","given":"Nien-Chih"},{"family":"Chen","given":"Jong-Dar"},{"family":"Lin","given":"Yu-Min"},{"family":"Chang","given":"Jun-Yih"},{"family":"Chen","given":"Yu-Hung"}],"issued":{"date-parts":[["2011",2]]}}},{"id":82,"uris":["http://zotero.org/users/2724931/items/K9AVA46D"],"uri":["http://zotero.org/users/2724931/items/K9AVA46D"],"itemData":{"id":82,"type":"article-

journal","title":"Patients with nonalcoholic fatty liver disease have higher risk of colorectal adenoma after negative baseline colonoscopy.","container-title":"Colorectal disease : the official journal of the Association of Coloproctology of Great Britain and Ireland","page":"830-835","volume":"15","issue":"7","abstract":"AIM: The study aimed to determine whether nonalcoholic fatty liver disease (NAFLD) is an independent risk factor of adenoma after negative baseline colonoscopy. METHOD: A retrospective cohort study was conducted on 1522 health-check individuals who underwent two consecutive colonoscopies at Taipei Veterans General Hospital between 2003 and 2010. Those developing an adenoma after an initial negative baseline colonoscopy (adenoma group) were compared with those in whom the second colonoscopy was negative (nonadenoma group). Anthropometric measurements, biochemical tests and the presence of NAFLD were compared between the two groups. RESULTS: The adenoma group had a higher prevalence of NAFLD than the nonadenoma group (55.6% vs 38.8%; P < 0.05). On multivariate logistic regression analysis, NAFLD was an independent risk factor (OR = 1.45, 95% CI: 1.07-1.98) for adenoma formation after a negative baseline colonoscopy. The risk of colorectal adenoma increased when NAFLD patients had other morbidities including metabolic syndrome, hypertension or smoking (OR = 2.85, 4.03 and 4.17). CONCLUSION: NAFLD is an independent risk factor for colorectal adenoma formation after a negative baseline colonoscopy. The risk is higher in individuals with NAFLD and other comorbidities, such as hypertension, smoking or metabolic syndrome.","DOI":"10.1111/codi.12172","ISSN":"1463-1318 1462-8910","note":"PMID: 23398678","journalAbbreviation":"Colorectal Dis","language":"eng","author":[{"family":"Huang","given":"K.-W."},{"family":"Leu","given":"H.-B."},{"family":"Wang","given":"Y.-J."},{"family":"Luo","given":"J.-C."},{"family":"Lin","given":"H.-C."},{"family":"Lee","given":"F.-Y."},{"family":"Chan","given":"W.-L."},{"family":"Lin","given":"J.-K."},{"family":"Chang","given":"F.-Y."}],"issued":{"date-parts":[["2013",7]]}},{"id":76,"uris":["http://zotero.org/users/2724931/items/3DEUV37V"],"uri":["http://zotero.org/users/2724931/items/3DEUV37V"],"itemData":{"id":76,"type":"article-journal","title":"Relationship of non-alcoholic fatty liver disease to colorectal adenomatous polyps.","container-title":"Journal of gastroenterology and hepatology","page":"562-567","volume":"25","issue":"3","abstract":"BACKGROUND AND AIMS: Metabolic syndrome and insulin resistance are associated with a higher risk of colon cancer. Non-alcoholic fatty liver disease (NAFLD) is regarded as a manifestation of metabolic syndrome in the liver. This investigation was initiated to determine whether NAFLD has a relationship to colorectal adenomatous polyps. METHODS: We examined the 2917 participants who underwent a routine colonoscopy at Kangbuk Samsung Hospital in 2007. We divided the 2917 subjects into the adenomatous polyp group (n = 556) and the normal group (n = 2361). Anthropometric measurements, biochemical tests for liver and metabolic function, and abdominal ultrasonographs were assessed. RESULTS: The prevalence of NAFLD was 41.5% in the adenomatous polyp group and 30.2% in the control group. By multiple logistic regression analysis, NAFLD was found to be associated with an increased risk of colorectal adenomatous polyps (odds ratio, 1.28; 95% confidence interval, 1.03-1.60). An increased risk for NAFLD was more evident in patients with a greater number of adenomatous polyps. CONCLUSION: NAFLD was associated with colorectal adenomatous polyps. Further studies are needed to confirm whether NAFLD is a predictor for the development of colorectal adenomatous polyps and cancer.","DOI":"10.1111/j.1440-1746.2009.06117.x","ISSN":"1440-1746 0815-9319","note":"PMID: 20074156","journalAbbreviation":"J Gastroenterol Hepatol","language":"eng","author":[{"family":"Hwang","given":"Sang Tae"},{"family":"Cho","given":"Yong Kyun"},{"family":"Park","given":"Jung Ho"},{"family":"Kim","given":"Hong Joo"},{"family":"Park","given":"Dong Il"},{"family":"Sohn","given":"Chong Il"},{"family":"Jeon","given":"Woo Kyu"},{"family":"Kim","given":"Byung Ik"},{"family":"Won","given":"Kyoung Hee"},{"family":"Jin","given":"Wook"}],"issued":{"date-parts":[["2010",3]]}},{"id":36,"uris":["http://zotero.org/users/2724931/items/437ZFQED"],"uri":["http://zotero.org/users/2724931/items/437ZFQED"],"itemData":{"id":36,"type":"article-journal","title":"Clinico-epidemiologic study of the metabolic syndrome and lifestyle factors associated with the risk of colon adenoma and adenocarcinoma.","container-title":"Asian Pacific journal of cancer prevention : APJCP","page":"975-983","volume":"11","issue":"4","abstract":"BACKGROUND: The numbers of patients with colorectal cancer and associated deaths have been increasing in Japan, probably due to rapid lifestyle changes. Prevention is clearly important and the present study aimed to clarify risk factors and to promote colon cancer screening. METHODS: We investigated lifestyle factors, biochemical data, and pathological features of 727 individuals who underwent colonoscopy. Data were subjected to statistical analysis using SPSS software. RESULTS: Low-grade adenoma was more frequent among the elderly and in men. All of the men and 87.5% of the women with high-grade adenoma or adenocarcinoma were aged>/=45 and>/=50 years, respectively. In women, a larger waist circumference (=80 cm) increased the odds ratio for colon adenoma or adenocarcinoma (colon tumors) by 1.033 (95% confidence index (CI), 1.001-1.066; p=0.040). Metabolic syndrome significantly increased the odds ratio of colon tumors in men, but not in women. Cigarette smoking, drinking alcohol, and increased physical activity were significant risk factors for colon tumors in men, with odds ratios of 1.001 (95% CI, 1.000-1.002; p=0.001), 1.001 (95% CI, 1.000-1.003; p=0.047), and 1.406 (95% CI 1.038-1.904; p=0.028), respectively. CONCLUSIONS: Colon tumors have a high prevalence in the elderly. A larger waist circumference in women and metabolic syndrome in both men and women elevate the risk of colon tumors. In addition, smoking, drinking, and excessive physical activity are risk factors for adenoma and adenocarcinoma in men. For early detection of colorectal cancer, men older than 45 years and women older than 50 years with these risk factors are recommended to undergo colonoscopy.","ISSN":"2476-762X 1513-7368","note":"PMID: 21133610","journalAbbreviation":"Asian Pac J Cancer Prev","language":"eng","author":[{"family":"Kaneko","given":"Rena"},{"family":"Sato","given":"Yuzuru"},{"family":"An","given":"Yasuyosi"},{"family":"Nakagawa","given":"Motoki"},{"family":"Kusayanagi","given":"Satoshi"},{"family":"Kamisago","given":"Satoshi"},{"family":"Umeda","given":"Tomoyuki"},{"family":"Ogawa","given":"Masazumi"},{"family":"Munakata","given":"Kazuo"},{"family":"Mizuno","given":"Kyoichi"}],"issued":{"date-parts":[["2010"]]}},{"id":100,"uris":["http://zotero.org/users/2724931/items/XN37VDV8"],"uri":["http://zotero.org/users/2724931/items/XN37VDV8"],"itemData":{"id":100,"type":"article-journal","title":"Visceral Obesity and Insulin Resistance as Risk Factors for Colorectal Adenoma: A Cross-Sectional, Case–Control Study","container-title":"The American Journal of Gastroenterology","page":"178-187","volume":"105","issue":"1","source":"www.nature.com","abstract":"OBJECTIVES: Colorectal adenoma is known to be associated with obesity, but the association between colorectal adenoma and visceral adipose tissue (VAT) area measured by abdominal computed tomography (CT) has not been documented clearly. In addition, the relationship between insulin resistance and colorectal adenomas, which underlies the mechanism that links obesity and colorectal adenoma, has not been studied extensively. The aim of this study was to examine VAT area and insulin resistance as risk factors of colorectal adenoma.\nMETHODS: A cross-sectional, case–control study was

conducted in Koreans that presented for health check-ups. Subjects underwent various laboratory tests, abdominal CT, and colonoscopy. VAT, subcutaneous adipose tissue (SAT), and homeostatic metabolic assessment (HOMA) index were evaluated as potential risk factors of colorectal adenoma in 2,244 age- and sex-matched subjects.\nRESULTS: According to univariate analysis, the prevalences of smoking, hypertension, metabolic syndrome, and family history of colorectal cancer were higher in the adenoma group than in the normal control group. In addition, body mass index, waist circumference, triglyceride, high-density lipoprotein cholesterol, and VAT and SAT areas were significantly different in the two groups. According to the multivariate analysis adjusted for multiple confounders, VAT area was independently associated with the risk of colorectal adenoma (odds ratio (OR)=3.09, 95% confidence interval (CI): 2.19–4.36, highest quintile vs. lowest quintile). Mean HOMA index was higher in the adenoma group than in the control group (OR=1.99, 95% CI: 1.35–2.92, highest vs. lowest quintile).\nCONCLUSIONS: Visceral obesity was found to be an independent risk factor of colorectal adenoma, and insulin resistance was associated with the presence of colorectal adenoma.","DOI":"10.1038/ajg.2009.541","ISSN":"0002-9270","shortTitle":"Visceral Obesity and Insulin Resistance as Risk Factors for Colorectal Adenoma","journalAbbreviation":"Am J Gastroenterol","language":"en","author":[{"family":"Kang","given":"Hyoun Woo"},{"family":"Kim","given":"Donghee"},{"family":"Kim","given":"Hwa Jung"},{"family":"Kim","given":"Chung Hyeon"},{"family":"Kim","given":"Young Sun"},{"family":"Park","given":"Min Jung"},{"family":"Kim","given":"Joo Sung"},{"family":"Cho","given":"Sang-Heon"},{"family":"Sung","given":"Myung-Whun"},{"family":"Jung","given":"Hyun Chae"},{"family":"Lee","given":"Hyo-Suk"},{"family":"Song","given":"In Sung"}],"issued":{"date-parts":[["2009",9,15]]}}},{"id":306,"uris":["http://zotero.org/users/2724931/items/FP3DWZMH"],"uri":["http://zotero.org/users/2724931/items/FP3DWZMH"],"itemData":{"id":306,"type":"article-journal","title":"Is Metabolic Syndrome A Risk Factor for Colorectal Adenoma?","container-title":"Cancer Epidemiology and Prevention Biomarkers","page":"1543-1546","volume":"16","issue":"8","journalAbbreviation":"Cancer Epidemiol Biomarkers Prev","author":[{"family":"Kim","given":"Jeong Hwan"},{"family":"Lim","given":"Yun Jeong"},{"family":"Kim","given":"Young-Ho"},{"family":"Sung","given":"In-Kyung"},{"family":"Shim","given":"Sang Goon"},{"family":"Oh","given":"Sung-Ook"},{"family":"Park","given":"Sin-Sil"},{"family":"Yang","given":"Sun"},{"family":"Son","given":"Hee Jung"},{"family":"Rhee","given":"Poong-Lyul"},{"family":"Kim","given":"Jae J."},{"family":"Rhee","given":"Jong Chul"},{"family":"Choi","given":"Yoon-Ho"}],"issued":{"date-parts":[["2007",8,7]]}}},{"id":176,"uris":["http://zotero.org/users/2724931/items/G5JJS8K5"],"uri":["http://zotero.org/users/2724931/items/G5JJS8K5"],"itemData":{"id":176,"type":"article-journal","title":"Uric Acid Is a Risk Indicator for Metabolic Syndrome-related Colorectal Adenoma: Results in a Korean Population Receiving Screening Colonoscopy","container-title":"The Korean Journal of Gastroenterology = Taehan Sohwagi Hakhoe Chi","page":"202-208","volume":"66","issue":"4","source":"PubMed","abstract":"BACKGROUND/AIMS: An association between serum uric acid and cancer risk has been noted over the past few decades. There is ongoing debate about whether hyperuricemia represents an independent risk factor for colorectal neoplasm. We investigated the association between serum uric acid and prevalence of colorectal adenoma considering numerous confounding factors.\nMETHODS: A cross-sectional study was performed with individuals who underwent a routine health check-up examination, including a screening colonoscopy and blood chemistry. The association between serum uric acid and prevalence of colorectal adenoma was estimated from the results of a logistic regression analysis.\nRESULTS: Of the 1,066 participants, 402 had colorectal adenoma (37.7%). In univariate models, the prevalence of colorectal adenoma was higher in participants in the fourth quartile uric acid level, compared to those in the first quartile uric acid level (OR, 1.67; 95% CI, 1.17-2.42; p=0.004). However, no significant association was detected between serum uric acid and prevalence of colorectal adenoma in multiple logistic regression analysis. A number of metabolic syndrome components exhibited a strong association with the prevalence of colorectal adenoma in the multivariate model (OR, 3.46 for highest vs. lowest; 95% CI, 1.30-9.20; p=0.021). Moreover, serum uric acid was strongly associated with metabolic syndrome-associated variables, including waist circumference, fasting blood glucose, systolic blood pressure, diastolic blood pressure, triglyceride, and high-density lipoprotein.\nCONCLUSIONS: Uric acid is not an independent risk factor for colorectal adenoma but is a risk indicator for metabolic syndrome-related colorectal adenoma.","DOI":"10.4166/kjg.2015.66.4.202","ISSN":"2233-6869","note":"PMID: 26493505","shortTitle":"Uric Acid Is a Risk Indicator for Metabolic Syndrome-related Colorectal Adenoma","journalAbbreviation":"Korean J Gastroenterol","language":"eng","author":[{"family":"Kim","given":"Hyo Jin"},{"family":"Kim","given":"Jee Eun"},{"family":"Jung","given":"Ji Hye"},{"family":"Kim","given":"Eun Ran"},{"family":"Hong","given":"Sung Noh"},{"family":"Chang","given":"Dong Kyung"},{"family":"Son","given":"Hee Jung"},{"family":"Rhee","given":"Poong Lyul"},{"family":"Kim","given":"Jae J."},{"family":"Kim","given":"Young Ho"}],"issued":{"date-parts":[["2015",10]]}}},{"id":81,"uris":["http://zotero.org/users/2724931/items/7FAPCFIV"],"uri":["http://zotero.org/users/2724931/items/7FAPCFIV"],"itemData":{"id":81,"type":"article-journal","title":"Association of colorectal adenoma with components of metabolic syndrome.","container-title":"Cancer causes & control : CCC","page":"727-735","volume":"23","issue":"5","abstract":"PURPOSE: Recently, some studies have shown that diabetes mellitus and metabolic syndrome increase the risk of colorectal neoplasms. Although the mechanism is not known, those have been proposed to contribute to this phenomenon, including insulin resistance, oxidative stress, and adipokine production. The objective of this study was to assess the association between metabolic risk factors and colorectal neoplasm. METHODS: Study participants visited the National Cancer Center, Korea, for screening (2007-2009). A total of 1,771 diagnosed adenoma patients and 4,667 polyp-free controls were included. The association between risk factors and colorectal neoplasm was evaluated using logistic regression models. RESULTS: High waist circumference, blood pressure, and serum triglyceride levels were associated with an increased risk of colorectal adenoma. Metabolic syndrome (MS) was associated with an increased risk of adenoma (OR = 1.44, 95 % CI = 1.23-1.70). The association between MS and colorectal adenoma was observed regardless of advanced/low-risk adenoma, and multiplicity. MS affected right colon adenomas (OR = 1.50, 95 % CI = 1.22-1.85), left colon adenomas (OR = 1.36, 95 % CI = 1.05-1.76), and adenomas in multiple anatomical locations (OR = 1.59, 95 % CI = 1.19-2.12), but was not associated with rectum. CONCLUSION: Central obesity, triglyceride level, and MS are risk factors for colorectal adenoma including advanced adenoma and multiplicity.","DOI":"10.1007/s10552-012-9942-9","ISSN":"1573-7225 0957-5243","note":"PMID: 22450737","journalAbbreviation":"Cancer Causes Control","language":"eng","author":[{"family":"Kim","given":"Byung Chang"},{"family":"Shin","given":"Aesun"},{"family":"Hong","given":"Chang Won"},{"family":"Sohn","given":"Dae Kyung"},{"family":"Han","given":"Kyung Su"},{"family":"Ryu","given":"Kum Hei"},{"family":"Park","given":"Bum Joon"},{"family":"Nam","given":"Ji Hyung"},{"family":"Park","given":"Ji Won"},

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[["2012",5]]}},{"id":179,"uris":["http://zotero.org/users/2724931/items/G83HJCGN"],"uri":
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journal","title":"Prevalence and risk factors of advanced colorectal neoplasms in asymptomatic Korean people between 40 and 49

years of age","container-title":"Journal of Gastroenterology and Hepatology","page":"98-
105","volume":"32","issue":"1","source":"PubMed","abstract":"BACKGROUND AND AIM: Current guidelines recommend colon cancer screening for persons aged over 50

years. However, there are few data on colorectal cancer screening in 40- to 49-year-olds. This study assessed the prevalence and risk factors of colorectal neoplasms in 40- to 49-year-old Koreans.\nMETHODS: We analyzed the results of screening colonoscopies of 6680 persons 40-59

years of age (2206 aged 40-49 and 4474 aged 50-59

years).\nRESULTS: The prevalence of overall and advanced neoplasms in the 40- to 49-year age group was lower than in the 50- to 59-year age group (26.7% and 2.4% vs 37.8% and 3.5%, respectively). However, the prevalence of overall and advanced neoplasms increased to 39.1% and 5.4%, respectively, in 45- to 49-year-old individuals with metabolic syndrome. In the 40- to 49-year age group, age, current smoking, and metabolic syndrome were associated with an increased risk of advanced neoplasms (odds ratio [OR] 1.16, 95% confidence interval [CI] 1.04-1.30; OR 3.12, 95% CI 1.20-8.12; and OR 2.00, 95% CI 1.09-3.67, respectively).\nCONCLUSIONS: Individuals aged 40-49

years had a lower prevalence of colorectal neoplasms than those aged 50-59

years, but some 40- to 49-year-olds showed a similar prevalence to those aged 50-59

years. Age, current smoking habits, and metabolic syndrome are associated with an increased risk of advanced neoplasms in subjects aged 40-49

years. Further studies are needed to stratify the risks of colon cancer and guide targeted screening in persons younger than 50

years old.","DOI":"10.1111/jgh.13454","ISSN":"1440-1746","note":"PMID: 27197805","journalAbbreviation":"J. Gastroenterol. Hepatol.","language":"eng","author":[{"family":"Koo","given":"Ja Eun"},
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journal","title":"Vegetarianism as a Protective Factor for Colorectal Adenoma and Advanced Adenoma in Asians","container-title":"Digestive Diseases and Sciences","page":"1025-
1035","volume":"59","issue":"5","abstract":"Although epidemiologic and animal studies suggest a vegetarian diet protects against the development of colorectal cancer, the relationship between vegetarian diet and incidence of colorectal adenoma is not yet conclusive, especially for Asians.","DOI":"10.1007/s10620-013-2974-5","ISSN":"1573-2568","journalAbbreviation":"Digestive Diseases and Sciences","author":
[{"family":"Lee","given":"Chang Geun"},{"family":"Hahn","given":"Suk Jae"},{"family":"Song","given":"Min Keun"},{"family":"Lee","given":"Jun Kyu"},{"family":"Kim","given":"Jae Hak"},{"family":"Lim","given":"Yun Jeong"},{"family":"Koh","given":"Moon-Soo"},{"family":"Lee","given":"Jin Ho"},
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journal","title":"Increased risk of colorectal malignant neoplasm in patients with nonalcoholic fatty liver disease: a large study","container-title":"Molecular Biology Reports","page":"2989-
2997","volume":"41","issue":"5","abstract":"Nonalcoholic fatty liver disease (NAFLD) has been suggested to be a strong risk factor of colorectal benign adenomas and advanced neoplasms. The aim of this large cohort study was to further investigate the prevalence of colorectal malignant neoplasm (CRMN) in patients with NAFLD and determine whether association between NAFLD and CRMN exists. 2,315 community subjects (1,370 males and 945 females) who underwent a routine colonoscopy according to international colorectal cancer screening guideline were recruited. Nature of colorectal lesions determined by biopsy and NAFLD was diagnosed by ultrasound. Binary logistic regression analysis was applied to explore the related associations. Prevalence of CRMN was 29.3 % (77/263) in patients with NAFLD, which was significantly higher than 18.0 % (369/2,052) in the control group (P < 0.05). In addition, malignant neoplasm in NAFLD group occurred more frequently at sigmoid colon than in control group (14.3 vs. 11.9 %). The incidence of highly-differentiated colorectal adenocarcinoma in NAFLD group was significantly higher than control group (62.3 vs. 9.8 %). Univariate analysis showed that NAFLD had strong association with CRMN (OR 2.043; 95 % CI 1.512–2.761; P < 0.05). After adjusting for metabolic and other confounding factors, NAFLD remained as an independent risk factor for CRMN (OR 1.868; 95 % CI 1.360–2.567; P < 0.05). NAFLD was an independent risk factor for CRMN. Sigmoid carcinoma and highly differentiated colorectal adenocarcinoma were more commonly found in NAFLD. (ClinicalTrials.gov number, NCT01657773, website: http://clinicaltrials.gov/ct2/show/NCT01657773?term=zheng+minghua&rank=1)."."DOI":"10.1007/s11033-014-3157-y","ISSN":"1573-4978","journalAbbreviation":"Molecular Biology Reports","author":[{"family":"Lin","given":"Xian-Feng"},
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journal","title":"Central obesity and atherogenic dyslipidemia in metabolic syndrome are associated with increased

risk for colorectal adenoma in a Chinese population","container-title":"BMC Gastroenterology","page":"51","volume":"10","source":"BioMed Central","abstract":"Metabolic syndrome (MetS) is composed of cardiovascular risk factors including insulin resistance, obesity, dyslipidemia, and hypertension. Most of the components of MetS have been linked to the development of neoplasm. The purpose of this study was to evaluate the relationship between individual components of MetS and colorectal adenoma.","DOI":"10.1186/1471-230X-10-51","ISSN":"1471-230X","journalAbbreviation":"BMC Gastroenterology","author":[{"family":"Liu","given":"Chiu-Shong"},{"family":"Hsu","given":"Hua-Shui"},{"family":"Li","given":"Chia-Ing"},{"family":"Jan","given":"Chia-Ing"},{"family":"Li","given":"Tsai-Chung"},{"family":"Lin","given":"Wen-Yuan"},{"family":"Lin","given":"Tsann"},{"family":"Chen","given":"Ya-Chien"},{"family":"Lee","given":"Cheng-Chun"},{"family":"Lin","given":"Cheng-Chieh"}],"issued":{"date-parts":[["2010"]]}}},{"id":97,"uris":["http://zotero.org/users/2724931/items/566MKVT3"],"uri":["http://zotero.org/users/2724931/items/566MKVT3"],"itemData":{"id":97,"type":"article-journal","title":"Visceral obesity as a risk factor for colorectal neoplasm","container-title":"Journal of Gastroenterology and Hepatology","page":"411-417","volume":"23","issue":"3","abstract":"Background and Aim: Obesity as a risk factor for colorectal neoplasm (CRN) is controversial. In the present study, we evaluated visceral obesity as a risk factor for CRN. Methods: We prospectively enrolled 200 consecutive, asymptomatic adults (male : female = 133:67, mean age, 50.9 ± 8.5 years) undergoing both colonoscopy and abdominopelvic computed tomography (CT) scan for routine health evaluations. The presence or absence and the characteristics of CRN were determined during colonoscopy. The amount of visceral adipose tissue (VAT) and subcutaneous adipose tissue was measured by an abdominopelvic CT scan. Body mass index, waist circumference, and percentage of body fat were measured. Blood pressure and other blood markers for assessing the metabolic syndrome were also investigated. Results: Of the 200 patients, 53 (26.5%) had CRN. Old age, smoking, metabolic syndrome, and a high fasting plasma glucose level were associated with an increased risk of CRN. VAT (P < 0.01) and waist circumference (P = 0.01) were significantly higher in those with CRN. A multivariate analysis of the risks of CRN showed an odds ratio of 4.07 (95% confidence interval: 1.01–16.43, P = 0.03) for those with VAT over 136.61 cm2 relative to those with VAT under 67.23 cm2. Waist circumference, metabolic syndrome, and fasting plasma glucose levels were not independent risk factors for CRN in the multivariate analysis. Conclusion: Increased VAT is an independent risk factor for CRN. Further large scale studies are needed to clarify the causal relationship between VAT and CRN.","DOI":"10.1111/j.1440-1746.2007.05125.x","ISSN":"1440-1746","author":[{"family":"Oh","given":"Tae-Hoon"},{"family":"Byeon","given":"Jeong-Sik"},{"family":"Myung","given":"Seung-Jae"},{"family":"Yang","given":"Suk-Kyun"},{"family":"Choi","given":"Kwi-Sook"},{"family":"Chung","given":"Jun-Won"},{"family":"Kim","given":"Benjamin"},{"family":"Lee","given":"Don"},{"family":"Byun","given":"Jae Ho"},{"family":"Jang","given":"Se Jin"},{"family":"Kim","given":"Jin-Ho"}],"issued":{"date-parts":[["2008",3,1]]}}},{"id":86,"uris":["http://zotero.org/users/2724931/items/HH3ENCP2"],"uri":["http://zotero.org/users/2724931/items/HH3ENCP2"],"itemData":{"id":86,"type":"article-journal","title":"Is height a risk factor for colorectal adenoma?","container-title":"The Korean Journal of Internal Medicine","page":"653-659","volume":"31","issue":"4","archive":"PMC","archive_location":"PMC4939489","abstract":"BACKGROUND Although it is generally known that the risk for all types of cancer increases with adult height, combined and for several common site-specific cancers (including colon and rectal), evidence is limited for adenomas, which are precursors to colorectal cancer. We evaluated the association between height and risk of colorectal adenoma at various stages of the adenoma-carcinoma pathway. METHODS:: We conducted a retrospective study using data from patients who had undergone a complete colonoscopy as part of a health examination at the Health Promotion Center of Samsung Medical Center between October 13, 2009 and December 31, 2011. A total of 1,347 male subjects were included in our study. Multivariate logistic regression analysis was used to evaluate the association between height and colorectal adenoma. RESULTS:: Each 5-cm increase in height was associated with 1.6% and 5.3% higher risks of advanced colorectal adenoma and high-risk colorectal adenoma, respectively, but associations were not significant after adjusting for age, body mass index, metabolic syndrome, alcohol intake, smoking, family history of colorectal cancer, and regular aspirin use (p = 0.840 and p = 0.472, respectively). CONCLUSIONS:: No clear association was found between colorectal adenoma risk and height. Unlike other site-specific tumors reported to have a consistent relationship with height, the association between colorectal tumor and height remains controversial.","DOI":"10.3904/kjim.2014.313","ISSN":"1226-3303","author":[{"family":"Pyo","given":"Jeung Hui"},{"family":"Hong","given":"Sung Noh"},{"family":"Min","given":"Byung-Hoon"},{"family":"Chang","given":"Dong Kyung"},{"family":"Son","given":"Hee Jung"},{"family":"Rhee","given":"Poong-Lyul"},{"family":"Kim","given":"Jae J"},{"family":"Kim","given":"Young-Ho"}],"issued":{"date-parts":[["2016",7]]}}},{"id":78,"uris":["http://zotero.org/users/2724931/items/TSAINUMV"],"uri":["http://zotero.org/users/2724931/items/TSAINUMV"],"itemData":{"id":78,"type":"article-journal","title":"Increased homeostasis model assessment-insulin resistance is a risk factor for colorectal adenoma in Japanese males.","container-title":"The Tohoku journal of experimental medicine","page":"297-303","volume":"223","issue":"4","abstract":"Many previous reports have documented a relationship between metabolic syndrome, in terms of insulin resistance, and colorectal cancer. However, the association of insulin resistance with colorectal adenoma has not been investigated in detail. To elucidate the association of metabolic syndrome components and insulin resistance with adenoma, we investigated homeostasis model assessment insulin resistance (HOMA-IR) in individuals with adenoma. A cross-sectional study was conducted involving individuals who underwent scheduled health examinations using total colonoscopy. Restricting the subjects to males, 261 with adenoma and 702 without adenoma were investigated. HOMA-IR was categorized into three groups: normal (< 1.6), intermediate (>/= 1.6 - < 2.5), and insulin resistance (2.5 </=). Metabolic syndrome was defined by a combination of any three of the following components: central obesity (waist circumference >/= 90 cm); elevated blood pressure (systolic blood pressure >/= 130 mmHg and/or diastolic blood pressure 85 mmHg); elevated fasting plasma glucose (>/= 100 mg/dL); reduced high-density lipoprotein-cholesterol (< 40 mg/dL); and elevated triglyceride (>/= 150 mg/dL). Multivariate analysis of HOMA-IR showed that the intermediate and insulin resistance groups had a significantly increased risk for colorectal adenoma, even after adjustment for waist circumference (odds ratio, 1.62 and 2.23; 95% confidence interval, 1.07-2.45 and 1.31-3.79, respectively). Accumulation of any metabolic syndrome components increased the risk of colorectal adenoma (P trend = 0.001). However, none of the components alone demonstrated a significant risk for colorectal adenoma. Our data indicate that an increased level of HOMA-IR is a risk factor for colorectal adenoma in Japanese males.","ISSN":"1349-3329 0040-8727","note":"PMID: 21478654","journalAbbreviation":"Tohoku J Exp Med","language":"eng","author":[{"family":"Sato","given":"Takeshi"},{"family":"Takeda","given":"Hiroaki"},{"family":"Sasaki","given":"Yu"},{"family":"Kawata","given":"Sumio"}],"issued":{"date-parts":[["2011",4]]}}},{"id":77,"uris":["http://zotero.org/users/2724931/items/QQRBWQMX"],"uri":

["http://zotero.org/users/2724931/items/QQRBWQMX"],"itemData":{"id":77,"type":"article-journal","title":"Association between colorectal adenoma and coronary atherosclerosis detected by CT coronary angiography in Korean men; a cross-sectional study.","container-title":"Journal of gastroenterology and hepatology","page":"1795-1799","volume":"25","issue":"11","abstract":"BACKGROUND: Colorectal adenoma and coronary artery disease (CAD) appear to share common risk factors, such as male gender, diabetes mellitus, smoking, and obesity. We investigated the relationship between colorectal adenoma and coronary atherosclerosis, as a risk factor for colorectal adenoma. METHODS: A cross-sectional study was conducted on Korean men who presented for a health check-up. The subjects were 488 men (217 colorectal adenoma and 271 normal colonoscopic findings) who underwent colonoscopy and coronary computed tomography angiography (CTA) on the same day as a screening examination. Advanced colonic lesion was defined as a presence of adenoma with villous component, high-grade dysplasia, and/or with size of >/=1 cm. CTA findings were classified as normal, mild (low-grade atherosclerosis or <50% stenosis), and significant CAD (>/=50% stenosis). Abnormal CTA findings included mild and significant CAD. RESULTS: Patients with abnormal CTA findings were more likely to have colorectal adenoma compared with those with normal CTA findings (P < 0.005). Furthermore, presence of advanced adenoma was significantly associated with significant CAD (P < 0.01). On multivariate analyses, abnormal CTA findings (OR = 1.66, 95% CI: 1.14-2.41, P < 0.01) and significant CAD (OR = 1.96, 95% CI: 1.15-3.35, P < 0.05) were found to be independent risk factors for colorectal adenoma after adjusting for age, current smoking, and metabolic syndrome. CONCLUSIONS: In this study, in the population who underwent CTA and colonoscopy for health check-up, prevalence of colorectal adenoma was greater in subjects with low-grade coronary atherosclerosis or significant CAD. The presence of advanced adenoma was significantly associated with significant CAD.","DOI":"10.1111/j.1440-1746.2010.06330.x","ISSN":"1440-1746 0815-9319","note":"PMID: 21039843","journalAbbreviation":"J Gastroenterol Hepatol","language":"eng","author":[{"family":"Yang","given":"Sun Young"},{"family":"Kim","given":"Young Sun"},{"family":"Chung","given":"Su Jin"},{"family":"Song","given":"Ji Hyun"},{"family":"Choi","given":"Su Yeon"},{"family":"Park","given":"Min Jung"},{"family":"Yim","given":"Jeong Yoon"},{"family":"Lim","given":"Seon Hee"},{"family":"Kim","given":"Donghee"},{"family":"Kim","given":"Chung Hyun"},{"family":"Kim","given":"Ju Sung"},{"family":"Song","given":"In Sung"}],"issued":{"date-parts":[["2010",11]]}}},"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
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9327","shortTitle":"Metabolic syndrome and colorectal neoplasms","language":"en","author":[{"family":"Trabulo","given":"Daniel"}],"issued":{"date-parts":[["2015"]]}}},{"id":282,"uris":["http://zotero.org/users/2724931/items/83RDVNWE"],"uri":["http://zotero.org/users/2724931/items/83RDVNWE"],"itemData":{"id":282,"type":"article-journal","title":"Metabolic syndrome components and colorectal adenoma in the CLUE II cohort","container-title":"Cancer causes & control : CCC","page":"1-10","volume":"21","issue":"1","source":"PubMed Central","abstract":"Background\nMetabolic syndrome components have been associated with colorectal cancer in several studies; however, the evidence for colorectal adenomas is limited. Thus, we evaluated the association between markers of the metabolic syndrome with colorectal adenoma development in a nested case-control study.\n\nMethods\nColorectal adenoma cases (n= 132) and matched controls who had had a negative sigmoidoscopy or a colonoscopy (n=260) were identified between baseline in 1989 and 2000 among participants in the CLUE II cohort of Washington County, Maryland. Concentrations of C-peptide, insulin-like growth factor binding protein-1, glycosylated hemoglobin, total cholesterol, high density lipoprotein-cholesterol, and triglycerides were measured in baseline blood specimens. Body mass index was calculated using baseline height and weight. Use of medications to treat diabetes mellitus was self-reported at baseline. Blood pressure was measured at baseline. Distributional cutpoints of the latter markers were used to define the metabolic syndrome components (hyperinsulinemia, hyperglycemia, obesity, dyslipidemia, and hypertension) present at baseline.\n\nResults\nNo statistically significant associations with adenomas were observed for the markers of the metabolic syndrome, with the exception of a strong positive association for use of diabetes medications (OR, 8.00; 95% CI, 1.70 – 37.67), albeit based on small numbers.\n\nConclusion\nOur findings do not support that components of the metabolic syndrome influence risk of colorectal adenomas, except possibly for severe diabetes mellitus warranting medical treatment.","DOI":"10.1007/s10552-009-9428-6","ISSN":"0957-5243","note":"PMID: 19774471\nPMCID: PMC3010872","journalAbbreviation":"Cancer Causes Control","author":[{"family":"Tsilidis","given":"Konstantinos K"},{"family":"Brancati","given":"Frederick L"},{"family":"Pollak","given":"Michael N"},{"family":"Rifai","given":"Nader"},{"family":"Clipp","given":"Sandra L"},{"family":"Hoffman-Bolton","given":"Judy"},{"family":"Helzlsouer","given":"Kathy J"},{"family":"Platz","given":"Elizabeth A"}],"issued":{"date-parts":[["2010",1]]}}},"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
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(P = 0.11)
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definition
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Whether presence of these factors may warrant earlier screening remains unclear.\nObjective\nTo compare age- and gender-specific risk of colorectal neoplasms in association with smoking and MetS under endoscopic or stool-based screening.\nDesign\nCross-sectional observational study.\nSetting\nScreening center in a university hospital in Taiwan.\nPatients\nA cohort of 10,884 average-risk individuals who received concurrent screening colonoscopy and fecal immunochemical testing (FIT).\nMain Outcome Measurements\nFirst, the prevalence of colorectal neoplasms and positive predictive value of FIT relative to age, gender, smoking, and MetS. Second, the number of colonoscopies needed to detect 1 advanced neoplasm with different strategies.\nResults\nMale smokers aged 40 to 49 years had a significantly higher prevalence of advanced neoplasms and positive predictive value of stool tests than nonsmoking counterparts. The prevalence of advanced neoplasms in concurrent MetS and smoking (6.2%) or smoking alone (3.8%) men aged 40 to 49 years was higher than that of average-risk women aged 50 to 59 years (2.1%) (P = .03 and .04, respectively). The number of colonoscopies needed to detect 1 advanced neoplasm in men aged 40 to 49 years with concurrent MetS and smoking, smoking, MetS, and women aged 50 to 59 years was, respectively, 14.6, 24.8, 39.8, and 47.4 in the colonoscopy scenario and 1.7, 4.6, 5.7, and 8.3 in the FIT scenario.\nLimitation\nSelf-selective bias may exist for subjects voluntarily submitted to health check-ups.\nConclusions\nMetS and smoking significantly impact both the prevalence of colorectal neoplasms and the diagnostic yields of screening tests in men aged 40 to 49 years. Whether our findings justify earlier screening in this subgroup requires further study.","DOI":"10.1016/j.gie.2013.11.035","ISSN":"0016-5107","journalAbbreviation":"Gastrointestinal Endoscopy","author":[{"family":"Chang","given":"Li-Chun"},{"family":"Wu","given":"Ming-Shiang"},{"family":"Tu","given":"Chia-Hung"},{"family":"Lee","given":"Yi-Chia"},{"family":"Shun","given":"Chia-Tung"},{"family":"Chiu","given":"Han-Mo"}],"issued":{"date-parts":[["2014",6]]}}},{"id":172,"uris":["http://zotero.org/users/2724931/items/Z38D9WWB"],"uri":["http://zotero.org/users/2724931/items/Z38D9WWB"],"itemData":{"id":172,"type":"article-journal","title":"Effects of Metabolic Syndrome and Findings From Baseline Colonoscopies on Occurrence of Colorectal Neoplasms","container-title":"Clinical Gastroenterology and Hepatology","page":"1134-1142.e8","volume":"13","issue":"6","abstract":"Background & Aims\nMetabolic syndrome is associated with increased risk of colorectal neoplasm, but little is known about its effects on the occurrence of neoplasm after colonoscopy. We investigated the effects of metabolic syndrome on the risk of advanced neoplasm after colonoscopy.\nMethods\nWe performed a prospective study of 4483 subjects age 50 years and older who underwent screening and surveillance colonoscopies as part of an annual health check-up at National Taiwan University Hospital. Baseline demographic data and colonoscopic findings were recorded. Subjects with either advanced adenoma or 3 or more adenomas detected at baseline were classified as high risk; those with fewer than 3 nonadvanced adenomas were classified as low risk; and those without any neoplastic lesions were classified as normal. The cumulative risk of detecting an advanced neoplasm during surveillance colonoscopies (3 and 5 years later) was correlated with risk group and metabolic syndrome. Hazard ratios (HRs) were calculated for occurrence of neoplasm according to baseline colonoscopic findings and clinical risk factors, including metabolic syndrome.\nResults\nAdvanced neoplasms were detected during the surveillance colonoscopies in 1.3% of subjects in the normal group and in 2.4% of those in the low-risk group at 5 years, and in 8.5% of subjects in the high-risk group at 3 years. Subjects with metabolic syndrome had a significantly higher risk for subsequent advanced neoplasms (P < .0001). After stratification based on findings from baseline colonoscopies, the risk for neoplasm was significant in the normal (P < .001) and low-risk groups (P = .04), but not in the high-risk group (P = .48). In Cox regression analysis, metabolic syndrome had significant effects on the risk for advanced neoplasms in the normal (HR, 2.07; 95% confidence interval, 1.13–3.81) and low-risk groups (HR, 2.34; 95% confidence interval, 1.01–5.41), but not in the high-risk group.\nConclusions\nMetabolic syndrome is a significant risk factor for occurrence of an advanced adenoma after a negative or low-risk finding from a baseline colonoscopy. Metabolic syndrome should be considered in risk stratification for surveillance intervals.","DOI":"10.1016/j.cgh.2014.10.022","ISSN":"1542-3565","journalAbbreviation":"Clinical Gastroenterology and Hepatology","author":[{"family":"Chiu","given":"Han-Mo"},{"family":"Lee","given":"Yi-Chia"},{"family":"Tu","given":"Chia-Hung"},{"family":"Chang","given":"Li-Chun"},{"family":"Hsu","given":"Wen-Feng"},{"family":"Chou","given":"Chu-Kuang"},{"family":"Tsai","given":"Kun-Feng"},{"family":"Liang","given":"Jin-Tung"},{"family":"Shun","given":"Chia-Tung"},{"family":"Wu","given":"Ming-Shiang"}],"issued":{"date-parts":[["2015",6]]}}},{"id":310,"uris":["http://zotero.org/users/2724931/items/9BZ8ICKP"],"uri":["http://zotero.org/users/2724931/items/9BZ8ICKP"],"itemData":{"id":310,"type":"article-journal","title":"Stepwise Relationship Between Components of Metabolic Syndrome and Risk of Colorectal Adenoma in a Taiwanese Population Receiving Screening Colonoscopy","container-title":"Journal of the Formosan Medical Association","page":"100-108","volume":"110","issue":"2","source":"CrossRef","DOI":"10.1016/S0929-6646(11)60016-8","ISSN":"09296646","language":"en","author":[{"family":"Hu","given":"Nien-Chih"},{"family":"Chen","given":"Jong-Dar"},{"family":"Lin","given":"Yu-Min"},{"family":"Chang","given":"Jun-Yih"},{"family":"Chen","given":"Yu-Hung"}],"issued":{"date-parts":[["2011",2]]}}},{"id":82,"uris":["http://zotero.org/users/2724931/items/K9AVA46D"],"uri":["http://zotero.org/users/2724931/items/K9AVA46D"],"itemData":{"id":82,"type":"article-journal","title":"Patients with nonalcoholic fatty liver disease have higher risk of colorectal adenoma after negative baseline colonoscopy.","container-title":"Colorectal disease : the official journal of the Association of

Coloproctology of Great Britain and Ireland","page":"830-835","volume":"15","issue":"7","abstract":"AIM: The study aimed to determine whether nonalcoholic fatty liver disease (NAFLD) is an independent risk factor of adenoma after negative baseline colonoscopy. METHOD: A retrospective cohort study was conducted on 1522 health-check individuals who underwent two consecutive colonoscopies at Taipei Veterans General Hospital between 2003 and 2010. Those developing an adenoma after an initial negative baseline colonoscopy (adenoma group) were compared with those in whom the second colonoscopy was negative (nonadenoma group). Anthropometric measurements, biochemical tests and the presence of NAFLD were compared between the two groups. RESULTS: The adenoma group had a higher prevalence of NAFLD than the nonadenoma group (55.6% vs 38.8%; P < 0.05). On multivariate logistic regression analysis, NAFLD was an independent risk factor (OR = 1.45, 95% CI: 1.07-1.98) for adenoma formation after a negative baseline colonoscopy. The risk of colorectal adenoma increased when NAFLD patients had other morbidities including metabolic syndrome, hypertension or smoking (OR = 2.85, 4.03 and 4.17). CONCLUSION: NAFLD is an independent risk factor for colorectal adenoma formation after a negative baseline colonoscopy. The risk is higher in individuals with NAFLD and other comorbidities, such as hypertension, smoking or metabolic syndrome.","DOI":"10.1111/codi.12172","ISSN":"1463-1318 1462-8910","note":"PMID: 23398678","journalAbbreviation":"Colorectal Dis","language":"eng","author":[{"family":"Huang","given":"K.-W."},{"family":"Leu","given":"H.-B."},{"family":"Wang","given":"Y.-J."},{"family":"Luo","given":"J.-C."},{"family":"Lin","given":"H.-C."},{"family":"Lee","given":"F.-Y."},{"family":"Chan","given":"W.-L."},{"family":"Lin","given":"J.-K."},{"family":"Chang","given":"F.-Y."}],"issued":{"date-parts":[["2013",7]]}}},{"id":76,"uris":["http://zotero.org/users/2724931/items/3DEUV37V"],"uri":["http://zotero.org/users/2724931/items/3DEUV37V"],"itemData":{"id":76,"type":"article-journal","title":"Relationship of non-alcoholic fatty liver disease to colorectal adenomatous polyps.","container-title":"Journal of gastroenterology and hepatology","page":"562-567","volume":"25","issue":"3","abstract":"BACKGROUND AND AIMS: Metabolic syndrome and insulin resistance are associated with a higher risk of colon cancer. Non-alcoholic fatty liver disease (NAFLD) is regarded as a manifestation of metabolic syndrome in the liver. This investigation was initiated to determine whether NAFLD has a relationship to colorectal adenomatous polyps. METHODS: We examined the 2917 participants who underwent a routine colonoscopy at Kangbuk Samsung Hospital in 2007. We divided the 2917 subjects into the adenomatous polyp group (n = 556) and the normal group (n = 2361). Anthropometric measurements, biochemical tests for liver and metabolic function, and abdominal ultrasonographs were assessed. RESULTS: The prevalence of NAFLD was 41.5% in the adenomatous polyp group and 30.2% in the control group. By multiple logistic regression analysis, NAFLD was found to be associated with an increased risk of colorectal adenomatous polyps (odds ratio, 1.28; 95% confidence interval, 1.03-1.60). An increased risk for NAFLD was more evident in patients with a greater number of adenomatous polyps. CONCLUSION: NAFLD was associated with colorectal adenomatous polyps. Further studies are needed to confirm whether NAFLD is a predictor for the development of colorectal adenomatous polyps and cancer.","DOI":"10.1111/j.1440-1746.2009.06117.x","ISSN":"1440-1746 0815-9319","note":"PMID: 20074156","journalAbbreviation":"J Gastroenterol Hepatol","language":"eng","author":[{"family":"Hwang","given":"Sang Tae"},{"family":"Cho","given":"Yong Kyun"},{"family":"Park","given":"Jung Ho"},{"family":"Kim","given":"Hong Joo"},{"family":"Park","given":"Dong Il"},{"family":"Sohn","given":"Chong Il"},{"family":"Jeon","given":"Woo Kyu"},{"family":"Kim","given":"Byung Ik"},{"family":"Won","given":"Kyoung Hee"},{"family":"Jin","given":"Wook"}],"issued":{"date-parts":[["2010",3]]}}},{"id":100,"uris":["http://zotero.org/users/2724931/items/XN37VDV8"],"uri":["http://zotero.org/users/2724931/items/XN37VDV8"],"itemData":{"id":100,"type":"article-journal","title":"Visceral Obesity and Insulin Resistance as Risk Factors for Colorectal Adenoma: A Cross-Sectional, Case–Control Study","container-title":"The American Journal of Gastroenterology","page":"178-187","volume":"105","issue":"1","source":"www.nature.com","abstract":"OBJECTIVES: Colorectal adenoma is known to be associated with obesity, but the association between colorectal adenoma and visceral adipose tissue (VAT) area measured by abdominal computed tomography (CT) has not been documented clearly. In addition, the relationship between insulin resistance and colorectal adenomas, which underlies the mechanism that links obesity and colorectal adenoma, has not been studied extensively. The aim of this study was to examine VAT area and insulin resistance as risk factors of colorectal adenoma.\nMETHODS: A cross-sectional, case–control study was conducted in Koreans that presented for health check-ups. Subjects underwent various laboratory tests, abdominal CT, and colonoscopy. VAT, subcutaneous adipose tissue (SAT), and homeostatic metabolic assessment (HOMA) index were evaluated as potential risk factors of colorectal adenoma in 2,244 age- and sex-matched subjects.\nRESULTS: According to univariate analysis, the prevalences of smoking, hypertension, metabolic syndrome, and family history of colorectal cancer were higher in the adenoma group than in the normal control group. In addition, body mass index, waist circumference, triglyceride, high-density lipoprotein cholesterol, and VAT and SAT areas were significantly different in the two groups. According to the multivariate analysis adjusted for multiple confounders, VAT area was independently associated with the risk of colorectal adenoma (odds ratio (OR)=3.09, 95% confidence interval (CI): 2.19–4.36, highest quintile vs. lowest quintile). Mean HOMA index was higher in the adenoma group than in the control group (OR=1.99, 95% CI: 1.35–2.92, highest vs. lowest quintile).\nCONCLUSIONS: Visceral obesity was found to be an independent risk factor of colorectal adenoma, and insulin resistance was associated with the presence of colorectal adenoma.","DOI":"10.1038/ajg.2009.541","ISSN":"0002-9270","shortTitle":"Visceral Obesity and Insulin Resistance as Risk Factors for Colorectal Adenoma","journalAbbreviation":"Am J Gastroenterol","language":"en","author":[{"family":"Kang","given":"Hyoun Woo"},{"family":"Kim","given":"Donghee"},{"family":"Kim","given":"Hwa Jung"},{"family":"Kim","given":"Chung Hyeon"},{"family":"Kim","given":"Young Sun"},{"family":"Park","given":"Min Jung"},{"family":"Kim","given":"Joo Sung"},{"family":"Cho","given":"Sang-Heon"},{"family":"Sung","given":"Myung-Whun"},{"family":"Jung","given":"Hyun Chae"},{"family":"Lee","given":"Hyo-Suk"},{"family":"Song","given":"In Sung"}],"issued":{"date-parts":[["2009",9,15]]}}},{"id":306,"uris":["http://zotero.org/users/2724931/items/FP3DWZMH"],"uri":["http://zotero.org/users/2724931/items/FP3DWZMH"],"itemData":{"id":306,"type":"article-journal","title":"Is Metabolic Syndrome A Risk Factor for Colorectal Adenoma?","container-title":"Cancer Epidemiology and Prevention Biomarkers","page":"1543-1546","volume":"16","issue":"8","journalAbbreviation":"Cancer Epidemiol Biomarkers Prev","author":[{"family":"Kim","given":"Jeong Hwan"},{"family":"Lim","given":"Yun Jeong"},{"family":"Kim","given":"Young-Ho"},{"family":"Sung","given":"In-Kyung"},{"family":"Shim","given":"Sang Goon"},{"family":"Oh","given":"Sung-Ook"},{"family":"Park","given":"Sin-Sil"},{"family":"Yang","given":"Sun"},{"family":"Son","given":"Hee Jung"},{"family":"Rhee","given":"Poong-Lyul"},{"family":"Kim","given":"Jae J."},{"family":"Rhee","given":"Jong Chul"},

{"family":"Choi","given":"Yoon-Ho"}],"issued":{"date-parts":[["2007",8,7]]}}},{"id":81,"uris":["http://zotero.org/users/2724931/items/7FAPCFIV"],"uri":["http://zotero.org/users/2724931/items/7FAPCFIV"],"itemData":{"id":81,"type":"article-journal","title":"Association of colorectal adenoma with components of metabolic syndrome.","container-title":"Cancer causes & control : CCC","page":"727-735","volume":"23","issue":"5","abstract":"PURPOSE: Recently, some studies have shown that diabetes mellitus and metabolic syndrome increase the risk of colorectal neoplasms. Although the mechanism is not known, those have been proposed to contribute to this phenomenon, including insulin resistance, oxidative stress, and adipokine production. The objective of this study was to assess the association between metabolic risk factors and colorectal neoplasm. METHODS: Study participants visited the National Cancer Center, Korea, for screening (2007-2009). A total of 1,771 diagnosed adenoma patients and 4,667 polyp-free controls were included. The association between risk factors and colorectal neoplasm was evaluated using logistic regression models. RESULTS: High waist circumference, blood pressure, and serum triglyceride levels were associated with an increased risk of colorectal adenoma. Metabolic syndrome (MS) was associated with an increased risk of adenoma (OR = 1.44, 95 % CI = 1.23-1.70). The association between MS and colorectal adenoma was observed regardless of advanced/low-risk adenoma, and multiplicity. MS affected right colon adenomas (OR = 1.50, 95 % CI = 1.22-1.85), left colon adenomas (OR = 1.36, 95 % CI = 1.05-1.76), and adenomas in multiple anatomical locations (OR = 1.59, 95 % CI = 1.19-2.12), but was not associated with rectum. CONCLUSION: Central obesity, triglyceride level, and MS are risk factors for colorectal adenoma including advanced adenoma and multiplicity.","DOI":"10.1007/s10552-012-9942-9","ISSN":"1573-7225 0957-5243","note":"PMID: 22450737","journalAbbreviation":"Cancer Causes Control","language":"eng","author":[{"family":"Kim","given":"Byung Chang"},{"family":"Shin","given":"Aesun"},{"family":"Hong","given":"Chang Won"},{"family":"Sohn","given":"Dae Kyung"},{"family":"Han","given":"Kyung Su"},{"family":"Ryu","given":"Kum Hei"},{"family":"Park","given":"Bum Joon"},{"family":"Nam","given":"Ji Hyung"},{"family":"Park","given":"Ji Won"},{"family":"Chang","given":"Hee Jin"},{"family":"Choi","given":"Hyo Seong"},{"family":"Kim","given":"Jeongseon"},{"family":"Oh","given":"Jae Hwan"}],"issued":{"date-parts":[["2012",5]]}}},{"id":176,"uris":["http://zotero.org/users/2724931/items/G5JJS8K5"],"uri":["http://zotero.org/users/2724931/items/G5JJS8K5"],"itemData":{"id":176,"type":"article-journal","title":"Uric Acid Is a Risk Indicator for Metabolic Syndrome-related Colorectal Adenoma: Results in a Korean Population Receiving Screening Colonoscopy","container-title":"The Korean Journal of Gastroenterology = Taehan Sohwagi Hakhoe Chi","page":"202-208","volume":"66","issue":"4","source":"PubMed","abstract":"BACKGROUND/AIMS: An association between serum uric acid and cancer risk has been noted over the past few decades. There is ongoing debate about whether hyperuricemia represents an independent risk factor for colorectal neoplasm. We investigated the association between serum uric acid and prevalence of colorectal adenoma considering numerous confounding factors.\nMETHODS: A cross-sectional study was performed with individuals who underwent a routine health check-up examination, including a screening colonoscopy and blood chemistry. The association between serum uric acid and prevalence of colorectal adenoma was estimated from the results of a logistic regression analysis.\nRESULTS: Of the 1,066 participants, 402 had colorectal adenoma (37.7%). In univariate models, the prevalence of colorectal adenoma was higher in participants in the fourth quartile uric acid level, compared to those in the first quartile uric acid level (OR, 1.67; 95% CI, 1.17-2.42; p=0.004). However, no significant association was detected between serum uric acid and prevalence of colorectal adenoma in multiple logistic regression analysis. A number of metabolic syndrome components exhibited a strong association with the prevalence of colorectal adenoma in the multivariate model (OR, 3.46 for highest vs. lowest; 95% CI, 1.30-9.20; p=0.021). Moreover, serum uric acid was strongly associated with metabolic syndrome-associated variables, including waist circumference, fasting blood glucose, systolic blood pressure, diastolic blood pressure, triglyceride, and high-density lipoprotein.\nCONCLUSIONS: Uric acid is not an independent risk factor for colorectal adenoma but is a risk indicator for metabolic syndrome-related colorectal adenoma.","DOI":"10.4166/kjg.2015.66.4.202","ISSN":"2233-6869","note":"PMID: 26493505","shortTitle":"Uric Acid Is a Risk Indicator for Metabolic Syndrome-related Colorectal Adenoma","journalAbbreviation":"Korean J Gastroenterol","language":"eng","author":[{"family":"Kim","given":"Hyo Jin"},{"family":"Kim","given":"Jee Eun"},{"family":"Jung","given":"Ji Hye"},{"family":"Kim","given":"Eun Ran"},{"family":"Hong","given":"Sung Noh"},{"family":"Chang","given":"Dong Kyung"},{"family":"Son","given":"Hee Jung"},{"family":"Rhee","given":"Poong Lyul"},{"family":"Kim","given":"Jae J."},{"family":"Kim","given":"Young Ho"}],"issued":{"date-parts":[["2015",10]]}}},{"id":179,"uris":["http://zotero.org/users/2724931/items/G83HJCGN"],"uri":["http://zotero.org/users/2724931/items/G83HJCGN"],"itemData":{"id":179,"type":"article-journal","title":"Prevalence and risk factors of advanced colorectal neoplasms in asymptomatic Korean people between 40 and 49

years of age","container-title":"Journal of Gastroenterology and Hepatology","page":"98-105","volume":"32","issue":"1","source":"PubMed","abstract":"BACKGROUND AND AIM: Current guidelines recommend colon cancer screening for persons aged over 50

years. However, there are few data on colorectal cancer screening in 40- to 49-year-olds. This study assessed the prevalence and risk factors of colorectal neoplasms in 40- to 49-year-old Koreans.\nMETHODS: We analyzed the results of screening colonoscopies of 6680 persons 40-59

years of age (2206 aged 40-49 and 4474 aged 50-59

years).\nRESULTS: The prevalence of overall and advanced neoplasms in the 40- to 49-year age group was lower than in the 50- to 59-year age group (26.7% and 2.4% vs 37.8% and 3.5%, respectively). However, the prevalence of overall and advanced neoplasms increased to 39.1% and 5.4%, respectively, in 45- to 49-year-old individuals with metabolic syndrome. In the 40- to 49-year age group, age, current smoking, and metabolic syndrome were associated with an increased risk of advanced neoplasms (odds ratio [OR] 1.16, 95% confidence interval [CI] 1.04-1.30; OR 3.12, 95% CI 1.20-8.12; and OR 2.00, 95% CI 1.09-3.67, respectively).\nCONCLUSIONS: Individuals aged 40-49

years had a lower prevalence of colorectal neoplasms than those aged 50-59

years, but some 40- to 49-year-olds showed a similar prevalence to those aged 50-59

years. Age, current smoking habits, and metabolic syndrome are associated with an increased risk of advanced neoplasms in subjects aged 40-49

years. Further studies are needed to stratify the risks of colon cancer and guide targeted screening in persons younger than 50

years old.","DOI":"10.1111/jgh.13454","ISSN":"1440-1746","note":"PMID: 27197805","journalAbbreviation":"J. Gastroenterol. Hepatol.","language":"eng","author":[{"family":"Koo","given":"Ja Eun"},{"family":"Kim","given":"Kyung-Jo"},{"family":"Park","given":"Hye Won"},{"family":"Kim","given":"Hong-Kyu"},{"family":"Choe","given":"Jae Won"},{"family":"Chang","given":"Hye-Sook"},{"family":"Lee","given":"Ji Young"},{"family":"Myung","given":"Seung-Jae"},{"family":"Yang","given":"Suk-Kyun"},{"family":"Kim","given":"Jin-Ho"}],"issued":{"date-parts":[["2017",1]]}}},{"id":168,"uris":["http://zotero.org/users/2724931/items/HXJHWUI6"],"uri":["http://zotero.org/users/2724931/items/HXJHWUI6"],"itemData":{"id":168,"type":"article-journal","title":"Vegetarianism as a Protective Factor for Colorectal Adenoma and Advanced Adenoma in Asians","container-title":"Digestive Diseases and Sciences","page":"1025-1035","volume":"59","issue":"5","abstract":"Although epidemiologic and animal studies suggest a vegetarian diet protects against the development of colorectal cancer, the relationship between vegetarian diet and incidence of colorectal adenoma is not yet conclusive, especially for Asians.","DOI":"10.1007/s10620-013-2974-5","ISSN":"1573-2568","journalAbbreviation":"Digestive Diseases and Sciences","author":[{"family":"Lee","given":"Chang Geun"},{"family":"Hahn","given":"Suk Jae"},{"family":"Song","given":"Min Keun"},{"family":"Lee","given":"Jun Kyu"},{"family":"Kim","given":"Jae Hak"},{"family":"Lim","given":"Yun Jeong"},{"family":"Koh","given":"Moon-Soo"},{"family":"Lee","given":"Jin Ho"},{"family":"Kang","given":"Hyoun Woo"}],"issued":{"date-parts":[["2014"]]}}},{"id":83,"uris":["http://zotero.org/users/2724931/items/33PI99M5"],"uri":["http://zotero.org/users/2724931/items/33PI99M5"],"itemData":{"id":83,"type":"article-journal","title":"Increased risk of colorectal malignant neoplasm in patients with nonalcoholic fatty liver disease: a large study","container-title":"Molecular Biology Reports","page":"2989-2997","volume":"41","issue":"5","abstract":"Nonalcoholic fatty liver disease (NAFLD) has been suggested to be a strong risk factor of colorectal benign adenomas and advanced neoplasms. The aim of this large cohort study was to further investigate the prevalence of colorectal malignant neoplasm (CRMN) in patients with NAFLD and determine whether association between NAFLD and CRMN exists. 2,315 community subjects (1,370 males and 945 females) who underwent a routine colonoscopy according to international colorectal cancer screening guideline were recruited. Nature of colorectal lesions determined by biopsy and NAFLD was diagnosed by ultrasound. Binary logistic regression analysis was applied to explore the related associations. Prevalence of CRMN was 29.3 % (77/263) in patients with NAFLD, which was significantly higher than 18.0 % (369/2,052) in the control group (P < 0.05). In addition, malignant neoplasm in NAFLD group occurred more frequently at sigmoid colon than in control group (14.3 vs. 11.9 %). The incidence of highly-differentiated colorectal adenocarcinoma in NAFLD group was significantly higher than control group (62.3 vs. 9.8 %). Univariate analysis showed that NAFLD had strong association with CRMN (OR 2.043; 95 % CI 1.512–2.761; P < 0.05). After adjusting for metabolic and other confounding factors, NAFLD remained as an independent risk factor for CRMN (OR 1.868; 95 % CI 1.360–2.567; P < 0.05). NAFLD was an independent risk factor for CRMN. Sigmoid carcinoma and highly differentiated colorectal adenocarcinoma were more commonly found in NAFLD. (ClinicalTrials.gov number, NCT01657773, website: http://clinicaltrials.gov/ct2/show/NCT01657773?term=zheng+minghua&rank=1).","DOI":"10.1007/s11033-014-3157-y","ISSN":"1573-4978","journalAbbreviation":"Molecular Biology Reports","author":[{"family":"Lin","given":"Xian-Feng"},{"family":"Shi","given":"Ke-Qing"},{"family":"You","given":"Jie"},{"family":"Liu","given":"Wen-Yue"},{"family":"Luo","given":"Ying-Wan"},{"family":"Wu","given":"Fa-Ling"},{"family":"Chen","given":"Yong-Ping"},{"family":"Wong","given":"Danny Ka-Ho"},{"family":"Yuen","given":"Man-Fung"},{"family":"Zheng","given":"Ming-Hua"}],"issued":{"date-parts":[["2014"]]}}},{"id":86,"uris":["http://zotero.org/users/2724931/items/HH3ENCP2"],"uri":["http://zotero.org/users/2724931/items/HH3ENCP2"],"itemData":{"id":86,"type":"article-journal","title":"Is height a risk factor for colorectal adenoma?","container-title":"The Korean Journal of Internal Medicine","page":"653-659","volume":"31","issue":"4","archive":"PMC","archive_location":"PMC4939489","abstract":"BACKGROUNDAlthough it is generally known that the risk for all types of cancer increases with adult height, combined and for several common site-specific cancers (including colon and rectal), evidence is limited for adenomas, which are precursors to colorectal cancer. We evaluated the association between height and risk of colorectal adenoma at various stages of the adenoma-carcinoma pathway. METHODS:: We conducted a retrospective study using data from patients who had undergone a complete colonoscopy as part of a health examination at the Health Promotion Center of Samsung Medical Center between October 13, 2009 and December 31, 2011. A total of 1,347 male subjects were included in our study. Multivariate logistic regression analysis was used to evaluate the association between height and colorectal adenoma. RESULTS:: Each 5-cm increase in height was associated with 1.6% and 5.3% higher risks of advanced colorectal adenoma and high-risk colorectal adenoma, respectively, but associations were not significant after adjusting for age, body mass index, metabolic syndrome, alcohol intake, smoking, family history of colorectal cancer, and regular aspirin use (p = 0.840 and p = 0.472, respectively). CONCLUSIONS:: No clear association was found between colorectal adenoma risk and height. Unlike other site-specific tumors reported to have a consistent relationship with height, the association between colorectal tumor and height remains controversial.","DOI":"10.3904/kjim.2014.313","ISSN":"1226-3303","author":[{"family":"Pyo","given":"Jeung Hui"},{"family":"Hong","given":"Sung Noh"},{"family":"Min","given":"Byung-Hoon"},{"family":"Chang","given":"Dong Kyung"},{"family":"Son","given":"Hee Jung"},{"family":"Rhee","given":"Poong-Lyul"},{"family":"Kim","given":"Jae J"},{"family":"Kim","given":"Young-Ho"}],"issued":{"date-parts":[["2016",7]]}}},{"id":175,"uris":["http://zotero.org/users/2724931/items/SMIADFP7"],"uri":["http://zotero.org/users/2724931/items/SMIADFP7"],"itemData":{"id":175,"type":"article-journal","title":"Metabolic syndrome and colorectal neoplasms: An ominous association","container-title":"World Journal of Gastroenterology","page":"5320","volume":"21","issue":"17","source":"CrossRef","DOI":"10.3748/wjg.v21.i17.5
9327","shortTitle":"Metabolic syndrome and colorectal neoplasms","language":"en","author":[{"family":"Trabulo","given":"Daniel"}],"issued":{"date-parts":[["2015"]]}}},{"id":77,"uris":["http://zotero.org/users/2724931/items/QQRBWQMX"],"uri":["http://zotero.org/users/2724931/items/QQRBWQMX"],"itemData":{"id":77,"type":"article-

journal","title":"Association between colorectal adenoma and coronary atherosclerosis detected by CT coronary angiography in Korean men; a cross-sectional study.","container-title":"Journal of gastroenterology and hepatology","page":"1795-1799","volume":"25","issue":"11","abstract":"BACKGROUND: Colorectal adenoma and coronary artery disease (CAD) appear to share common risk factors, such as male gender, diabetes mellitus, smoking, and obesity. We investigated the relationship between colorectal adenoma and coronary atherosclerosis, as a risk factor for colorectal adenoma. METHODS: A cross-sectional study was conducted on Korean men who presented for a health check-up. The subjects were 488 men (217 colorectal adenoma and 271 normal colonoscopic findings) who underwent colonoscopy and coronary computed tomography angiography (CTA) on the same day as a screening examination. Advanced colonic lesion was defined as a presence of adenoma with villous component, high-grade dysplasia, and/or with size of >/=1 cm. CTA findings were classified as normal, mild (low-grade atherosclerosis or <50% stenosis), and significant CAD (>/=50% stenosis). Abnormal CTA findings included mild and significant CAD. RESULTS: Patients with abnormal CTA findings were more likely to have colorectal adenoma compared with those with normal CTA findings (P < 0.005). Furthermore, presence of advanced adenoma was significantly associated with significant CAD (P < 0.01). On multivariate analyses, abnormal CTA findings (OR = 1.66, 95% CI: 1.14-2.41, P < 0.01) and significant CAD (OR = 1.96, 95% CI: 1.15-3.35, P < 0.05) were found to be independent risk factors for colorectal adenoma after adjusting for age, current smoking, and metabolic syndrome. CONCLUSIONS: In this study, in the population who underwent CTA and colonoscopy for health check-up, prevalence of colorectal adenoma was greater in subjects with low-grade coronary atherosclerosis or significant CAD. The presence of advanced adenoma was significantly associated with significant CAD.","DOI":"10.1111/j.1440-1746.2010.06330.x","ISSN":"1440-1746 0815-9319","note":"PMID: 21039843","journalAbbreviation":"J Gastroenterol Hepatol","language":"eng","author":[{"family":"Yang","given":"Sun Young"},{"family":"Kim","given":"Young Sun"},{"family":"Chung","given":"Su Jin"},{"family":"Song","given":"Ji Hyun"},{"family":"Choi","given":"Su Yeon"},{"family":"Park","given":"Min Jung"},{"family":"Yim","given":"Jeong Yoon"},{"family":"Lim","given":"Seon Hee"},{"family":"Kim","given":"Donghee"},{"family":"Kim","given":"Chung Hyun"},{"family":"Kim","given":"Ju Sung"},{"family":"Song","given":"In Sung"}],"issued":{"date-parts":[["2010",11]]}}},"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}

25, 26, 28, 29, 34, 36, 44, 46, 47, 49, 50, 52, 53, 55, 57

]

RE

1.43 [1.28, 1.59]

6.38

(P < 0.00001)

89

0.05

187.17, df = 20

(P < 0.00001)

Other

7 (9)

[

ADDIN ZOTERO_ITEM CSL_CITATION {"citationID":"uklx70Cx","properties":{"formattedCitation":"{\\rtf \\super 21,30,31,35,51,54,56\\nosupersub{}}","plainCitation":"21,30,31,35,51,54,56"},"citationItems":[{"id":163,"uris":["http://zotero.org/users/2724931/items/FX77VBWZ"],"uri":["http://zotero.org/users/2724931/items/FX77VBWZ"],"itemData":{"id":163,"type":"article-journal","title":"Prevalence and risk of colorectal neoplasms in asymptomatic, average-risk screenees 40 to 49 years of age","container-title":"Gastrointestinal Endoscopy","page":"480-489","volume":"72","issue":"3","abstract":"Background\nA paucity of information exists regarding colorectal neoplasm in asymptomatic, average-risk individuals 40 to 49 years of age.\nObjective\nTo evaluate the prevalence and risk factors of colorectal neoplasms in those in their 40s.\nDesign\nCross-sectional study.\nSetting\nResults offered to subjects of a health care provider that offers screening services as part of an employer-provided wellness program.\nPatients\nA consecutive series of 1761 asymptomatic, average-risk screenees 40 to 59 years of age.\nIntervention\nFirst screening colonoscopy.\nResults\nThe prevalence of overall colorectal neoplasm in subjects of ages 40 to 44 years, 45 to 49 years, 50 to 54 years, and 55 to 59 years increased significantly with increasing age (13.7%, 20.2%, 21.0%, and 23.8%, respectively; P < .001). The prevalence of advanced adenomas in subjects of ages 40 to 44 years, 45 to 49 years, 50 to 54 years, and 55 to 59 years increased significantly with age (1.9%, 3.0%, 3.2%, and 5.9%, respectively; P = .004). Multivariate analysis of data from the 40- to 49-year age group identified an increased risk of colorectal neoplasm associated with ages 45 years and older (odds ratio [OR], 1.68; 95% CI, 1.20-2.35), male sex (OR, 1.76; 95% CI, 1.15-2.69), presence of abdominal obesity (OR, 1.57; 95% CI, 1.12-2.21), and metabolic syndrome (OR, 1.56; 95% CI, 1.03-2.35), whereas for advanced adenomas, abdominal obesity (OR, 2.37; 95% CI, 1.06-5.27) and metabolic syndrome (OR, 2.83; 95% CI, 1.23-6.53) were the independent risk factors.\nLimitations\nSingle-center study and the cohort composed of ethnic Korean subjects who lived in the same geographic region.\nConclusion\nIn average-risk individuals 40 to 49 years of age, men with abdominal obesity or metabolic syndrome might benefit from screening colonoscopy starting at 45 years of age to detect colorectal neoplasm.","DOI":"10.1016/j.gie.2010.06.022","ISSN":"0016-5107","journalAbbreviation":"Gastrointestinal Endoscopy","author":[{"family":"Hong","given":"Sung Noh"},{"family":"Kim","given":"Jeong Hwan"},{"family":"Choe","given":"Won Hyeok"},{"family":"Han","given":"Hye Seung"},{"family":"Sung","given":"In Kyung"},{"family":"Park","given":"Hyung Seok"},{"family":"Shim","given":"Chan Sup"}],"issued":{"date-parts":[["2010",9]]}}},{"id":13,"uris":["http://zotero.org/users/2724931/items/7IV5ACIY"],"uri":["http://zotero.org/users/2724931/items/7IV5ACIY"],"itemData":{"id":13,"type":"article-journal","title":"The Risk of Colorectal Neoplasia in Patients with Gallbladder Diseases","container-title":"Journal of Korean Medical Science","page":"1288-1294","volume":"30","issue":"9","archive":"PMC","archive_location":"PMC4553676","abstract":"Cholecystectom is associated with an increased risk of colorectal cancer, but little is known about the relationship between gallbladder disease and colorectal adenoma. Gallbladder polyps and colorectal neoplasia (CRN) share several risk factors such as obesity, diabetes and metabolic syndrome, which might account for their association. In this study, we investigated whether asymptomatic patients with gallbladder disease are at increased risk of CRN and identified the factors to their association. The study population consisted of 4,626 consecutive, asymptomatic individuals drawn from a prospective health check-up cohort who underwent both ultrasonography and colonoscopy screening. The prevalence of CRNs in patients with gallbladder polyps or gallstones was significantly higher than that in the control group (32.1% vs. 26.8%; P = 0.032, 35.8% vs. 26.9%; P = 0.020). A multivariate regression analysis showed that gallbladder polyps were an independent risk factor for CRN [adjusted

odds ratio (OR): 1.29; 95% confidence interval (CI); 1.03-1.62] whereas gallstones were not (adjusted OR: 1.14; 95% CI: 0.79-1.63). The adjusted OR for the risk of CRN was 1.12 for gallbladder polyps < 5 mm (95% CI, 0.85-1.46) and 1.79 for gallbladder polyps ≥ 5 mm (95% CI, 1.15-2.77). The prevalence of CRN increased with increasing polyp size (P trend = 0.022). Our results suggest that colorectal neoplasia is significantly related to gallbladder polyps, especially those ≥ 5 mm. GRAPHICAL ABSTRACT:","DOI":"10.3346/jkms.2015.30.9.1288","ISSN":"1011-8934","author":[{"family":"Hong","given":"Sung Noh"},{"family":"Lee","given":"Tae Yoon"},{"family":"Yun","given":"Sung-Cheol"}],"issued":{"date-parts":[["2015",9]]}},{"id":36,"uris":["http://zotero.org/users/2724931/items/437ZFQED"],"uri":["http://zotero.org/users/2724931/items/437ZFQED"],"itemData":{"id":36,"type":"article-journal","title":"Clinico-epidemiologic study of the metabolic syndrome and lifestyle factors associated with the risk of colon adenoma and adenocarcinoma.","container-title":"Asian Pacific journal of cancer prevention : APJCP","page":"975-983","volume":"11","issue":"4","abstract":"BACKGROUND: The numbers of patients with colorectal cancer and associated deaths have been increasing in Japan, probably due to rapid lifestyle changes. Prevention is clearly important and the present study aimed to clarify risk factors and to promote colon cancer screening. METHODS: We investigated lifestyle factors, biochemical data, and pathological features of 727 individuals who underwent colonoscopy. Data were subjected to statistical analysis using SPSS software. RESULTS: Low-grade adenoma was more frequent among the elderly and in men. All of the men and 87.5% of the women with high-grade adenoma or adenocarcinoma were aged>/=45 and>/=50 years, respectively. In women, a larger waist circumference (=80 cm) increased the odds ratio for colon adenoma or adenocarcinoma (colon tumors) by 1.033 (95% confidence index (CI), 1.001-1.066; p=0.040). Metabolic syndrome significantly increased the odds ratio of colon tumors in men, but not in women. Cigarette smoking, drinking alcohol, and increased physical activity were significant risk factors for colon tumors in men, with odds ratios of 1.001 (95% CI, 1.000-1.002; p=0.001), 1.001 (95% CI, 1.000-1.003; p=0.047), and 1.406 (95% CI 1.038-1.904; p=0.028), respectively. CONCLUSIONS: Colon tumors have a high prevalence in the elderly. A larger waist circumference in women and metabolic syndrome in both men and women elevate the risk of colon tumors. In addition, smoking, drinking, and excessive physical activity are risk factors for adenoma and adenocarcinoma in men. For early detection of colorectal cancer, men older than 45 years and women older than 50 years with these risk factors are recommended to undergo colonoscopy.","ISSN":"2476-762X 1513-7368","note":"PMID: 21133610","journalAbbreviation":"Asian Pac J Cancer Prev","language":"eng","author":[{"family":"Kaneko","given":"Rena"},{"family":"Sato","given":"Yuzuru"},{"family":"An","given":"Yasuyosi"},{"family":"Nakagawa","given":"Motoki"},{"family":"Kusayanagi","given":"Satoshi"},{"family":"Kamisago","given":"Satoshi"},{"family":"Umeda","given":"Tomoyuki"},{"family":"Ogawa","given":"Masazumi"},{"family":"Munakata","given":"Kazuo"},{"family":"Mizuno","given":"Kyoichi"}],"issued":{"date-parts":[["2010"]]}},{"id":161,"uris":["http://zotero.org/users/2724931/items/Q4DM498H"],"uri":["http://zotero.org/users/2724931/items/Q4DM498H"],"itemData":{"id":161,"type":"article-journal","title":"Central obesity and atherogenic dyslipidemia in metabolic syndrome are associated with increased risk for colorectal adenoma in a Chinese population","container-title":"BMC Gastroenterology","page":"51","volume":"10","source":"BioMed Central","abstract":"Metabolic syndrome (MetS) is composed of cardiovascular risk factors including insulin resistance, obesity, dyslipidemia, and hypertension. Most of the components of MetS have been linked to the development of neoplasm. The purpose of this study was to evaluate the relationship between individual components of MetS and colorectal adenoma.","DOI":"10.1186/1471-230X-10-51","ISSN":"1471-230X","journalAbbreviation":"BMC Gastroenterology","author":[{"family":"Liu","given":"Chiu-Shong"},{"family":"Hsu","given":"Hua-Shui"},{"family":"Li","given":"Chia-Ing"},{"family":"Jan","given":"Chia-Ing"},{"family":"Li","given":"Tsai-Chung"},{"family":"Lin","given":"Wen-Yuan"},{"family":"Lin","given":"Tsann"},{"family":"Chen","given":"Ya-Chien"},{"family":"Lee","given":"Cheng-Chun"},{"family":"Lin","given":"Cheng-Chieh"}],"issued":{"date-parts":[["2010"]]}},{"id":282,"uris":["http://zotero.org/users/2724931/items/83RDVNWE"],"uri":["http://zotero.org/users/2724931/items/83RDVNWE"],"itemData":{"id":282,"type":"article-journal","title":"Metabolic syndrome components and colorectal adenoma in the CLUE II cohort","container-title":"Cancer causes & control : CCC","page":"1-10","volume":"21","issue":"1","source":"PubMed Central","abstract":"Background\nMetabolic syndrome components have been associated with colorectal cancer in several studies; however, the evidence for colorectal adenomas is limited. Thus, we evaluated the association between markers of the metabolic syndrome with colorectal adenoma development in a nested case-control study.\n\nMethods\nColorectal adenoma cases (n= 132) and matched controls who had had a negative sigmoidoscopy or a colonoscopy (n=260) were identified between baseline in 1989 and 2000 among participants in the CLUE II cohort of Washington County, Maryland. Concentrations of C-peptide, insulin-like growth factor binding protein-1, glycosylated hemoglobin, total cholesterol, high density lipoprotein-cholesterol, and triglycerides were measured in baseline blood specimens. Body mass index was calculated using baseline height and weight. Use of medications to treat diabetes mellitus was self-reported at baseline. Blood pressure was measured at baseline. Distributional cutpoints of the latter markers were used to define the metabolic syndrome components (hyperinsulinemia, hyperglycemia, obesity, dyslipidemia, and hypertension) present at baseline.\n\nResults\nNo statistically significant associations with adenomas were observed for the markers of the metabolic syndrome, with the exception of a strong positive association for use of diabetes medications (OR, 8.00; 95% CI, 1.70 – 37.67), albeit based on small numbers.\n\nConclusion\nOur findings do not support that components of the metabolic syndrome influence risk of colorectal adenomas, except possibly for severe diabetes mellitus warranting medical treatment.","DOI":"10.1007/s10552-009-9428-6","ISSN":"0957-5243","note":"PMID: 19774471\nPMCID: PMC3010872","journalAbbreviation":"Cancer Causes Control","author":[{"family":"Tsilidis","given":"Konstantinos K"},{"family":"Brancati","given":"Frederick L"},{"family":"Pollak","given":"Michael N"},{"family":"Rifai","given":"Nader"},{"family":"Clipp","given":"Sandra L"},{"family":"Hoffman-Bolton","given":"Judy"},{"family":"Helzlsouer","given":"Kathy J"},{"family":"Platz","given":"Elizabeth A"}],"issued":{"date-parts":[["2010",1]]}},{"id":97,"uris":["http://zotero.org/users/2724931/items/566MKVT3"],"uri":["http://zotero.org/users/2724931/items/566MKVT3"],"itemData":{"id":97,"type":"article-journal","title":"Visceral obesity as a risk factor for colorectal neoplasm","container-title":"Journal of Gastroenterology and Hepatology","page":"411-417","volume":"23","issue":"3","abstract":"Background and Aim: Obesity as a risk factor for colorectal neoplasm (CRN) is controversial. In the present study, we evaluated visceral obesity as a risk factor for CRN. Methods: We prospectively enrolled 200 consecutive, asymptomatic adults (male : female = 133:67, mean age, 50.9 ± 8.5 years) undergoing both colonoscopy and abdominopelvic computed tomography (CT) scan for routine health evaluations. The presence or absence and the characteristics of CRN were determined during colonoscopy. The amount of visceral adipose tissue (VAT) and subcutaneous

adipose tissue was measured by an abdominopelvic CT scan. Body mass index, waist circumference, and percentage of body fat were measured. Blood pressure and other blood markers for assessing the metabolic syndrome were also investigated. Results: Of the 200 patients, 53 (26.5%) had CRN. Old age, smoking, metabolic syndrome, and a high fasting plasma glucose level were associated with an increased risk of CRN. VAT (P < 0.01) and waist circumference (P = 0.01) were significantly higher in those with CRN. A multivariate analysis of the risks of CRN showed an odds ratio of 4.07 (95% confidence interval: 1.01–16.43, P = 0.03) for those with VAT over 136.61 cm2 relative to those with VAT under 67.23 cm2. Waist circumference, metabolic syndrome, and fasting plasma glucose levels were not independent risk factors for CRN in the multivariate analysis. Conclusion: Increased VAT is an independent risk factor for CRN. Further large scale studies are needed to clarify the causal relationship between VAT and CRN.","DOI":"10.1111/j.1440-1746.2007.05125.x","ISSN":"1440-1746","author":[{"family":"Oh","given":"Tae-Hoon"},{"family":"Byeon","given":"Jeong-Sik"},{"family":"Myung","given":"Seung-Jae"},{"family":"Yang","given":"Suk-Kyun"},{"family":"Choi","given":"Kwi-Sook"},{"family":"Chung","given":"Jun-Won"},{"family":"Kim","given":"Benjamin"},{"family":"Lee","given":"Don"},{"family":"Byun","given":"Jae Ho"},{"family":"Jang","given":"Se Jin"},{"family":"Kim","given":"Jin-Ho"}],"issued":{"date-parts":[["2008",3,1]]}}},{"id":78,"uris":["http://zotero.org/users/2724931/items/TSAINUMV"],"uri":["http://zotero.org/users/2724931/items/TSAINUMV"],"itemData":{"id":78,"type":"article-journal","title":"Increased homeostasis model assessment-insulin resistance is a risk factor for colorectal adenoma in Japanese males.","container-title":"The Tohoku journal of experimental medicine","page":"297-303","volume":"223","issue":"4","abstract":"Many previous reports have documented a relationship between metabolic syndrome, in terms of insulin resistance, and colorectal cancer. However, the association of insulin resistance with colorectal adenoma has not been investigated in detail. To elucidate the association of metabolic syndrome components and insulin resistance with adenoma, we investigated homeostasis model assessment insulin resistance (HOMA-IR) in individuals with adenoma. A cross-sectional study was conducted involving individuals who underwent scheduled health examinations using total colonoscopy. Restricting the subjects to males, 261 with adenoma and 702 without adenoma were investigated. HOMA-IR was categorized into three groups: normal (< 1.6), intermediate (>/= 1.6 - < 2.5), and insulin resistance (2.5 </=). Metabolic syndrome was defined by a combination of any three of the following components: central obesity (waist circumference >/= 90 cm); elevated blood pressure (systolic blood pressure >/= 130 mmHg and/or diastolic blood pressure 85 mmHg); elevated fasting plasma glucose (>/= 100 mg/dL); reduced high-density lipoprotein-cholesterol (< 40 mg/dL); and elevated triglyceride (>/= 150 mg/dL). Multivariate analysis of HOMA-IR showed that the intermediate and insulin resistance groups had a significantly increased risk for colorectal adenoma, even after adjustment for waist circumference (odds ratio, 1.62 and 2.23; 95% confidence interval, 1.07-2.45 and 1.31-3.79, respectively). Accumulation of any metabolic syndrome components increased the risk of colorectal adenoma (P trend = 0.001). However, none of the components alone demonstrated a significant risk for colorectal adenoma. Our data indicate that an increased level of HOMA-IR is a risk factor for colorectal adenoma in Japanese males.","ISSN":"1349-3329 0040-8727","note":"PMID: 21478654","journalAbbreviation":"Tohoku J Exp Med","language":"eng","author":[{"family":"Sato","given":"Takeshi"},{"family":"Takeda","given":"Hiroaki"},{"family":"Sasaki","given":"Yu"},{"family":"Kawata","given":"Sumio"}],"issued":{"date-parts":[["2011",4]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"} 21, 30, 31, 35, 51, 54, 56

]

FE

1.45 [1.36, 1.55]

10.91

(P < 0.00001)

27

NA

11.00, df = 8

(P = 0.20)

Gender

Men

3 (3)

[

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26, 30, 49
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1.24 [0.87, 1.75]
1.19
(P = 0.23)
90
0.08
21.05, df = 2
(P < 0.0001)
Women
3 (3)
[
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["http://zotero.org/users/2724931/items/M9QUET6C"],"itemData":{"id":169,"type":"article-journal","title":"Metabolic syndrome and smoking may justify earlier colorectal cancer screening in men","container-title":"Gastrointestinal Endoscopy","page":"961-969","volume":"79","issue":"6","abstract":"Background\nGender, smoking, and metabolic syndrome (MetS) are important risk factors of colorectal neoplasm. Whether presence of these factors may warrant earlier screening remains unclear.\nObjective\nTo compare age- and gender-specific risk of colorectal neoplasms in association with smoking and MetS under endoscopic or stool-based screening.\nDesign\nCross-sectional observational study.\nSetting\nScreening center in a university hospital in Taiwan.\nPatients\nA cohort of 10,884 average-risk individuals who received concurrent screening colonoscopy and fecal immunochemical testing (FIT).\nMain Outcome Measurements\nFirst, the prevalence of colorectal neoplasms and positive predictive value of FIT relative to age, gender, smoking, and MetS. Second, the number of colonoscopies needed to detect 1 advanced neoplasm with different strategies.\nResults\nMale smokers aged 40 to 49 years had a significantly higher

prevalence of advanced neoplasms and positive predictive value of stool tests than nonsmoking counterparts. The prevalence of advanced neoplasms in concurrent MetS and smoking (6.2%) or smoking alone (3.8%) men aged 40 to 49 years was higher than that of average-risk women aged 50 to 59 years (2.1%) (P = .03 and .04, respectively). The number of colonoscopies needed to detect 1 advanced neoplasm in men aged 40 to 49 years with concurrent MetS and smoking, smoking, MetS, and women aged 50 to 59 years was, respectively, 14.6, 24.8, 39.8, and 47.4 in the colonoscopy scenario and 1.7, 4.6, 5.7, and 8.3 in the FIT scenario.\nLimitation\nSelf-selective bias may exist for subjects voluntarily submitted to health check-ups.\nConclusions\nMetS and smoking significantly impact both the prevalence of colorectal neoplasms and the diagnostic yields of screening tests in men aged 40 to 49 years. Whether our findings justify earlier screening in this subgroup requires further study.","DOI":"10.1016/j.gie.2013.11.035","ISSN":"0016-5107","journalAbbreviation":"Gastrointestinal Endoscopy","author":[{"family":"Chang","given":"Li-Chun"},{"family":"Wu","given":"Ming-Shiang"},{"family":"Tu","given":"Chia-Hung"},{"family":"Lee","given":"Yi-Chia"},{"family":"Shun","given":"Chia-Tung"},{"family":"Chiu","given":"Han-Mo"}],"issued":{"date-parts":[["2014",6]]}},{"id":36,"uris":["http://zotero.org/users/2724931/items/437ZFQED"],"uri":["http://zotero.org/users/2724931/items/437ZFQED"],"itemData":{"id":36,"type":"article-journal","title":"Clinico-epidemiologic study of the metabolic syndrome and lifestyle factors associated with the risk of colon adenoma and adenocarcinoma.","container-title":"Asian Pacific journal of cancer prevention : APJCP","page":"975-983","volume":"11","issue":"4","abstract":"BACKGROUND: The numbers of patients with colorectal cancer and associated deaths have been increasing in Japan, probably due to rapid lifestyle changes. 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(ClinicalTrials.gov number, NCT01657773, website: http://clinicaltrials.gov/ct2/show/NCT01657773?term=zheng+minghua&rank=1)."},"DOI":"10.1007/s11033-014-3157-y","ISSN":"1573-4978","journalAbbreviation":"Molecular Biology Reports","author":[{"family":"Lin","given":"Xian-Feng"},{"family":"Shi","given":"Ke-Qing"},{"family":"You","given":"Jie"},{"family":"Liu","given":"Wen-Yue"},{"family":"Luo","given":"Ying-Wan"},{"family":"Wu","given":"Fa-Ling"},{"family":"Chen","given":"Yong-Ping"},{"family":"Wong","given":"Danny Ka-Ho"},{"family":"Yuen","given":"Man-Fung"},{"family":"Zheng","given":"Ming-Hua"}],"issued":{"date-parts":[["2014"]]}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"} 26, 30, 49

]

RE

1.13 [0.88, 1.45]

0.95

(P = 0.34)

30

0.02

2.86, df = 2

(P = 0.24)

Advanced adenomas

6 (7)

[

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969","volume":"79","issue":"6","abstract":"Background\nGender, smoking, and metabolic syndrome (MetS) are
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Outcome Measurements\nFirst, the prevalence of colorectal neoplasms and positive predictive value of FIT
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increased risk of colorectal neoplasm, but little is known about its effects on the occurrence of neoplasm after
colonoscopy. We investigated the effects of metabolic syndrome on the risk of advanced neoplasm after
colonoscopy.\nMethods\nWe performed a prospective study of 4483 subjects age 50 years and older who
underwent screening and surveillance colonoscopies as part of an annual health check-up at National Taiwan
University Hospital. Baseline demographic data and colonoscopic findings were recorded. Subjects with either
advanced adenoma or 3 or more adenomas detected at baseline were classified as high risk; those with fewer than
3 nonadvanced adenomas were classified as low risk; and those without any neoplastic lesions were classified as
normal. The cumulative risk of detecting an advanced neoplasm during surveillance colonoscopies (3 and 5 years
later) was correlated with risk group and metabolic syndrome. Hazard ratios (HRs) were calculated for occurrence
of neoplasm according to baseline colonoscopic findings and clinical risk factors, including metabolic
syndrome.\nResults\nAdvanced neoplasms were detected during the surveillance colonoscopies in 1.3% of
subjects in the normal group and in 2.4% of those in the low-risk group at 5 years, and in 8.5% of subjects in the
high-risk group at 3 years. Subjects with metabolic syndrome had a significantly higher risk for subsequent
advanced neoplasms (P < .0001). After stratification based on findings from baseline colonoscopies, the risk for
neoplasm was significant in the normal (P < .001) and low-risk groups (P = .04), but not in the high-risk group
(P = .48). In Cox regression analysis, metabolic syndrome had significant effects on the risk for advanced
neoplasms in the normal (HR, 2.07; 95% confidence interval, 1.13–3.81) and low-risk groups (HR, 2.34; 95%
confidence interval, 1.01–5.41), but not in the high-risk group.\nConclusions\nMetabolic syndrome is a significant
risk factor for occurrence of an advanced adenoma after a negative or low-risk finding from a baseline
colonoscopy. Metabolic syndrome should be considered in risk stratification for surveillance
intervals.","DOI":"10.1016/j.cgh.2014.10.022","ISSN":"1542-3565","journalAbbreviation":"Clinical
Gastroenterology and Hepatology","author":[{"family":"Chiu","given":"Han-Mo"},{"family":"Lee","given":"Yi-
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journal","title":"Prevalence and risk of colorectal neoplasms in asymptomatic, average-risk screenees 40 to 49
years of age","container-title":"Gastrointestinal Endoscopy","page":"480-
489","volume":"72","issue":"3","abstract":"Background\nA paucity of information exists regarding colorectal
neoplasm in asymptomatic, average-risk individuals 40 to 49 years of age.\nObjective\nTo evaluate the prevalence
and risk factors of colorectal neoplasms in those in their 40s.\nDesign\nCross-sectional study.\nSetting\nResults
offered to subjects of a health care provider that offers screening services as part of an employer-provided
wellness program.\nPatients\nA consecutive series of 1761 asymptomatic, average-risk screenees 40 to 59 years of
age.\nIntervention\nFirst screening colonoscopy.\nResults\nThe prevalence of overall colorectal neoplasm in
subjects of ages 40 to 44 years, 45 to 49 years, 50 to 54 years, and 55 to 59 years increased significantly with
increasing age (13.7%, 20.2%, 21.0%, and 23.8%, respectively; P < .001). The prevalence of advanced
adenomas in subjects of ages 40 to 44 years, 45 to 49 years, 50 to 54 years, and 55 to 59 years increased
significantly with age (1.9%, 3.0%, 3.2%, and 5.9%, respectively; P = .004). Multivariate analysis of data from the
40- to 49-year age group identified an increased risk of colorectal neoplasm associated with ages 45 years and
older (odds ratio [OR], 1.68; 95% CI, 1.20-2.35), male sex (OR, 1.76; 95% CI, 1.15-2.69), presence of abdominal
obesity (OR, 1.57; 95% CI, 1.12-2.21), and metabolic syndrome (OR, 1.56; 95% CI, 1.03-2.35), whereas for
advanced adenomas, abdominal obesity (OR, 2.37; 95% CI, 1.06-5.27) and metabolic syndrome (OR, 2.83; 95%
CI, 1.23-6.53) were the independent risk factors.\nLimitations\nSingle-center study and the cohort composed of
ethnic Korean subjects who lived in the same geographic region.\nConclusion\nIn average-risk individuals 40 to
49 years of age, men with abdominal obesity or metabolic syndrome might benefit from screening colonoscopy
starting at 45 years of age to detect colorectal neoplasm.","DOI":"10.1016/j.gie.2010.06.022","ISSN":"0016-
5107","journalAbbreviation":"Gastrointestinal Endoscopy","author":[{"family":"Hong","given":"Sung Noh"},
{"family":"Kim","given":"Jeong Hwan"},{"family":"Choe","given":"Won Hyeok"},
{"family":"Han","given":"Hye Seung"},{"family":"Sung","given":"In Kyung"},{"family":"Park","given":"Hyung

Seok"},{"family":"Shim","given":"Chan Sup"}],"issued":{"date-parts":[["2010",9]]}}},{"id":81,"uris":["http://zotero.org/users/2724931/items/7FAPCFIV"],"uri":["http://zotero.org/users/2724931/items/7FAPCFIV"],"itemData":{"id":81,"type":"article-journal","title":"Association of colorectal adenoma with components of metabolic syndrome.","container-title":"Cancer causes & control : CCC","page":"727-735","volume":"23","issue":"5","abstract":"PURPOSE: Recently, some studies have shown that diabetes mellitus and metabolic syndrome increase the risk of colorectal neoplasms. Although the mechanism is not known, those have been proposed to contribute to this phenomenon, including insulin resistance, oxidative stress, and adipokine production. The objective of this study was to assess the association between metabolic risk factors and colorectal neoplasm. METHODS: Study participants visited the National Cancer Center, Korea, for screening (2007-2009). A total of 1,771 diagnosed adenoma patients and 4,667 polyp-free controls were included. The association between risk factors and colorectal neoplasm was evaluated using logistic regression models. RESULTS: High waist circumference, blood pressure, and serum triglyceride levels were associated with an increased risk of colorectal adenoma. Metabolic syndrome (MS) was associated with an increased risk of adenoma (OR = 1.44, 95 % CI = 1.23-1.70). The association between MS and colorectal adenoma was observed regardless of advanced/low-risk adenoma, and multiplicity. MS affected right colon adenomas (OR = 1.50, 95 % CI = 1.22-1.85), left colon adenomas (OR = 1.36, 95 % CI = 1.05-1.76), and adenomas in multiple anatomical locations (OR = 1.59, 95 % CI = 1.19-2.12), but was not associated with rectum. CONCLUSION: Central obesity, triglyceride level, and MS are risk factors for colorectal adenoma including advanced adenoma and multiplicity.","DOI":"10.1007/s10552-012-9942-9","ISSN":"1573-7225 0957-5243","note":"PMID: 22450737","journalAbbreviation":"Cancer Causes Control","language":"eng","author":[{"family":"Kim","given":"Byung Chang"},{"family":"Shin","given":"Aesun"},{"family":"Hong","given":"Chang Won"},{"family":"Sohn","given":"Dae Kyung"},{"family":"Han","given":"Kyung Su"},{"family":"Ryu","given":"Kum Hei"},{"family":"Park","given":"Bum Joon"},{"family":"Nam","given":"Ji Hyung"},{"family":"Park","given":"Ji Won"},{"family":"Chang","given":"Hee Jin"},{"family":"Choi","given":"Hyo Seong"},{"family":"Kim","given":"Jeongseon"},{"family":"Oh","given":"Jae Hwan"}],"issued":{"date-parts":[["2012",5]]}}},{"id":179,"uris":["http://zotero.org/users/2724931/items/G83HJCGN"],"uri":["http://zotero.org/users/2724931/items/G83HJCGN"],"itemData":{"id":179,"type":"article-journal","title":"Prevalence and risk factors of advanced colorectal neoplasms in asymptomatic Korean people between 40 and 49

years of age","container-title":"Journal of Gastroenterology and Hepatology","page":"98-105","volume":"32","issue":"1","source":"PubMed","abstract":"BACKGROUND AND AIM: Current guidelines recommend colon cancer screening for persons aged over 50

years. However, there are few data on colorectal cancer screening in 40- to 49-year-olds. This study assessed the prevalence and risk factors of colorectal neoplasms in 40- to 49-year-old Koreans.\nMETHODS: We analyzed the results of screening colonoscopies of 6680 persons 40-59

years of age (2206 aged 40-49 and 4474 aged 50-59

years).\nRESULTS: The prevalence of overall and advanced neoplasms in the 40- to 49-year age group was lower than in the 50- to 59-year age group (26.7% and 2.4% vs 37.8% and 3.5%, respectively). However, the prevalence of overall and advanced neoplasms increased to 39.1% and 5.4%, respectively, in 45- to 49-year-old individuals with metabolic syndrome. In the 40- to 49-year age group, age, current smoking, and metabolic syndrome were associated with an increased risk of advanced neoplasms (odds ratio [OR] 1.16, 95% confidence interval [CI] 1.04-1.30; OR 3.12, 95% CI 1.20-8.12; and OR 2.00, 95% CI 1.09-3.67, respectively).\nCONCLUSIONS: Individuals aged 40-49

years had a lower prevalence of colorectal neoplasms than those aged 50-59

years, but some 40- to 49-year-olds showed a similar prevalence to those aged 50-59

years. Age, current smoking habits, and metabolic syndrome are associated with an increased risk of advanced neoplasms in subjects aged 40-49

years. Further studies are needed to stratify the risks of colon cancer and guide targeted screening in persons younger than 50

years old.","DOI":"10.1111/jgh.13454","ISSN":"1440-1746","note":"PMID: 27197805","journalAbbreviation":"J. Gastroenterol. Hepatol.","language":"eng","author":[{"family":"Koo","given":"Ja Eun"},{"family":"Kim","given":"Kyung-Jo"},{"family":"Park","given":"Hye Won"},{"family":"Kim","given":"Hong-Kyu"},{"family":"Choe","given":"Jae Won"},{"family":"Chang","given":"Hye-Sook"},{"family":"Lee","given":"Ji Young"},{"family":"Myung","given":"Seung-Jae"},{"family":"Yang","given":"Suk-Kyun"},{"family":"Kim","given":"Jin-Ho"}],"issued":{"date-parts":[["2017",1]]}}},{"id":168,"uris":["http://zotero.org/users/2724931/items/HXJHWUI6"],"uri":["http://zotero.org/users/2724931/items/HXJHWUI6"],"itemData":{"id":168,"type":"article-journal","title":"Vegetarianism as a Protective Factor for Colorectal Adenoma and Advanced Adenoma in Asians","container-title":"Digestive Diseases and Sciences","page":"1025-1035","volume":"59","issue":"5","abstract":"Although epidemiologic and animal studies suggest a vegetarian diet protects against the development of colorectal cancer, the relationship between vegetarian diet and incidence of colorectal adenoma is not yet conclusive, especially for Asians.","DOI":"10.1007/s10620-013-2974-5","ISSN":"1573-2568","journalAbbreviation":"Digestive Diseases and Sciences","author":[{"family":"Lee","given":"Chang Geun"},{"family":"Hahn","given":"Suk Jae"},{"family":"Song","given":"Min Keun"},{"family":"Lee","given":"Jun Kyu"},{"family":"Kim","given":"Jae Hak"},{"family":"Lim","given":"Yun Jeong"},{"family":"Koh","given":"Moon-Soo"},{"family":"Lee","given":"Jin Ho"},{"family":"Kang","given":"Hyoun Woo"}],"issued":{"date-parts":[["2014"]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
25, 29, 46, 49, 50, 54
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FE
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7.55
(P < 0.00001)
0
NA
4.48, df = 6
(P = 0.61)
Colorectal cancer
All studies
18 (45)
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We addressed these issues in a nested case–control study that included 1,093 incident cases matched (1:1) to controls by using incidence density sampling. Conditional logistic regression was used to estimate relative risks (RR) and 95% CIs. MetS was defined according to the criteria of the National Cholesterol Education Program/Adult Treatment Panel III (NCEP/ATPIII), the International Diabetes Federation (IDF), and the 2009 harmonized definition. Among individual components, abdominal obesity (RR = 1.51; 95% CI: 1.16–1.96) was associated with colon cancer, whereas abnormal glucose metabolism was associated with both colon (RR = 2.05; 95% CI: 1.57–2.68) and rectal cancer (RR = 2.07; 95% CI: 1.45–2.96). MetS, as defined by each of the definitions, was similarly associated with colon cancer (e.g., RR = 1.91; 95% CI: 1.47–2.42 for MetS by NCEP/ATPIII), whereas MetS by NCEP/ATPIII, but not IDF or harmonized definition, was associated with rectal cancer (RR = 1.45; 95% CI: 1.02–2.06). Overall, these associations were stronger in women than in men. However, the association between MetS and colorectal cancer was accounted for by abdominal obesity and abnormal glucose metabolism such that MetS did not provide risk information beyond these components (likelihood ratio test P = 0.10 for MetS by NCEP/ATPIII). These data suggest that simple assessment of abnormal glucose metabolism and/or abdominal obesity to identify individuals at colorectal cancer risk may have higher clinical utility than applying more complex MetS definitions. Cancer Prev Res; 4(11); 1873–83. ©2011 AACR.","DOI":"10.1158/1940-6207.CAPR-11-0218","journalAbbreviation":"Cancer Prev Res (Phila)","author":[{"family":"Aleksandrova","given":"Krasimira"},{"family":"Boeing","given":"Heiner"},{"family":"Jenab","given":"Mazda"},{"family":"Bas Bueno-de-Mesquita","given":"H."},{"family":"Jansen","given":"Eugene"},{"family":"Duijnhoven","given":"Fränzel J.B.","non-dropping-particle":"van"},{"family":"Fedirko","given":"Veronika"},{"family":"Rinaldi","given":"Sabina"},{"family":"Romieu","given":"Isabelle"},{"family":"Riboli","given":"Elio"},{"family":"Romaguera","given":"Dora"},{"family":"Overvad","given":"Kim"},{"family":"Østergaard","given":"Jane Nautrup"},{"family":"Olsen","given":"Anja"},{"family":"Tjønneland","given":"Anne"},{"family":"Boutron-Ruault","given":"Marie-Christine"},{"family":"Clavel-Chapelon","given":"Françoise"},{"family":"Morois","given":"Sophie"},{"family":"Masala","given":"Giovanna"},{"family":"Agnoli","given":"Claudia"},{"family":"Panico","given":"Salvatore"},{"family":"Tumino","given":"Rosario"},{"family":"Vineis","given":"Paolo"},{"family":"Kaaks","given":"Rudolf"},{"family":"Lukanova","given":"Annekatrin"},{"family":"Trichopoulou","given":"Antonia"},{"family":"Naska","given":"Androniki"},{"family":"Bamia","given":"Christina"},{"family":"Peeters","given":"Petra H."},{"family":"Rodríguez","given":"Laudina"},{"family":"Buckland","given":"Genevieve"},{"family":"Sánchez","given":"María-José"},{"family":"Dorronsoro","given":"Miren"},{"family":"Huerta","given":"Jose-María"},{"family":"Barricarte","given":"Aurelio"},{"family":"Hallmans","given":"Göran"},{"family":"Palmqvist","given":"Richard"},{"family":"Khaw","given":"Kay-Tee"},{"family":"Wareham","given":"Nicholas"},{"family":"Allen","given":"Naomi E."},{"family":"Tsilidis","given":"Konstantinos K"},{"family":"Pischon","given":"Tobias"}],"issued":{"date-parts":[["2011",11,2]]}}},{"id":80,"uris":["http://zotero.org/users/2724931/items/UJ5VD5FU"],"uri":["http://zotero.org/users/2724931/items/UJ5VD5FU"],"itemData":{"id":80,"type":"article-journal","title":"The role of resistin in colorectal cancer.","container-title":"Clinica chimica acta; international journal of clinical chemistry","page":"760-764","volume":"413","issue":"7-8","abstract":"BACKGROUND: To date the role of resistin in colorectal cancer (CRC) is far from being elucidated. The aim of this study was to investigate the association between serum resistin levels and CRC in relation to known risk/protective factors including anthropometric, metabolic, inflammatory parameters as well as lifestyle individual characteristics. METHODS: 40 CRC patients and 40 controls were enrolled. Body weight, height, waist circumference and blood pressure were recorded. Fasting plasma glucose, lipids, C-reactive protein (CRP) and resistin levels were measured. Metabolic Syndrome (MS) was defined according to the harmonized definition. RESULTS: Resistin levels were significantly higher in CRC patients than in controls (p=0.028) and gradually increased with tumor stage progression (p=0.042). A high resistin level was statistically significant determinant of CRC after adjusting for age, sex, body mass index and lifestyle parameters (p=0.029). Resistin showed a strong association with CRP levels (p </= 0.0001). In stepwise regression analysis CRP remained the only independent predictor of both resistin levels (p=0.001) and CRC risk (p=0.021). CONCLUSIONS: These results clarify the nature of the association between resistin and CRC risk suggesting that the proinflammatory state of cancer, rather than the clinical diagnosis of CRC itself or its link with obesity and MS, may govern this association.","DOI":"10.1016/j.cca.2012.01.019","ISSN":"1873-3492 0009-8981","note":"PMID: 22296675","journalAbbreviation":"Clin Chim Acta","language":"eng","author":[{"family":"Danese","given":"Elisa"},{"family":"Montagnana","given":"Martina"},{"family":"Minicozzi","given":"Anna Maria"},{"family":"Bonafini","given":"Sara"},{"family":"Ruzzenente","given":"Orazio"},{"family":"Gelati","given":"Matteo"},{"family":"De Manzoni","given":"Giovanni"},{"family":"Lippi","given":"Giuseppe"},{"family":"Guidi","given":"Gian Cesare"}],"issued":{"date-parts":[["2012",4,11]]}}},{"id":49,"uris":

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syndrome (MetS), a set of metabolic risk factors including obesity, dysglycemia, and dyslipidemia, is associated with increased colorectal cancer (CRC) risk. A putative biological mechanism is chronic, low-grade inflammation, both a feature of MetS and a CRC risk factor. However, excess body fat also induces a proinflammatory state and increases CRC risk. In order to explore the relationship between MetS, body size, inflammation, and CRC, we studied large panels of inflammatory and cancer biomarkers. We included 138 participants from the Västerbotten Intervention Programme with repeated sampling occasions, 10 years apart. Plasma samples were analyzed for 178 protein markers by proximity extension assay. To identify associations between plasma protein levels and MetS components, linear mixed models were fitted for each protein. Twelve proteins were associated with at least one MetS component, six of which were associated with MetS score. MetS alone was not related to any protein. Instead, BMI displayed by far the strongest associations with the biomarkers. One of the 12 MetS score-related proteins (FGF-21), also associated with BMI, was associated with an increased CRC risk (OR 1.71, 95% CI 1.19 –2.47). We conclude that overweight and obesity, acting through both inflammation and other mechanisms, likely explain the MetS-CRC connection.","DOI":"10.1155/2017/4803156","ISSN":"0962-9351","author":
[{"family":"Harlid","given":"Sophia"},{"family":"Myte","given":"Robin"},{"family":"Van Guelpen","given":"Bethany"}],"issued":{"date-parts":[["2017"]]}}},{"id":85,"uris":
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-UTR polymorphisms in the vascular endothelial growth factor (VEGF) gene and metabolic syndrome in determining the risk of colorectal cancer in Koreans","container-title":"BMC Cancer","page":"881","volume":"14","archive":"PMC","archive_location":"PMC4289193","abstract":"BACKGRO
Polymorphisms in angiogenesis-related genes and metabolic syndrome (MetS) risk factors play important roles in cancer development. Moreover, recent studies have reported associations between a number of 3
′
-UTR polymorphisms and a variety of cancers. The aim of this study was to investigate the associations of three VEGF 3
′
-UTR polymorphisms (1451C

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T [rs3025040], 1612G

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A [rs10434], and 1725G

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A [rs3025053]) and MetS with colorectal cancer (CRC) susceptibility in Koreans. METHODS: A total of 850 participants (450 CRC patients and 400 controls) were enrolled in the study. The genotyping of VEGF polymorphisms was performed by TaqMan allelic discrimination assays. Cancer risks of genetic variations and gene-environment interactions were assessed by adjusted odds ratios (AORs) and 95% confidence intervals (CIs) of multivariate logistic regression analyses. RESULTS: VEGF 1451C

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T was significantly associated with rectal cancer risk (Dominant model; AOR =1.58; 95% CI = 1.09 - 2.28; p = 0.015) whereas VEGF 1725G

>

A correlated with MetS risk (Dominant model; AOR =1.61; 95% CI =1.06 - 2.46; p = 0.026). Of the gene-environment combined effects, the interaction of VEGF 1451C

>

T and MetS contributed to increased rectal cancer risk (AOR = 3.15; 95% CI = 1.74 - 5.70; p <

.001) whereas the combination of VEGF 1725G

>

A and MetS was involved with elevated colon cancer risk (AOR = 2.68; 95% CI = 1.30 - 1.55; p =0.008). CONCLUSIONS: Our results implicate that VEGF 1451C

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T and 1725G

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A may predispose to CRC susceptibility and the genetic contributions may be varied with the presence of MetS. ELECTRONIC SUPPLEMENTARY MATERIAL: The online version of this article (doi:10.1186/1471-2407-14-881) contains supplementary material, which is available to authorized users.","DOI":"10.1186/1471-2407-14-881","ISSN":"1471-2407","author":[{"family":"Jeon","given":"Young Joo"},{"family":"Kim","given":"Jong

Woo"},{"family":"Park","given":"Hye Mi"},{"family":"Jang","given":"Hyo Geun"},
{"family":"Kim","given":"Jung O"},{"family":"Oh","given":"Jisu"},{"family":"Chong","given":"So Young"},
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["http://zotero.org/users/2724931/items/2S89J5KW"],"itemData":{"id":170,"type":"article-journal","title":"Risk factors associated with rectal neuroendocrine tumors: a cross-sectional study.","container-title":"Cancer epidemiology, biomarkers & prevention : a publication of the American Association for Cancer Research, cosponsored by the American Society of Preventive Oncology","page":"1406-1413","volume":"23","issue":"7","abstract":"BACKGROUND: The incidence of rectal neuroendocrine tumors (NET) has been increasing since the implementation of the screening colonoscopy. However, very little is known about risk factors associated with rectal NETs. We examined the prevalence of and the risk factors for rectal NETs in a Korean population. METHODS: A cross-sectional study was performed on 62,171 Koreans who underwent screening colonoscopy. The clinical characteristics and serum biochemical parameters of subjects with rectal NET were compared with those of subjects without rectal NET using multivariate logistic regression. RESULTS: Of a total of 57,819 participants, 101 [OR, 0.17%; 95% confidence interval (CI), 0.14-0.20] had a rectal NET. Young age (<50 years; OR, 2.09; 95% CI, 1.06-4.15), male gender (OR, 1.92; 95% CI, 1.15-3.20), alcohol drinking [adjusted OR (AOR), 1.56; 95% CI, 1.01-2.42], and a low high-density lipoprotein-cholesterol (HDL-C) level (AOR, 1.85; 95% CI, 1.10-3.11) were independent risk factors for rectal NETs. Cigarette smoking, fatty liver, metabolic syndrome, higher triglyceride level (>/=150 mg/dL), and higher homeostasis model assessment of insulin resistance (>/=2.5) were not independently associated with rectal NETs, although these factors were more common in individuals with rectal NETs in the univariate analysis. CONCLUSIONS: Young age (<50 years), male gender, alcohol drinking, and a low","DOI":"10.1158/1055-9965.EPI-14-0132","ISSN":"1538-7755 1055-9965","note":"PMID: 24813818","journalAbbreviation":"Cancer Epidemiol Biomarkers Prev","language":"eng","author":[{"family":"Jung","given":"Yoon Suk"},{"family":"Yun","given":"Kyung Eun"},{"family":"Chang","given":"Yoosoo"},{"family":"Ryu","given":"Seungho"},
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[["2014",7]]}}},{"id":36,"uris":["http://zotero.org/users/2724931/items/437ZFQED"],"uri":
["http://zotero.org/users/2724931/items/437ZFQED"],"itemData":{"id":36,"type":"article-journal","title":"Clinico-epidemiologic study of the metabolic syndrome and lifestyle factors associated with the risk of colon adenoma and adenocarcinoma.","container-title":"Asian Pacific journal of cancer prevention : APJCP","page":"975-983","volume":"11","issue":"4","abstract":"BACKGROUND: The numbers of patients with colorectal cancer and associated deaths have been increasing in Japan, probably due to rapid lifestyle changes. Prevention is clearly important and the present study aimed to clarify risk factors and to promote colon cancer screening. METHODS: We investigated lifestyle factors, biochemical data, and pathological features of 727 individuals who underwent colonoscopy. Data were subjected to statistical analysis using SPSS software. RESULTS: Low-grade adenoma was more frequent among the elderly and in men. All of the men and 87.5% of the women with high-grade adenoma or adenocarcinoma were aged>/=45 and>/=50 years, respectively. In women, a larger waist circumference (=80 cm) increased the odds ratio for colon adenoma or adenocarcinoma (colon tumors) by 1.033 (95% confidence index (CI), 1.001-1.066; p=0.040). Metabolic syndrome significantly increased the odds ratio of colon tumors in men, but not in women. Cigarette smoking, drinking alcohol, and increased physical activity were significant risk factors for colon tumors in men, with odds ratios of 1.001 (95% CI, 1.000-1.002; p=0.001), 1.001 (95% CI, 1.000-1.003; p=0.047), and 1.406 (95% CI 1.038-1.904; p=0.028), respectively. CONCLUSIONS: Colon tumors have a high prevalence in the elderly. A larger waist circumference in women and metabolic syndrome in both men and women elevate the risk of colon tumors. In addition, smoking, drinking, and excessive physical activity are risk factors for adenoma and adenocarcinoma in men. For early detection of colorectal cancer, men older than 45 years and women older than 50 years with these risk factors are recommended to undergo colonoscopy.","ISSN":"2476-762X 1513-7368","note":"PMID: 21133610","journalAbbreviation":"Asian Pac J Cancer Prev","language":"eng","author":[{"family":"Kaneko","given":"Rena"},
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["http://zotero.org/users/2724931/items/7FAPCFIV"],"itemData":{"id":81,"type":"article-journal","title":"Association of colorectal adenoma with components of metabolic syndrome.","container-title":"Cancer causes & control : CCC","page":"727-735","volume":"23","issue":"5","abstract":"PURPOSE: Recently, some studies have shown that diabetes mellitus and metabolic syndrome increase the risk of colorectal neoplasms. Although the mechanism is not known, those have been proposed to contribute to this phenomenon, including insulin resistance, oxidative stress, and adipokine production. The objective of this study was to assess the association between metabolic risk factors and colorectal neoplasm. METHODS: Study participants visited the National Cancer Center, Korea, for screening (2007-2009). A total of 1,771 diagnosed adenoma patients and 4,667 polyp-free controls were included. The association between risk factors and colorectal neoplasm was evaluated using logistic regression models. RESULTS: High waist circumference, blood pressure, and serum triglyceride levels were associated with an increased risk of colorectal adenoma. Metabolic syndrome (MS) was associated with an increased risk of adenoma (OR = 1.44, 95 % CI = 1.23-1.70). The association between MS and colorectal adenoma was observed regardless of advanced/low-risk adenoma, and multiplicity. MS affected right colon adenomas (OR = 1.50, 95 % CI = 1.22-1.85), left colon adenomas (OR = 1.36, 95 % CI = 1.05-1.76), and adenomas in multiple anatomical locations (OR = 1.59, 95 % CI = 1.19-2.12), but was not associated with rectum. CONCLUSION: Central obesity, triglyceride level, and MS are risk factors for colorectal adenoma including advanced adenoma and multiplicity.","DOI":"10.1007/s10552-012-9942-9","ISSN":"1573-7225 0957-5243","note":"PMID: 22450737","journalAbbreviation":"Cancer Causes Control","language":"eng","author":
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["http://zotero.org/users/2724931/items/S9F263MP"],"itemData":{"id":79,"type":"article-journal","title":"Metabolic syndrome and colorectal cancer: the protective role of Mediterranean diet--a case-control study.","container-title":"Angiology","page":"390-396","volume":"63","issue":"5","abstract":"The effect of Mediterranean diet on colorectal cancer, in the presence of the metabolic syndrome, was evaluated in 250 patients with first developed cancer (63 +/- 12 years, 59% males) and 250 age-gender-matched controls. Adherence to the Mediterranean diet was evaluated with the modified-MedDietScore (theoretical range 0-75), while assessment of the metabolic syndrome (MetS) was based on the third Adult Treatment Panel ([ATP III] National Cholesterol Education Program) criteria. Presence of MetS (1.66, 95% confidence interval [CI] 1.02, 2.69), age (4.25, 95% CI 2.33, 7.77), smoking (1.85, 95% CI 1.27, 2.70), and family history of colorectal cancer (3.37, 95% CI 1.69, 6.75) had a detrimental effect, whereas adherence to the Mediterranean diet (0.88, 95% CI 0.84, 0.92) and body mass index (0.93, 95%CI 0.89, 0.98) had a protective role regarding colorectal cancer. Mediterranean diet had the same effect in relation to colorectal cancer, in both participants with (0.84, 95% CI 0.76, 0.93) and without MetS (0.89, 95% CI 0.85, 0.94).","DOI":"10.1177/0003319711421164","ISSN":"1940-1574 0003-3197","note":"PMID: 22267847","journalAbbreviation":"Angiology","language":"eng","author":[{"family":"Kontou","given":"Niki"},{"family":"Psaltopoulou","given":"Theodora"},{"family":"Soupos","given":"Nick"},{"family":"Polychronopoulos","given":"Evangelos"},{"family":"Xinopoulos","given":"Dimitrios"},{"family":"Linos","given":"Athena"},{"family":"Panagiotakos","given":"Demosthenes B."}],"issued":{"date-parts":[["2012",7]]}}},{"id":179,"uris":["http://zotero.org/users/2724931/items/G83HJCGN"],"uri":["http://zotero.org/users/2724931/items/G83HJCGN"],"itemData":{"id":179,"type":"article-journal","title":"Prevalence and risk factors of advanced colorectal neoplasms in asymptomatic Korean people between 40 and 49

years of age","container-title":"Journal of Gastroenterology and Hepatology","page":"98-105","volume":"32","issue":"1","source":"PubMed","abstract":"BACKGROUND AND AIM: Current guidelines recommend colon cancer screening for persons aged over 50

years. However, there are few data on colorectal cancer screening in 40- to 49-year-olds. This study assessed the prevalence and risk factors of colorectal neoplasms in 40- to 49-year-old Koreans.\nMETHODS: We analyzed the results of screening colonoscopies of 6680 persons 40-59

years of age (2206 aged 40-49 and 4474 aged 50-59

years).\nRESULTS: The prevalence of overall and advanced neoplasms in the 40- to 49-year age group was lower than in the 50- to 59-year age group (26.7% and 2.4% vs 37.8% and 3.5%, respectively). However, the prevalence of overall and advanced neoplasms increased to 39.1% and 5.4%, respectively, in 45- to 49-year-old individuals with metabolic syndrome. In the 40- to 49-year age group, age, current smoking, and metabolic syndrome were associated with an increased risk of advanced neoplasms (odds ratio [OR] 1.16, 95% confidence interval [CI] 1.04-1.30; OR 3.12, 95% CI 1.20-8.12; and OR 2.00, 95% CI 1.09-3.67, respectively).\nCONCLUSIONS: Individuals aged 40-49

years had a lower prevalence of colorectal neoplasms than those aged 50-59

years, but some 40- to 49-year-olds showed a similar prevalence to those aged 50-59

years. Age, current smoking habits, and metabolic syndrome are associated with an increased risk of advanced neoplasms in subjects aged 40-49

years. Further studies are needed to stratify the risks of colon cancer and guide targeted screening in persons younger than 50

years old.","DOI":"10.1111/jgh.13454","ISSN":"1440-1746","note":"PMID: 27197805","journalAbbreviation":"J. Gastroenterol. Hepatol.","language":"eng","author":[{"family":"Koo","given":"Ja Eun"},{"family":"Kim","given":"Kyung-Jo"},{"family":"Park","given":"Hye Won"},{"family":"Kim","given":"Hong-Kyu"},{"family":"Choe","given":"Jae Won"},{"family":"Chang","given":"Hye-Sook"},{"family":"Lee","given":"Ji Young"},{"family":"Myung","given":"Seung-Jae"},{"family":"Yang","given":"Suk-Kyun"},{"family":"Kim","given":"Jin-Ho"}],"issued":{"date-parts":[["2017",1]]}}},{"id":83,"uris":["http://zotero.org/users/2724931/items/33PI99M5"],"uri":["http://zotero.org/users/2724931/items/33PI99M5"],"itemData":{"id":83,"type":"article-journal","title":"Increased risk of colorectal malignant neoplasm in patients with nonalcoholic fatty liver disease: a large study","container-title":"Molecular Biology Reports","page":"2989-2997","volume":"41","issue":"5","abstract":"Nonalcoholic fatty liver disease (NAFLD) has been suggested to be a strong risk factor of colorectal benign adenomas and advanced neoplasms. The aim of this large cohort study was to further investigate the prevalence of colorectal malignant neoplasm (CRMN) in patients with NAFLD and determine whether association between NAFLD and CRMN exists. 2,315 community subjects (1,370 males and 945 females) who underwent a routine colonoscopy according to international colorectal cancer screening guideline were recruited. Nature of colorectal lesions determined by biopsy and NAFLD was diagnosed by ultrasound. Binary logistic regression analysis was applied to explore the related associations. Prevalence of CRMN was 29.3 % (77/263) in patients with NAFLD, which was significantly higher than 18.0 % (369/2,052) in the control group ($P < 0.05$). In addition, malignant neoplasm in NAFLD group occurred more frequently at sigmoid colon than in control group (14.3 vs. 11.9 %). The incidence of highly-differentiated colorectal adenocarcinoma in NAFLD group was significantly higher than control group (62.3 vs. 9.8 %). Univariate analysis showed that NAFLD had strong association with CRMN (OR 2.043; 95 % CI 1.512–2.761; $P < 0.05$). After adjusting for metabolic and other confounding factors, NAFLD remained as an independent risk factor for CRMN (OR 1.868; 95 % CI 1.360–2.567; $P < 0.05$). NAFLD was an independent risk factor for CRMN. Sigmoid carcinoma and highly differentiated colorectal adenocarcinoma were more commonly found in NAFLD. (ClinicalTrials.gov number, NCT01657773, website: http://clinicaltrials.gov/ct2/show/NCT01657773?term=zheng+minghua&rank=1)."},"DOI":"10.1007/s11033-014-3157-y","ISSN":"1573-4978","journalAbbreviation":"Molecular Biology Reports","author":[{"family":"Lin","given":"Xian-Feng"},{"family":"Shi","given":"Ke-Qing"},{"family":"You","given":"Jie"},{"family":"Liu","given":"Wen-Yue"},{"family":"Luo","given":"Ying-Wan"},{"family":"Wu","given":"Fa-Ling"},{"family":"Chen","given":"Yong-Ping"},{"family":"Wong","given":"Danny Ka-Ho"},{"family":"Yuen","given":"Man-Fung"},

{"family":"Zheng","given":"Ming-Hua"}],"issued":{"date-parts":[["2014"]]}}},{"id":177,"uris":["http://zotero.org/users/2724931/items/E2HN5VWH"],"uri":["http://zotero.org/users/2724931/items/E2HN5VWH"],"itemData":{"id":177,"type":"article-journal","title":"Metabolic Predispositions and Increased Risk of Colorectal Adenocarcinoma by Anatomical Location: A Large Population-Based Cohort Study in Norway","container-title":"American Journal of Epidemiology","page":"883-893","volume":"182","issue":"10","abstract":"Whether different definitions of metabolic syndrome (MetS) are differently associated with colorectal adenocarcinoma (CA) by anatomical location is unclear. A population-based cohort study, the Cohort of Norway (CONOR) Study, was conducted in Norway from 1995 to 2010. Anthropometric measurements, blood samples, and lifestyle data were collected at recruitment. CAs were identified through linkage to the Norwegian Cancer Register. A composite index of MetS as defined by the International Diabetes Federation (IDF) or/and the National Cholesterol Education Program's Adult Treatment Panel III (ATP III) and single components of MetS, including anthropometric factors, blood pressure, lipids, triglycerides, and glucose, were analyzed. Cox proportional hazards regression was performed to estimate hazard ratios and 95% confidence intervals. Significant associations between single MetS components and CA, except for reduced high-density lipoprotein cholesterol and nonfasting glucose levels, were observed. MetS defined by 2 criteria separately showed a similar association with CA in general, and MetS defined by both the IDF and ATP III showed consistent results. Stronger associations were observed in the proximal colon among men (IDF: hazard ratio (HR) = 1.51, 95% confidence interval (CI): 1.24, 1.84; ATP III: HR = 1.40, 95% CI: 1.15, 1.70) and in the rectum among women (IDF: HR = 1.42, 95% CI: 1.07, 1.89; ATP III: HR = 1.43, 95% CI: 1.08, 1.90).","DOI":"10.1093/aje/kwv141","ISSN":"0002-9262","journalAbbreviation":"American Journal of Epidemiology","author":[{"family":"Lu","given":"Yunxia"},{"family":"Ness-Jensen","given":"Eivind"},{"family":"Hveem","given":"Kristian"},{"family":"Martling","given":"Anna"}],"issued":{"date-parts":[["2015",11,15]]}}},{"id":87,"uris":["http://zotero.org/users/2724931/items/VESC9IC5"],"uri":["http://zotero.org/users/2724931/items/VESC9IC5"],"itemData":{"id":87,"type":"article-journal","title":"The relationship of nonalcoholic fatty liver disease and metabolic syndrome for colonoscopy colorectal neoplasm","container-title":"Medicine","page":"e5809","volume":"96","issue":"2","archive":"PMC","archive_location":"PMC5266168","abstract":"Nonalcoholic fatty liver disease is considered to have a strong association with nonalcoholic fatty liver disease (NAFLD) and metabolic syndrome (MetS), respectively. The relationship among NAFLD, MetS, and colorectal neoplasm was assessed in 1793 participants. Participants were divided into 4 groups based on the status of NAFLD and MetS. Relative excess risks of interaction (RERI), attributable proportion (AP), and synergy index (SI) were applied to evaluate the additive interaction. NAFLD and MetS were significantly correlated with colorectal neoplasm and colorectal cancer (CRC), respectively. The incidence of CRC in NAFLD (+) MetS (+) group was significantly higher than other 3 groups. The result of RERI, AP, and SI indicated the significant additive interaction of NAFLD and MetS on the development of CRC. NAFLD and MetS are risk factors for colorectal neoplasm and CRC, respectively. And NAFLD and MetS have an additive effect on the development of CRC.","DOI":"10.1097/MD.0000000000005809","ISSN":"0025-7974","author":[{"family":"Pan","given":"Shuang"},{"family":"Hong","given":"Wandong"},{"family":"Wu","given":"Wenzhi"},{"family":"Chen","given":"Qinfen"},{"family":"Zhao","given":"Qian"},{"family":"Wu","given":"Jiansheng"},{"family":"Jin","given":"Yin"}],"editor":[{"family":"Žarko.","given":"Babi
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3 components of the MetS, as compared to no component. Results were similar for colon and rectal cancers.\nConclusion\nThis study supports a direct association between MetS and both colon and rectal cancers in men, but not in women.","DOI":"10.1016/j.ejca.2010.03.010","ISSN":"0959-8049","journalAbbreviation":"European Journal of Cancer","author":[{"family":"Pelucchi","given":"Claudio"},{"family":"Negri","given":"Eva"},{"family":"Talamini","given":"Renato"},{"family":"Levi","given":"Fabio"},{"family":"Giacosa","given":"Attilio"},{"family":"Crispo","given":"Anna"},{"family":"Bidoli","given":"Ettore"},{"family":"Montella","given":"Maurizio"},{"family":"Franceschi","given":"Silvia"},{"family":"La Vecchia","given":"Carlo"}],"issued":{"date-parts":[["2010",7]]}}},{"id":86,"uris":["http://zotero.org/users/2724931/items/HH3ENCP2"],"uri":["http://zotero.org/users/2724931/items/HH3ENCP2"],"itemData":{"id":86,"type":"article-journal","title":"Is height a risk factor for colorectal adenoma?","container-title":"The Korean Journal of Internal Medicine","page":"653-659","volume":"31","issue":"4","archive":"PMC","archive_location":"PMC4939489","abstract":"BACKGROUNI
Although it is generally known that the risk for all types of cancer increases with adult height, combined and for several common site-specific cancers (including colon and rectal), evidence is limited for adenomas, which are precursors to colorectal cancer. We evaluated the association between height and risk of colorectal adenoma at various stages of the adenoma-carcinoma pathway. METHODS:: We conducted a retrospective study using data from patients who had undergone a complete colonoscopy as part of a health examination at the Health Promotion Center of Samsung Medical Center between October 13, 2009 and December 31, 2011. A total of 1,347 male subjects were included in our study. Multivariate logistic regression analysis was used to evaluate the association between height and colorectal adenoma. RESULTS:: Each 5-cm increase in height was associated with 1.6% and 5.3% higher risks of advanced colorectal adenoma and high-risk colorectal adenoma, respectively, but associations

were not significant after adjusting for age, body mass index, metabolic syndrome, alcohol intake, smoking, family history of colorectal cancer, and regular aspirin use (p = 0.840 and p = 0.472, respectively). CONCLUSIONS:: No clear association was found between colorectal adenoma risk and height. Unlike other site-specific tumors reported to have a consistent relationship with height, the association between colorectal tumor and height remains controversial.","DOI":"10.3904/kjim.2014.313","ISSN":"1226-3303","author":[{"family":"Pyo","given":"Jeung Hui"},{"family":"Hong","given":"Sung Noh"},{"family":"Min","given":"Byung-Hoon"},{"family":"Chang","given":"Dong Kyung"},{"family":"Son","given":"Hee Jung"},{"family":"Rhee","given":"Poong-Lyul"},{"family":"Kim","given":"Jae J"},{"family":"Kim","given":"Young-Ho"}],"issued":{"date-parts":[["2016",7]]}}},{"id":162,"uris":["http://zotero.org/users/2724931/items/R3KQJIJK"],"uri":["http://zotero.org/users/2724931/items/R3KQJIJK"],"itemData":{"id":162,"type":"article-journal","title":"Clinical study on the correlation between metabolic syndrome and colorectal carcinoma","container-title":"ANZ Journal of Surgery","page":"331-336","volume":"80","issue":"5","abstract":"Background: Although metabolic syndrome (MS) has received a lot of attention in recent years, the correlation between MS and colorectal carcinoma is still not very clear. This study aims at exploring the relationship between MS and colorectal carcinoma. Methods: Data was collected from 507 cases of colorectal carcinoma and 507 cases of healthy patients between January 2002 and March 2007 to establish the database. The patients with colorectal cancer were divided into two groups based on the presence of MS. Multivariate analysis of these data for the overall survival and recurrence was performed with the Cox proportional hazard model. Variables examined by multivariate analysis were sex , age, location, histotype, differentiation, tumour, node, metastasis (TNM) stage, the number of lymph nodes detected, etc. Results: The existence of MS in the colorectal carcinoma group was clearly more than that in the control group. The existence of two to four types of abnormal metabolic diseases was significantly more in the colorectal cancer group than in the control group. MS is one of the important elements that can independently influence the survival (odds ratio (OR) = 1.501, 95% confidence interval (CI) = 1.057–2.131) and have the highest risk with worse survival compared with other parameters. Conclusion: There is a close relationship between MS and colorectal carcinoma, and MS is a significantly independent element that influences the survival of the colorectal carcinoma. Decreasing the incidence of MS maybe play a role in improving therapeutic efficacy and prognosis of the cancer.","DOI":"10.1111/j.1445-2197.2009.05084.x","ISSN":"1445-2197","author":[{"family":"Shen","given":"Zhanlong"},{"family":"Wang","given":"Shan"},{"family":"Ye","given":"Yingjiang"},{"family":"Yin","given":"Mujun"},{"family":"Yang","given":"Xiaodong"},{"family":"Jiang","given":"Kewei"},{"family":"Liu","given":"Yan"}],"issued":{"date-parts":[["2010",5,1]]}}},{"id":175,"uris":["http://zotero.org/users/2724931/items/SMIADFP7"],"uri":["http://zotero.org/users/2724931/items/SMIADFP7"],"itemData":{"id":175,"type":"article-journal","title":"Metabolic syndrome and colorectal neoplasms: An ominous association","container-title":"World Journal of Gastroenterology","page":"5320","volume":"21","issue":"17","source":"CrossRef","DOI":"10.3748/wjg.v21.i17.5327","shortTitle":"Metabolic syndrome and colorectal neoplasms","language":"en","author":[{"family":"Trabulo","given":"Daniel"}],"issued":{"date-parts":[["2015"]]}}},{"id":37,"uris":["http://zotero.org/users/2724931/items/B468CSCB"],"uri":["http://zotero.org/users/2724931/items/B468CSCB"],"itemData":{"id":37,"type":"article-journal","title":"Colorectal cancer and its association with the metabolic syndrome: a Malaysian multi-centric case-control study.","container-title":"Asian Pacific journal of cancer prevention : APJCP","page":"3873-3877","volume":"13","issue":"8","abstract":"OBJECTIVE: Colorectal cancer (CRC) and the metabolic syndrome (MetS) are both on the rise in Malaysia. A multi-centric case-control study was conducted from December 2009 to January 2011 to determine any relationship between the two. METHODS: Patients with confirmed CRC based on colonoscopy findings and cancer free controls from five local hospitals were assessed for MetS according to the International Diabetes Federation (IDF) definition. Each index case was matched for age, gender and ethnicity with two controls (140: 280). RESULTS: MetS among cases was highly prevalent (70.7%), especially among women (68.7%). MetS as an entity increased CRC risk by almost three fold independently (OR=2.61, 95% CI=1.53-4.47). In men MetS increased the risk of CRC by two fold (OR=2.01, 95%CI, 1.43-4.56), demonstrating an increasing trend in risk with the number of Mets components observed. CONCLUSION: This study provides evidence for a positive association between the metabolic syndrome and colorectal cancer. A prospective study on the Malaysian population is a high priority to confirm these findings.","ISSN":"2476-762X 1513-7368","note":"PMID: 23098486","journalAbbreviation":"Asian Pac J Cancer Prev","language":"eng","author":[{"family":"Ulaganathan","given":"V."},{"family":"Kandiah","given":"M."},{"family":"Zalilah","given":"M. S."},{"family":"Faizal","given":"J. A."},{"family":"Fijeraid","given":"H."},{"family":"Normayah","given":"K."},{"family":"Gooi","given":"B. H."},{"family":"Othman","given":"R."}],"issued":{"date-parts":[["2012"]]}}},{"id":4,"uris":["http://zotero.org/users/2724931/items/C7S4WQSB"],"uri":["http://zotero.org/users/2724931/items/C7S4WQSB"],"itemData":{"id":4,"type":"article-journal","title":"Cancer Risk in Patients with Manifest Vascular Disease: Effects of Smoking, Obesity, and Metabolic Syndrome","container-title":"Cancer Epidemiology and Prevention Biomarkers","page":"1267-1277","volume":"22","issue":"7","source":"cebp.aacrjournals.org","abstract":"Background: Patients with vascular disease may be at increased risk of cancer because of shared risk factors and common pathogenesis.\nMethods: Patients with vascular disease (n = 6,172) were prospectively followed for cancer incidence. Standardized incidence ratios (SIRs) were calculated to compare the cancer incidence of the study population with that of the general population. Multivariable-adjusted hazard ratio's (HRs) of cancer were estimated for smoking status, pack-years, body mass index, waist circumference and visceral adipose tissue (VAT), and metabolic syndrome (MetS).\nResults: During a median follow-up of 5.5 years, 563 patients were diagnosed with cancer. Patients with vascular disease were at increased risk of cancer [SIR = 1.19; 95% confidence interval (CI), 1.10–1.29]. Specifically, risk of lung cancer (SIR = 1.56; 95% CI, 1.31–1.83), as well as bladder cancer (SIR = 1.60; 95% CI, 1.11–2.24) and cancer of the lip, oral cavity, or pharynx in men (SIR = 1.51; 95% CI, 0.89–2.39), and colorectal (SIR = 1.71; 95% CI, 1.11–2.53) and kidney cancer (SIR = 2.92; 95% CI, 1.05–6.38) in women was increased. A relation between smoking and cancer risk was observed (HR for current smokers = 1.37; 95% CI, 1.05–1.73), whereas an increase in VAT was associated with higher breast cancer risk in women (HR = 1.42; 95% CI, 1.03–1.96). No relation between MetS and cancer risk was found.\nConclusions: Patients with vascular disease have a 19% higher cancer risk compared to the general population. Smoking increased cancer risk and abdominal obesity is a risk factor for breast cancer in female patients with vascular disease.\nImpact: These results call for awareness of the increased cancer risk in patients with vascular disease among physicians and underline the necessity of lifestyle improvement not only for reducing cardiovascular risk. Cancer Epidemiol Biomarkers Prev; 22(7); 1267–77. ©2013 AACR.","DOI":"10.1158/1055-9965.EPI-13-0090","ISSN":"1055-9965, 1538-7755","note":"PMID: 23677576","shortTitle":"Cancer Risk in Patients with Manifest Vascular Disease","journalAbbreviation":"Cancer

Epidemiol Biomarkers Prev","language":"en","author":[{"family":"Kruijsdijk","given":"Rob C. M.","dropping-particle":"van"},{"family":"Graaf","given":"Yolanda","dropping-particle":"van der"},{"family":"Peeters","given":"Petra H. M."},{"family":"Visseren","given":"Frank L. J."},{"family":"Group","given":"on behalf of the Second Manifestations of ARTerial disease (SMART)","dropping-particle":"study"}],"issued":{"date-parts":[["2013",7,1]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
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METHODS: We investigated lifestyle factors, biochemical data, and pathological features of 727 individuals who underwent colonoscopy. Data were subjected to statistical analysis using SPSS software. RESULTS: Low-grade adenoma was more frequent among the elderly and in men. All of the men and 87.5% of the women with high-grade adenoma or adenocarcinoma were aged>/=45 and>/=50 years, respectively. In women, a larger waist circumference (=80 cm) increased the odds ratio for colon adenoma or adenocarcinoma (colon tumors) by 1.033 (95% confidence index (CI), 1.001-1.066; p=0.040). Metabolic syndrome significantly increased the odds ratio of colon tumors in men, but not in women. Cigarette smoking, drinking alcohol, and increased physical activity were significant risk factors for colon tumors in men, with odds ratios of 1.001 (95% CI, 1.000-1.002; p=0.001), 1.001 (95% CI, 1.000-1.003; p=0.047), and 1.406 (95% CI 1.038-1.904; p=0.028), respectively. CONCLUSIONS: Colon tumors have a high prevalence in the elderly. A larger waist circumference in women and metabolic syndrome in both men and women elevate the risk of colon tumors. In addition, smoking, drinking, and excessive physical activity are risk factors for adenoma and adenocarcinoma in men. For early detection of colorectal cancer, men older than 45 years and women older than 50 years with these risk factors are recommended to undergo colonoscopy.","ISSN":"2476-762X 1513-7368","note":"PMID: 21133610","journalAbbreviation":"Asian Pac J Cancer Prev","language":"eng","author":[{"family":"Kaneko","given":"Rena"},{"family":"Sato","given":"Yuzuru"},{"family":"An","given":"Yasuyosi"},{"family":"Nakagawa","given":"Motoki"},{"family":"Kusayanagi","given":"Satoshi"},{"family":"Kamisago","given":"Satoshi"},{"family":"Umeda","given":"Tomoyuki"},{"family":"Ogawa","given":"Masazumi"},{"family":"Munakata","given":"Kazuo"},{"family":"Mizuno","given":"Kyoichi"}],"issued":{"date-parts":[["2010"]]}}},{"id":81,"uris":["http://zotero.org/users/2724931/items/7FAPCFIV"],"uri":["http://zotero.org/users/2724931/items/7FAPCFIV"],"itemData":{"id":81,"type":"article-journal","title":"Association of colorectal adenoma with components of metabolic syndrome.","container-title":"Cancer causes & control : CCC","page":"727-735","volume":"23","issue":"5","abstract":"PURPOSE: Recently, some studies have shown that diabetes mellitus and metabolic syndrome increase the risk of colorectal neoplasms. Although the mechanism is not known, those have been proposed to contribute to this phenomenon, including insulin resistance, oxidative stress, and adipokine production. The objective of this study was to assess the association between metabolic risk factors and colorectal neoplasm. METHODS: Study participants visited the National Cancer Center, Korea, for screening (2007-2009). A total of 1,771 diagnosed adenoma patients and 4,667 polyp-free controls were included. The association between risk factors and colorectal neoplasm was evaluated using logistic regression models. RESULTS: High waist circumference, blood pressure, and serum triglyceride levels were associated with an increased risk of colorectal adenoma. Metabolic syndrome (MS) was associated with an increased risk of adenoma (OR = 1.44, 95 % CI = 1.23-1.70). The association between MS and colorectal adenoma was observed regardless of advanced/low-risk adenoma, and multiplicity. MS affected right colon adenomas (OR = 1.50, 95 % CI = 1.22-1.85), left colon adenomas (OR = 1.36, 95 % CI = 1.05-1.76), and adenomas in multiple anatomical locations (OR = 1.59, 95 % CI = 1.19-2.12), but was not associated with rectum. CONCLUSION: Central obesity, triglyceride level, and MS are risk factors for colorectal adenoma including advanced adenoma and multiplicity.","DOI":"10.1007/s10552-012-9942-9","ISSN":"1573-7225 0957-5243","note":"PMID: 22450737","journalAbbreviation":"Cancer Causes Control","language":"eng","author":[{"family":"Kim","given":"Byung Chang"},{"family":"Shin","given":"Aesun"},{"family":"Hong","given":"Chang Won"},{"family":"Sohn","given":"Dae Kyung"},{"family":"Han","given":"Kyung Su"},{"family":"Ryu","given":"Kum Hei"},{"family":"Park","given":"Bum Joon"},{"family":"Nam","given":"Ji Hyung"},{"family":"Park","given":"Ji Won"},{"family":"Chang","given":"Hee Jin"},{"family":"Choi","given":"Hyo Seong"},{"family":"Kim","given":"Jeongseon"},{"family":"Oh","given":"Jae Hwan"}],"issued":{"date-parts":[["2012",5]]}}},{"id":83,"uris":["http://zotero.org/users/2724931/items/33PI99M5"],"uri":["http://zotero.org/users/2724931/items/33PI99M5"],"itemData":{"id":83,"type":"article-journal","title":"Increased risk of colorectal malignant neoplasm in patients with nonalcoholic fatty liver disease: a large study","container-title":"Molecular Biology Reports","page":"2989-2997","volume":"41","issue":"5","abstract":"Nonalcoholic fatty liver disease (NAFLD) has been suggested to be a strong risk factor of colorectal benign adenomas and advanced neoplasms. The aim of this large cohort study was to further investigate the prevalence of colorectal malignant neoplasm (CRMN) in patients with NAFLD and

determine whether association between NAFLD and CRMN exists. 2,315 community subjects (1,370 males and 945 females) who underwent a routine colonoscopy according to international colorectal cancer screening guideline were recruited. Nature of colorectal lesions determined by biopsy and NAFLD was diagnosed by ultrasound. Binary logistic regression analysis was applied to explore the related associations. Prevalence of CRMN was 29.3 % (77/263) in patients with NAFLD, which was significantly higher than 18.0 % (369/2,052) in the control group (P < 0.05). In addition, malignant neoplasm in NAFLD group occurred more frequently at sigmoid colon than in control group (14.3 vs. 11.9 %). The incidence of highly-differentiated colorectal adenocarcinoma in NAFLD group was significantly higher than control group (62.3 vs. 9.8 %). Univariate analysis showed that NAFLD had strong association with CRMN (OR 2.043; 95 % CI 1.512–2.761; P < 0.05). After adjusting for metabolic and other confounding factors, NAFLD remained as an independent risk factor for CRMN (OR 1.868; 95 % CI 1.360–2.567; P < 0.05). NAFLD was an independent risk factor for CRMN. Sigmoid carcinoma and highly differentiated colorectal adenocarcinoma were more commonly found in NAFLD. (ClinicalTrials.gov number, NCT01657773, website: http://clinicaltrials.gov/ct2/show/NCT01657773?term=zheng+minghua&rank=1)."},"DOI":"10.1007/s11033-014-3157-y","ISSN":"1573-4978","journalAbbreviation":"Molecular Biology Reports","author":[{"family":"Lin","given":"Xian-Feng"},{"family":"Shi","given":"Ke-Qing"},{"family":"You","given":"Jie"},{"family":"Liu","given":"Wen-Yue"},{"family":"Luo","given":"Ying-Wan"},{"family":"Wu","given":"Fa-Ling"},{"family":"Chen","given":"Yong-Ping"},{"family":"Wong","given":"Danny Ka-Ho"},{"family":"Yuen","given":"Man-Fung"},{"family":"Zheng","given":"Ming-Hua"}],"issued":{"date-parts":[["2014"]]}}},{"id":177,"uris":["http://zotero.org/users/2724931/items/E2HN5VWH"],"uri":["http://zotero.org/users/2724931/items/E2HN5VWH"],"itemData":{"id":177,"type":"article-journal","title":"Metabolic Predispositions and Increased Risk of Colorectal Adenocarcinoma by Anatomical Location: A Large Population-Based Cohort Study in Norway","container-title":"American Journal of Epidemiology","page":"883-893","volume":"182","issue":"10","abstract":"Whether different definitions of metabolic syndrome (MetS) are differently associated with colorectal adenocarcinoma (CA) by anatomical location is unclear. A population-based cohort study, the Cohort of Norway (CONOR) Study, was conducted in Norway from 1995 to 2010. Anthropometric measurements, blood samples, and lifestyle data were collected at recruitment. CAs were identified through linkage to the Norwegian Cancer Register. A composite index of MetS as defined by the International Diabetes Federation (IDF) or/and the National Cholesterol Education Program's Adult Treatment Panel III (ATP III) and single components of MetS, including anthropometric factors, blood pressure, lipids, triglycerides, and glucose, were analyzed. Cox proportional hazards regression was performed to estimate hazard ratios and 95% confidence intervals. Significant associations between single MetS components and CA, except for reduced high-density lipoprotein cholesterol and nonfasting glucose levels, were observed. MetS defined by 2 criteria separately showed a similar association with CA in general, and MetS defined by both the IDF and ATP III showed consistent results. Stronger associations were observed in the proximal colon among men (IDF: hazard ratio (HR) = 1.51, 95% confidence interval (CI): 1.24, 1.84; ATP III: HR = 1.40, 95% CI: 1.15, 1.70) and in the rectum among women (IDF: HR = 1.42, 95% CI: 1.07, 1.89; ATP III: HR = 1.43, 95% CI: 1.08, 1.90).","DOI":"10.1093/aje/kwv141","ISSN":"0002-9262","journalAbbreviation":"American Journal of Epidemiology","author":[{"family":"Lu","given":"Yunxia"},{"family":"Ness-Jensen","given":"Eivind"},{"family":"Hveem","given":"Kristian"},{"family":"Martling","given":"Anna"}],"issued":{"date-parts":[["2015",11,15]]}}},{"id":4,"uris":["http://zotero.org/users/2724931/items/C7S4WQSB"],"uri":["http://zotero.org/users/2724931/items/C7S4WQSB"],"itemData":{"id":4,"type":"article-journal","title":"Cancer Risk in Patients with Manifest Vascular Disease: Effects of Smoking, Obesity, and Metabolic Syndrome","container-title":"Cancer Epidemiology and Prevention Biomarkers","page":"1267-1277","volume":"22","issue":"7","source":"cebp.aacrjournals.org","abstract":"Background: Patients with vascular disease may be at increased risk of cancer because of shared risk factors and common pathogenesis.\nMethods: Patients with vascular disease (n = 6,172) were prospectively followed for cancer incidence. Standardized incidence ratios (SIRs) were calculated to compare the cancer incidence of the study population with that of the general population. Multivariable-adjusted hazard ratio's (HRs) of cancer were estimated for smoking status, pack-years, body mass index, waist circumference and visceral adipose tissue (VAT), and metabolic syndrome (MetS).\nResults: During a median follow-up of 5.5 years, 563 patients were diagnosed with cancer. Patients with vascular disease were at increased risk of cancer [SIR = 1.19; 95% confidence interval (CI), 1.10–1.29]. Specifically, risk of lung cancer (SIR = 1.56; 95% CI, 1.31–1.83), as well as bladder cancer (SIR = 1.60; 95% CI, 1.11–2.24) and cancer of the lip, oral cavity, or pharynx in men (SIR = 1.51; 95% CI, 0.89–2.39), and colorectal (SIR = 1.71; 95% CI, 1.11–2.53) and kidney cancer (SIR = 2.92; 95% CI, 1.05–6.38) in women was increased. A relation between smoking and cancer risk was observed (HR for current smokers = 1.37; 95% CI, 1.05–1.73), whereas an increase in VAT was associated with higher breast cancer risk in women (HR = 1.42; 95% CI, 1.03–1.96). No relation between MetS and cancer risk was found.\nConclusions: Patients with vascular disease have a 19% higher cancer risk compared to the general population. Smoking increased cancer risk and abdominal obesity is a risk factor for breast cancer in female patients with vascular disease.\nImpact: These results call for awareness of the increased cancer risk in patients with vascular disease among physicians and underline the necessity of lifestyle improvement not only for reducing cardiovascular risk. Cancer Epidemiol Biomarkers Prev; 22(7); 1267–77. ©2013 AACR.","DOI":"10.1158/1055-9965.EPI-13-0090","ISSN":"1055-9965, 1538-7755","note":"PMID: 23677576","shortTitle":"Cancer Risk in Patients with Manifest Vascular Disease","journalAbbreviation":"Cancer Epidemiol Biomarkers Prev","language":"en","author":[{"family":"Kruijsdijk","given":"Rob C. M.","dropping-particle":"van"},{"family":"Graaf","given":"Yolanda","dropping-particle":"van der"},{"family":"Peeters","given":"Petra H. M."},{"family":"Visseren","given":"Frank L. J."},{"family":"Group","given":"on behalf of the Second Manifestations of ARTerial disease (SMART)","dropping-particle":"study"}],"issued":{"date-parts":[["2013",7,1]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
20, 26, 27, 29, 30
]
RE
1.63 [1.46, 1.82]
8.49
(P < 0.00001)
76
0.03
57.26, df = 14
(P < 0.00001)
Case-control
10 (27)

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ADDIN ZOTERO_ITEM CSL_CITATION {"citationID":"ao8car31kr","properties":{"formattedCitation":"{\\rtf \\super 32,33,36\\uc0\\u8211{}43\\nosupersub{}}","plainCitation":"32,33,36–43"},"citationItems":[{"id":164,"uris":["http://zotero.org/users/2724931/items/9WXARXXK"],"uri":["http://zotero.org/users/2724931/items/9WXARXXK"],"itemData":{"id":164,"type":"article-journal","title":"Metabolic Syndrome and Risks of Colon and Rectal Cancer: The European Prospective Investigation into Cancer and Nutrition Study","container-title":"Cancer Prevention Research","page":"1873","volume":"4","issue":"11","abstract":"Metabolic syndrome (MetS) is purportedly related to risk of developing colorectal cancer; however, the association of MetS, as defined according to recent international criteria, and colorectal cancer has not been yet evaluated. In particular, it remains unclear to what extent the MetS components individually account for such an association. We addressed these issues in a nested case–control study that included 1,093 incident cases matched (1:1) to controls by using incidence density sampling. Conditional logistic regression was used to estimate relative risks (RR) and 95% CIs. MetS was defined according to the criteria of the National Cholesterol Education Program/Adult Treatment Panel III (NCEP/ATPIII), the International Diabetes Federation (IDF), and the 2009 harmonized definition. Among individual components, abdominal obesity (RR = 1.51; 95% CI: 1.16–1.96) was associated with colon cancer, whereas abnormal glucose metabolism was associated with both colon (RR = 2.05; 95% CI: 1.57–2.68) and rectal cancer (RR = 2.07; 95% CI: 1.45–2.96). MetS, as defined by each of the definitions, was similarly associated with colon cancer (e.g., RR = 1.91; 95% CI: 1.47–2.42 for MetS by NCEP/ATPIII), whereas MetS by NCEP/ATPIII, but not IDF or harmonized definition, was associated with rectal cancer (RR = 1.45; 95% CI: 1.02–2.06). Overall, these associations were stronger in women than in men. However, the association between MetS and colorectal cancer was accounted for by abdominal obesity and abnormal glucose metabolism such that MetS did not provide risk information beyond these components (likelihood ratio test P = 0.10 for MetS by NCEP/ATPIII). These data suggest that simple assessment of abnormal glucose metabolism and/or abdominal obesity to identify individuals at colorectal cancer risk may have higher clinical utility than applying more complex MetS definitions. Cancer Prev Res; 4(11); 1873–83. ©2011 AACR.","DOI":"10.1158/1940-6207.CAPR-11-0218","journalAbbreviation":"Cancer Prev Res (Phila)","author":[{"family":"Aleksandrova","given":"Krasimira"},{"family":"Boeing","given":"Heiner"},{"family":"Jenab","given":"Mazda"},{"family":"Bas Bueno-de-Mesquita","given":"H."},{"family":"Jansen","given":"Eugene"},{"family":"Duijnhoven","given":"Fränzel J.B.","non-dropping-particle":"van"},{"family":"Fedirko","given":"Veronika"},{"family":"Rinaldi","given":"Sabina"},{"family":"Romieu","given":"Isabelle"},{"family":"Riboli","given":"Elio"},{"family":"Romaguera","given":"Dora"},{"family":"Overvad","given":"Kim"},{"family":"Østergaard","given":"Jane Nautrup"},{"family":"Olsen","given":"Anja"},{"family":"Tjønneland","given":"Anne"},{"family":"Boutron-Ruault","given":"Marie-Christine"},{"family":"Clavel-Chapelon","given":"Françoise"},{"family":"Morois","given":"Sophie"},{"family":"Masala","given":"Giovanna"},{"family":"Agnoli","given":"Claudia"},{"family":"Panico","given":"Salvatore"},{"family":"Tumino","given":"Rosario"},{"family":"Vineis","given":"Paolo"},{"family":"Kaaks","given":"Rudolf"},{"family":"Lukanova","given":"Annekatrin"},{"family":"Trichopoulou","given":"Antonia"},{"family":"Naska","given":"Androniki"},{"family":"Bamia","given":"Christina"},{"family":"Peeters","given":"Petra H."},{"family":"Rodríguez","given":"Laudina"},{"family":"Buckland","given":"Genevieve"},{"family":"Sánchez","given":"María-José"},{"family":"Dorronsoro","given":"Miren"},{"family":"Huerta","given":"Jose-María"},{"family":"Barricarte","given":"Aurelio"},{"family":"Hallmans","given":"Göran"},{"family":"Palmqvist","given":"Richard"},{"family":"Khaw","given":"Kay-Tee"},{"family":"Wareham","given":"Nicholas"},{"family":"Allen","given":"Naomi E."},{"family":"Tsilidis","given":"Konstantinos K"},{"family":"Pischon","given":"Tobias"}],"issued":{"date-parts":[["2011",11,2]]}}},{"id":80,"uris":["http://zotero.org/users/2724931/items/UJ5VD5FU"],"uri":["http://zotero.org/users/2724931/items/UJ5VD5FU"],"itemData":{"id":80,"type":"article-journal","title":"The role of resistin in colorectal cancer.","container-title":"Clinica chimica acta; international journal of clinical chemistry","page":"760-764","volume":"413","issue":"7-8","abstract":"BACKGROUND: To date the role of resistin in colorectal cancer (CRC) is far from being elucidated. The aim of this study was to investigate the association between serum resistin levels and CRC in relation to known risk/protective factors including anthropometric, metabolic, inflammatory parameters as well as lifestyle individual characteristics. METHODS: 40 CRC patients and 40 controls were enrolled. Body weight, height, waist circumference and blood pressure were recorded. Fasting plasma glucose, lipids, C-reactive protein (CRP) and resistin levels were measured. Metabolic Syndrome (MS) was defined according to the harmonized definition. RESULTS: Resistin levels were significantly higher in CRC patients than in controls (p=0.028) and gradually increased with tumor stage progression (p=0.042). A high resistin level was statistically significant determinant of CRC after adjusting for age, sex, body mass index and lifestyle parameters (p=0.029). Resistin showed a strong association with CRP levels (p </= 0.0001). In stepwise regression analysis CRP remained the only independent predictor of both resistin levels (p=0.001) and CRC risk (p=0.021). CONCLUSIONS: These results clarify the nature of the association between resistin and CRC risk suggesting that the proinflammatory state of cancer, rather than the clinical diagnosis of CRC itself or its link with obesity and MS, may govern this association.","DOI":"10.1016/j.cca.2012.01.019","ISSN":"1873-3492 0009-8981","note":"PMID: 22296675","journalAbbreviation":"Clin Chim Acta","language":"eng","author":[{"family":"Danese","given":"Elisa"},{"family":"Montagnana","given":"Martina"},{"family":"Minicozzi","given":"Anna Maria"},{"family":"Bonafini","given":"Sara"},{"family":"Ruzzenente","given":"Orazio"},{"family":"Gelati","given":"Matteo"},{"family":"De Manzoni","given":"Giovanni"},{"family":"Lippi","given":"Giuseppe"},{"family":"Guidi","given":"Gian Cesare"}],"issued":{"date-parts":[["2012",4,11]]}}},{"id":49,"uris":["http://zotero.org/users/2724931/items/JZMISB9P"],"uri":["http://zotero.org/users/2724931/items/JZMISB9P"],"itemData":{"id":49,"type":"article-journal","title":"The Metabolic Syndrome, Inflammation, and Colorectal Cancer Risk: An Evaluation of Large Panels of Plasma Protein Markers Using Repeated, Prediagnostic Samples","container-title":"Mediators of Inflammation","page":"4803156","volume":"2017","archive":"PMC","archive_location":"PMC5381203","abstract syndrome (MetS), a set of metabolic risk factors including obesity, dysglycemia, and dyslipidemia, is associated with increased colorectal cancer (CRC) risk. A putative biological mechanism is chronic, low-grade inflammation, both a feature of MetS and a CRC risk factor. However, excess body fat also induces a proinflammatory state and increases CRC risk. In order to explore the relationship between MetS, body size, inflammation, and CRC, we studied large panels of inflammatory and cancer biomarkers. We included 138 participants from the Västerbotten

Intervention Programme with repeated sampling occasions, 10 years apart. Plasma samples were analyzed for 178 protein markers by proximity extension assay. To identify associations between plasma protein levels and MetS components, linear mixed models were fitted for each protein. Twelve proteins were associated with at least one MetS component, six of which were associated with MetS score. MetS alone was not related to any protein. Instead, BMI displayed by far the strongest associations with the biomarkers. One of the 12 MetS score-related proteins (FGF-21), also associated with BMI, was associated with an increased CRC risk (OR 1.71, 95% CI 1.19 –2.47). We conclude that overweight and obesity, acting through both inflammation and other mechanisms, likely explain the MetS-CRC connection.","DOI":"10.1155/2017/4803156","ISSN":"0962-9351","author":[{"family":"Harlid","given":"Sophia"},{"family":"Myte","given":"Robin"},{"family":"Van Guelpen","given":"Bethany"}],"issued":{"date-parts":[["2017"]]}},{"id":85,"uris":["http://zotero.org/users/2724931/items/ENWMID8V"],"uri":["http://zotero.org/users/2724931/items/ENWMID8V"],"itemData":{"id":85,"type":"article-journal","title":"Interplay between 3

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-UTR polymorphisms in the vascular endothelial growth factor (VEGF) gene and metabolic syndrome in determining the risk of colorectal cancer in Koreans","container-title":"BMC Cancer","page":"881","volume":"14","archive":"PMC","archive_location":"PMC4289193","abstract":"BACKGRO Polymorphisms in angiogenesis-related genes and metabolic syndrome (MetS) risk factors play important roles in cancer development. Moreover, recent studies have reported associations between a number of 3

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-UTR polymorphisms and a variety of cancers. The aim of this study was to investigate the associations of three VEGF 3

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-UTR polymorphisms (1451C

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T [rs3025040], 1612G

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A [rs10434], and 1725G

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A [rs3025053]) and MetS with colorectal cancer (CRC) susceptibility in Koreans. METHODS: A total of 850 participants (450 CRC patients and 400 controls) were enrolled in the study. The genotyping of VEGF polymorphisms was performed by TaqMan allelic discrimination assays. Cancer risks of genetic variations and gene-environment interactions were assessed by adjusted odds ratios (AORs) and 95% confidence intervals (CIs) of multivariate logistic regression analyses. RESULTS: VEGF 1451C

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T was significantly associated with rectal cancer risk (Dominant model; AOR =1.58; 95% CI = 1.09 - 2.28; p = 0.015) whereas VEGF 1725G

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A correlated with MetS risk (Dominant model; AOR =1.61; 95% CI =1.06 - 2.46; p = 0.026). Of the gene-environment combined effects, the interaction of VEGF 1451C

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T and MetS contributed to increased rectal cancer risk (AOR = 3.15; 95% CI = 1.74 - 5.70; p <

.001) whereas the combination of VEGF 1725G

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A and MetS was involved with elevated colon cancer risk (AOR = 2.68; 95% CI = 1.30 - 1.55; p =0.008). CONCLUSIONS: Our results implicate that VEGF 1451C

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T and 1725G

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A may predispose to CRC susceptibility and the genetic contributions may be varied with the presence of MetS. ELECTRONIC SUPPLEMENTARY MATERIAL: The online version of this article (doi:10.1186/1471-2407-14-881) contains supplementary material, which is available to authorized users.","DOI":"10.1186/1471-2407-14-881","ISSN":"1471-2407","author":[{"family":"Jeon","given":"Young Joo"},{"family":"Kim","given":"Jong Woo"},{"family":"Park","given":"Hye Mi"},{"family":"Jang","given":"Hyo Geun"},{"family":"Kim","given":"Jung O"},{"family":"Oh","given":"Jisu"},{"family":"Chong","given":"So Young"},{"family":"Kwon","given":"Sung Won"},{"family":"Kim","given":"Eo Jin"},{"family":"Oh","given":"Doyeun"},{"family":"Kim","given":"Nam Keun"}],"issued":{"date-parts":[["2014"]]}},{"id":79,"uris":["http://zotero.org/users/2724931/items/S9F263MP"],"uri":["http://zotero.org/users/2724931/items/S9F263MP"],"itemData":{"id":79,"type":"article-journal","title":"Metabolic syndrome and colorectal cancer: the protective role of Mediterranean diet--a case-control study.","container-title":"Angiology","page":"390-396","volume":"63","issue":"5","abstract":"The effect of Mediterranean diet on colorectal cancer, in the presence of the metabolic syndrome, was evaluated in 250 patients with first developed cancer (63 +/- 12 years, 59% males) and 250 age-gender-matched controls.

Adherence to the Mediterranean diet was evaluated with the modified-MedDietScore (theoretical range 0-75), while assessment of the metabolic syndrome (MetS) was based on the third Adult Treatment Panel ([ATP III] National Cholesterol Education Program) criteria. Presence of MetS (1.66, 95% confidence interval [CI] 1.02, 2.69), age (4.25, 95% CI 2.33, 7.77), smoking (1.85, 95% CI 1.27, 2.70), and family history of colorectal cancer (3.37, 95% CI 1.69, 6.75) had a detrimental effect, whereas adherence to the Mediterranean diet (0.88, 95% CI 0.84, 0.92) and body mass index (0.93, 95%CI 0.89, 0.98) had a protective role regarding colorectal cancer. Mediterranean diet had the same effect in relation to colorectal cancer, in both participants with (0.84, 95% CI 0.76, 0.93) and without MetS (0.89, 95% CI 0.85, 0.94).","DOI":"10.1177/0003319711421164","ISSN":"1940-1574 0003-3197","note":"PMID: 22267847","journalAbbreviation":"Angiology","language":"eng","author":[{"family":"Kontou","given":"Niki"},{"family":"Psaltopoulou","given":"Theodora"},{"family":"Soupos","given":"Nick"},{"family":"Polychronopoulos","given":"Evangelos"},{"family":"Xinopoulos","given":"Dimitrios"},{"family":"Linos","given":"Athena"},{"family":"Panagiotakos","given":"Demosthenes B."}],"issued":{"date-parts":[["2012",7]]}}},{"id":160,"uris":["http://zotero.org/users/2724931/items/6XNHFT4N"],"uri":["http://zotero.org/users/2724931/items/6XNHFT4N"],"itemData":{"id":160,"type":"article-journal","title":"Metabolic syndrome is associated with colorectal cancer in men","container-title":"European Journal of Cancer","page":"1866-1872","volume":"46","issue":"10","abstract":"Aim of the study\nWe assessed the relation between metabolic syndrome (MetS) and its components and colorectal cancer.\nMethods\nWe analysed data from a multicentre case–control study conducted in Italy and Switzerland, including 1378 cases of colon cancer, 878 cases of rectal cancer and 4661 controls. All cases were incident and histologically confirmed. Controls were subjects admitted to the same hospitals as cases with acute non-malignant conditions. MetS was defined according to the International Diabetes Federation criteria. Odds ratios (ORs) and the corresponding 95% confidence intervals (CIs) were estimated by multiple logistic regression models, including terms for major identified confounding factors for colorectal cancer.\nResults\nWith reference to each component of the MetS, the ORs of colorectal cancer in men were 1.27 (95% CI, 0.95–1.69) for diabetes, 1.24 (95% CI, 1.03–1.48) for hypertension, 1.14 (95% CI, 0.93–1.40) for hypercholesterolaemia and 1.26 (95% CI, 1.08–1.48) for overweight at age 30. The corresponding ORs in women were 1.20 (95% CI, 0.82–1.75), 0.87 (95% CI, 0.71–1.06), 0.83 (95% CI, 0.66–1.03) and 1.06 (95% CI, 0.86–1.30). Colorectal cancer risk was increased in men (OR = 1.86; 95% CI, 1.21–2.86), but not in women (OR = 1.13; 95% CI, 0.66–1.93), with MetS. The ORs were 2.09 (95% CI, 1.38–3.18) in men and 1.15 (95% CI, 0.68–1.94) in women with
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3 components of the MetS, as compared to no component. Results were similar for colon and rectal cancers.\nConclusion\nThis study supports a direct association between MetS and both colon and rectal cancers in men, but not in women.","DOI":"10.1016/j.ejca.2010.03.010","ISSN":"0959-8049","journalAbbreviation":"European Journal of Cancer","author":[{"family":"Pelucchi","given":"Claudio"},{"family":"Negri","given":"Eva"},{"family":"Talamini","given":"Renato"},{"family":"Levi","given":"Fabio"},{"family":"Giacosa","given":"Attilio"},{"family":"Crispo","given":"Anna"},{"family":"Bidoli","given":"Ettore"},{"family":"Montella","given":"Maurizio"},{"family":"Franceschi","given":"Silvia"},{"family":"La Vecchia","given":"Carlo"}],"issued":{"date-parts":[["2010",7]]}}},{"id":5,"uris":["http://zotero.org/users/2724931/items/QHPCVRZ8"],"uri":["http://zotero.org/users/2724931/items/QHPCVRZ8"],"itemData":{"id":5,"type":"article-journal","title":"Evaluation of the risk factors associated with rectal neuroendocrine tumors: a big data analytic study from a health screening center","container-title":"Journal of Gastroenterology","page":"1112-1121","volume":"51","issue":"12","abstract":"Rectal neuroendocrine tumor (NET) is the most common NET in Asia. The risk factors associated with rectal NETs are unclear because of the overall low incidence rate of these tumors and the associated difficulty in conducting large epidemiological studies on rare cases. The aim of this study was to exploit the benefits of big data analytics to assess the risk factors associated with rectal NET.","DOI":"10.1007/s00535-016-1198-9","ISSN":"1435-5922","journalAbbreviation":"Journal of Gastroenterology","author":[{"family":"Pyo","given":"Jeung Hui"},{"family":"Hong","given":"Sung Noh"},{"family":"Min","given":"Byung-Hoon"},{"family":"Lee","given":"Jun Haeng"},{"family":"Chang","given":"Dong Kyung"},{"family":"Rhee","given":"Poong-Lyul"},{"family":"Kim","given":"Jae Jun"},{"family":"Choi","given":"Sun Kyu"},{"family":"Jung","given":"Sin-Ho"},{"family":"Son","given":"Hee Jung"},{"family":"Kim","given":"Young-Ho"}],"issued":{"date-parts":[["2016",12,1]]}}},{"id":162,"uris":["http://zotero.org/users/2724931/items/R3KQJIJK"],"uri":["http://zotero.org/users/2724931/items/R3KQJIJK"],"itemData":{"id":162,"type":"article-journal","title":"Clinical study on the correlation between metabolic syndrome and colorectal carcinoma","container-title":"ANZ Journal of Surgery","page":"331-336","volume":"80","issue":"5","abstract":"Background: Although metabolic syndrome (MS) has received a lot of attention in recent years, the correlation between MS and colorectal carcinoma is still not very clear. This study aims at exploring the relationship between MS and colorectal carcinoma. Methods: Data was collected from 507 cases of colorectal carcinoma and 507 cases of healthy patients between January 2002 and March 2007 to establish the database. The patients with colorectal cancer were divided into two groups based on the presence of MS. Multivariate analysis of these data for the overall survival and recurrence was performed with the Cox proportional hazard model. Variables examined by multivariate analysis were sex , age, location, histotype, differentiation, tumour, node, metastasis (TNM) stage, the number of lymph nodes detected, etc. Results: The existence of MS in the colorectal carcinoma group was clearly more than that in the control group. The existence of two to four types of abnormal metabolic diseases was significantly more in the colorectal cancer group than in the control group. MS is one of the important elements that can independently influence the survival (odds ratio (OR) = 1.501, 95% confidence interval (CI) = 1.057–2.131) and have the highest risk with worse survival compared with other parameters. Conclusion: There is a close relationship between MS and colorectal carcinoma, and MS is a significantly independent element that influences the survival of the colorectal carcinoma. Decreasing the incidence of MS maybe play a role in improving therapeutic efficacy and prognosis of the cancer.","DOI":"10.1111/j.1445-2197.2009.05084.x","ISSN":"1445-2197","author":[{"family":"Shen","given":"Zhanlong"},{"family":"Wang","given":"Shan"},{"family":"Ye","given":"Yingjiang"},{"family":"Yin","given":"Mujun"},{"family":"Yang","given":"Xiaodong"},{"family":"Jiang","given":"Kewei"},{"family":"Liu","given":"Yan"}],"issued":{"date-parts":[["2010",5,1]]}}},{"id":175,"uris":["http://zotero.org/users/2724931/items/SMIADFP7"],"uri":["http://zotero.org/users/2724931/items/SMIADFP7"],"itemData":{"id":175,"type":"article-journal","title":"Metabolic syndrome and colorectal neoplasms: An ominous association","container-title":"World Journal of Gastroenterology","page":"5320","volume":"21","issue":"17","source":"CrossRef","DOI":"10.3748/wjg.v21.i17.5
9327","shortTitle":"Metabolic syndrome and colorectal neoplasms","language":"en","author":

[{"family":"Trabulo","given":"Daniel"}],"issued":{"date-parts":[["2015"]]}}},{"id":37,"uris":["http://zotero.org/users/2724931/items/B468CSCB"],"uri":["http://zotero.org/users/2724931/items/B468CSCB"],"itemData":{"id":37,"type":"article-journal","title":"Colorectal cancer and its association with the metabolic syndrome: a Malaysian multi-centric case-control study.","container-title":"Asian Pacific journal of cancer prevention : APJCP","page":"3873-3877","volume":"13","issue":"8","abstract":"OBJECTIVE: Colorectal cancer (CRC) and the metabolic syndrome (MetS) are both on the rise in Malaysia. A multi-centric case-control study was conducted from December 2009 to January 2011 to determine any relationship between the two. METHODS: Patients with confirmed CRC based on colonoscopy findings and cancer free controls from five local hospitals were assessed for MetS according to the International Diabetes Federation (IDF) definition. Each index case was matched for age, gender and ethnicity with two controls (140: 280). RESULTS: MetS among cases was highly prevalent (70.7%), especially among women (68.7%). MetS as an entity increased CRC risk by almost three fold independently (OR=2.61, 95% CI=1.53-4.47). In men MetS increased the risk of CRC by two fold (OR=2.01, 95%CI, 1.43-4.56), demonstrating an increasing trend in risk with the number of Mets components observed. CONCLUSION: This study provides evidence for a positive association between the metabolic syndrome and colorectal cancer. A prospective study on the Malaysian population is a high priority to confirm these findings.","ISSN":"2476-762X 1513-7368","note":"PMID: 23098486","journalAbbreviation":"Asian Pac J Cancer Prev","language":"eng","author":[{"family":"Ulaganathan","given":"V."},{"family":"Kandiah","given":"M."},{"family":"Zalilah","given":"M. S."},{"family":"Faizal","given":"J. A."},{"family":"Fijeraid","given":"H."},{"family":"Normayah","given":"K."},{"family":"Gooi","given":"B. H."},{"family":"Othman","given":"R."}],"issued":{"date-parts":[["2012"]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
32, 33, 36–43
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1.35 [1.26, 1.45]
8.41
(P < 0.00001)
62
0.02
67.57, df = 26
(P < 0.0001)
Cross-sectional
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ADDIN ZOTERO_ITEM CSL_CITATION {"citationID":"a11h0n0lv1n","properties":{"formattedCitation":"{\\rtf \\super 45,46,48\\nosupersub{}}","plainCitation":"45,46,48"},"citationItems":[{"id":170,"uris":["http://zotero.org/users/2724931/items/2S89J5KW"],"uri":["http://zotero.org/users/2724931/items/2S89J5KW"],"itemData":{"id":170,"type":"article-journal","title":"Risk factors associated with rectal neuroendocrine tumors: a cross-sectional study.","container-title":"Cancer epidemiology, biomarkers & prevention : a publication of the American Association for Cancer Research, cosponsored by the American Society of Preventive Oncology","page":"1406-1413","volume":"23","issue":"7","abstract":"BACKGROUND: The incidence of rectal neuroendocrine tumors (NET) has been increasing since the implementation of the screening colonoscopy. However, very little is known about risk factors associated with rectal NETs. We examined the prevalence of and the risk factors for rectal NETs in a Korean population. METHODS: A cross-sectional study was performed on 62,171 Koreans who underwent screening colonoscopy. The clinical characteristics and serum biochemical parameters of subjects with rectal NET were compared with those of subjects without rectal NET using multivariate logistic regression. RESULTS: Of a total of 57,819 participants, 101 [OR, 0.17%; 95% confidence interval (CI), 0.14-0.20] had a rectal NET. Young age (<50 years; OR, 2.09; 95% CI, 1.06-4.15), male gender (OR, 1.92; 95% CI, 1.15-3.20), alcohol drinking [adjusted OR (AOR), 1.56; 95% CI, 1.01-2.42], and a low high-density lipoprotein-cholesterol (HDL-C) level (AOR, 1.85; 95% CI, 1.10-3.11) were independent risk factors for rectal NETs. Cigarette smoking, fatty liver, metabolic syndrome, higher triglyceride level (>/=150 mg/dL), and higher homeostasis model assessment of insulin resistance (>/=2.5) were not independently associated with rectal NETs, although these factors were more common in individuals with rectal NETs in the univariate analysis. CONCLUSIONS: Young age (<50 years), male gender, alcohol drinking, and a low","DOI":"10.1158/1055-9965.EPI-14-0132","ISSN":"1538-7755 1055-9965","note":"PMID: 24813818","journalAbbreviation":"Cancer Epidemiol Biomarkers Prev","language":"eng","author":[{"family":"Jung","given":"Yoon Suk"},{"family":"Yun","given":"Kyung Eun"},{"family":"Chang","given":"Yoosoo"},{"family":"Ryu","given":"Seungho"},{"family":"Park","given":"Jung Ho"},{"family":"Kim","given":"Hong Joo"},{"family":"Cho","given":"Yong Kyun"},{"family":"Sohn","given":"Chong Il"},{"family":"Jeon","given":"Woo Kyu"},{"family":"Kim","given":"Byung Ik"},{"family":"Park","given":"Dong Il"}],"issued":{"date-parts":[["2014",7]]}}},{"id":179,"uris":["http://zotero.org/users/2724931/items/G83HJCGN"],"uri":["http://zotero.org/users/2724931/items/G83HJCGN"],"itemData":{"id":179,"type":"article-journal","title":"Prevalence and risk factors of advanced colorectal neoplasms in asymptomatic Korean people between 40 and 49

years of age","container-title":"Journal of Gastroenterology and Hepatology","page":"98-105","volume":"32","issue":"1","source":"PubMed","abstract":"BACKGROUND AND AIM: Current guidelines recommend colon cancer screening for persons aged over 50

years. However, there are few data on colorectal cancer screening in 40- to 49-year-olds. This study assessed the prevalence and risk factors of colorectal neoplasms in 40- to 49-year-old Koreans.\nMETHODS: We analyzed the results of screening colonoscopies of 6680 persons 40-59

years of age (2206 aged 40-49 and 4474 aged 50-59

years).\nRESULTS: The prevalence of overall and advanced neoplasms in the 40- to 49-year age group was lower than in the 50- to 59-year age group (26.7% and 2.4% vs 37.8% and 3.5%, respectively). However, the prevalence of overall and advanced neoplasms increased to 39.1% and 5.4%, respectively, in 45- to 49-year-old individuals with metabolic syndrome. In the 40- to 49-year age group, age, current smoking, and metabolic syndrome were associated with an increased risk of advanced neoplasms (odds ratio [OR] 1.16, 95% confidence interval [CI]

1.04-1.30; OR 3.12, 95% CI 1.20-8.12; and OR 2.00, 95% CI 1.09-3.67, respectively).\nCONCLUSIONS: Individuals aged 40-49

years had a lower prevalence of colorectal neoplasms than those aged 50-59

years, but some 40- to 49-year-olds showed a similar prevalence to those aged 50-59

years. Age, current smoking habits, and metabolic syndrome are associated with an increased risk of advanced neoplasms in subjects aged 40-49

years. Further studies are needed to stratify the risks of colon cancer and guide targeted screening in persons younger than 50

years old.","DOI":"10.1111/jgh.13454","ISSN":"1440-1746","note":"PMID: 27197805","journalAbbreviation":"J. Gastroenterol. Hepatol.","language":"eng","author":[{"family":"Koo","given":"Ja Eun"},{"family":"Kim","given":"Kyung-Jo"},{"family":"Park","given":"Hye Won"},{"family":"Kim","given":"Hong-Kyu"},{"family":"Choe","given":"Jae Won"},{"family":"Chang","given":"Hye-Sook"},{"family":"Lee","given":"Ji Young"},{"family":"Myung","given":"Seung-Jae"},{"family":"Yang","given":"Suk-Kyun"},{"family":"Kim","given":"Jin-Ho"}],"issued":{"date-parts":[["2017",1]]}}},{"id":87,"uris":["http://zotero.org/users/2724931/items/VESC9IC5"],"uri":["http://zotero.org/users/2724931/items/VESC9IC5"],"itemData":{"id":87,"type":"article-journal","title":"The relationship of nonalcoholic fatty liver disease and metabolic syndrome for colonoscopy colorectal neoplasm","container-title":"Medicine","page":"e5809","volume":"96","issue":"2","archive":"PMC","archive_location":"PMC5266168", neoplasm is considered to have a strong association with nonalcoholic fatty liver disease (NAFLD) and metabolic syndrome (MetS), respectively. The relationship among NAFLD, MetS, and colorectal neoplasm was assessed in 1793 participants. Participants were divided into 4 groups based on the status of NAFLD and MetS. Relative excess risks of interaction (RERI), attributable proportion (AP), and synergy index (SI) were applied to evaluate the additive interaction. NAFLD and MetS were significantly correlated with colorectal neoplasm and colorectal cancer (CRC), respectively. The incidence of CRC in NAFLD (+) MetS (+) group was significantly higher than other 3 groups. The result of RERI, AP, and SI indicated the significant additive interaction of NAFLD and MetS on the development of CRC. NAFLD and MetS are risk factors for colorectal neoplasm and CRC, respectively. And NAFLD and MetS have an additive effect on the development of CRC.","DOI":"10.1097/MD.0000000000005809","ISSN":"0025-7974","author":[{"family":"Pan","given":"Shuang"},{"family":"Hong","given":"Wandong"},{"family":"Wu","given":"Wenzhi"},{"family":"Chen","given":"Qinfen"},{"family":"Zhao","given":"Qian"},{"family":"Wu","given":"Jiansheng"},{"family":"Jin","given":"Yin"}],"editor":[{"family":"Žarko.","given":"Babi
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2.85
(P = 0.004)
0
NA
0.78, df = 2
(P = 0.68)
Study location
Asia
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ADDIN ZOTERO_ITEM CSL_CITATION {"citationID":"a1s2m8itft8","properties":{"formattedCitation":"{\\rtf \\super 26,29,30,33,37,38,42,45,46,48\\nosupersub {}}","plainCitation":"26,29,30,33,37,38,42,45,46,48"},"citationItems":[{"id":85,"uris":["http://zotero.org/users/2724931/items/ENWMID8V"],"uri":["http://zotero.org/users/2724931/items/ENWMID8V"],"itemData":{"id":85,"type":"article-journal","title":"Interplay between 3
′
-UTR polymorphisms in the vascular endothelial growth factor (VEGF) gene and metabolic syndrome in determining the risk of colorectal cancer in Koreans","container-title":"BMC Cancer","page":"881","volume":"14","archive":"PMC","archive_location":"PMC4289193","abstract":"BACKGRO Polymorphisms in angiogenesis-related genes and metabolic syndrome (MetS) risk factors play important roles in cancer development. Moreover, recent studies have reported associations between a number of 3
′
-UTR polymorphisms and a variety of cancers. The aim of this study was to investigate the associations of three VEGF 3
′
-UTR polymorphisms (1451C

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T [rs3025040], 1612G

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A [rs10434], and 1725G

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A [rs3025053]) and MetS with colorectal cancer (CRC) susceptibility in Koreans. METHODS: A total of 850 participants (450 CRC patients and 400 controls) were enrolled in the study. The genotyping of VEGF polymorphisms was performed by TaqMan allelic discrimination assays. Cancer risks of genetic variations and gene-environment interactions were assessed by adjusted odds ratios (AORs) and 95% confidence intervals (CIs) of multivariate logistic regression analyses. RESULTS: VEGF 1451C

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T was significantly associated with rectal cancer risk (Dominant model; AOR =1.58; 95% CI = 1.09 - 2.28; p = 0.015) whereas VEGF 1725G

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A correlated with MetS risk (Dominant model; AOR =1.61; 95% CI =1.06 - 2.46; p = 0.026). Of the gene-environment combined effects, the interaction of VEGF 1451C

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T and MetS contributed to increased rectal cancer risk (AOR = 3.15; 95% CI = 1.74 - 5.70; p <

.001) whereas the combination of VEGF 1725G

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A and MetS was involved with elevated colon cancer risk (AOR = 2.68; 95% CI = 1.30 - 1.55; p =0.008). CONCLUSIONS: Our results implicate that VEGF 1451C

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T and 1725G

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A may predispose to CRC susceptibility and the genetic contributions may be varied with the presence of MetS. ELECTRONIC SUPPLEMENTARY MATERIAL: The online version of this article (doi:10.1186/1471-2407-14-881) contains supplementary material, which is available to authorized users.","DOI":"10.1186/1471-2407-14-881","ISSN":"1471-2407","author":[{"family":"Jeon","given":"Young Joo"},{"family":"Kim","given":"Jong Woo"},{"family":"Park","given":"Hye Mi"},{"family":"Jang","given":"Hyo Geun"},{"family":"Kim","given":"Jung O"},{"family":"Oh","given":"Jisu"},{"family":"Chong","given":"So Young"},{"family":"Kwon","given":"Sung Won"},{"family":"Kim","given":"Eo Jin"},{"family":"Oh","given":"Doyeun"},{"family":"Kim","given":"Nam Keun"}],"issued":{"date-parts":[["2014"]]}}},{"id":170,"uris":["http://zotero.org/users/2724931/items/2S89J5KW"],"uri":["http://zotero.org/users/2724931/items/2S89J5KW"],"itemData":{"id":170,"type":"article-journal","title":"Risk factors associated with rectal neuroendocrine tumors: a cross-sectional study.","container-title":"Cancer epidemiology, biomarkers & prevention : a publication of the American Association for Cancer Research, cosponsored by the American Society of Preventive Oncology","page":"1406-1413","volume":"23","issue":"7","abstract":"BACKGROUND: The incidence of rectal neuroendocrine tumors (NET) has been increasing since the implementation of the screening colonoscopy. However, very little is known about risk factors associated with rectal NETs. We examined the prevalence of and the risk factors for rectal NETs in a Korean population. METHODS: A cross-sectional study was performed on 62,171 Koreans who underwent screening colonoscopy. The clinical characteristics and serum biochemical parameters of subjects with rectal NET were compared with those of subjects without rectal NET using multivariate logistic regression. RESULTS: Of a total of 57,819 participants, 101 [OR, 0.17%; 95% confidence interval (CI), 0.14-0.20] had a rectal NET. Young age (<50 years; OR, 2.09; 95% CI, 1.06-4.15), male gender (OR, 1.92; 95% CI, 1.15-3.20), alcohol drinking [adjusted OR (AOR), 1.56; 95% CI, 1.01-2.42], and a low high-density lipoprotein-cholesterol (HDL-C) level (AOR, 1.85; 95% CI, 1.10-3.11) were independent risk factors for rectal NETs. Cigarette smoking, fatty liver, metabolic syndrome, higher triglyceride level (>/=150 mg/dL), and higher homeostasis model assessment of insulin resistance (>/=2.5) were not independently associated with rectal NETs, although these factors were more common in individuals with rectal NETs in the univariate analysis. CONCLUSIONS: Young age (<50 years), male gender, alcohol drinking, and a low","DOI":"10.1158/1055-9965.EPI-14-0132","ISSN":"1538-7755 1055-9965","note":"PMID: 24813818","journalAbbreviation":"Cancer Epidemiol Biomarkers Prev","language":"eng","author":[{"family":"Jung","given":"Yoon Suk"},{"family":"Yun","given":"Kyung Eun"},{"family":"Chang","given":"Yoosoo"},{"family":"Ryu","given":"Seungho"},{"family":"Park","given":"Jung Ho"},{"family":"Kim","given":"Hong Joo"},{"family":"Cho","given":"Yong Kyun"},{"family":"Sohn","given":"Chong Il"},{"family":"Jeon","given":"Woo Kyu"},{"family":"Kim","given":"Byung Ik"},{"family":"Park","given":"Dong Il"}],"issued":{"date-parts":[["2014",7]]}}},{"id":36,"uris":["http://zotero.org/users/2724931/items/437ZFQED"],"uri":["http://zotero.org/users/2724931/items/437ZFQED"],"itemData":{"id":36,"type":"article-journal","title":"Clinico-epidemiologic study of the metabolic syndrome and lifestyle factors associated with the risk of colon adenoma and adenocarcinoma.","container-title":"Asian Pacific journal of cancer prevention : APJCP","page":"975-983","volume":"11","issue":"4","abstract":"BACKGROUND: The numbers of patients with colorectal cancer and associated deaths have been increasing in Japan, probably due to rapid lifestyle changes. Prevention is clearly important and the present study aimed to clarify risk factors and to promote colon cancer screening. METHODS: We investigated lifestyle factors, biochemical data, and pathological features of 727 individuals who underwent colonoscopy. Data were subjected to statistical analysis using SPSS software. RESULTS: Low-grade adenoma was more frequent among the elderly and in men. All of the men and 87.5% of the women with high-grade adenoma or adenocarcinoma were aged>/=45 and>/=50 years, respectively. In women, a larger waist circumference (=80 cm) increased the odds ratio for colon adenoma or adenocarcinoma (colon tumors) by 1.033 (95% confidence index (CI), 1.001-1.066; p=0.040). Metabolic syndrome significantly increased the odds ratio of colon tumors in men, but not in women. Cigarette smoking, drinking alcohol, and increased physical activity were significant risk factors for colon tumors in men, with odds ratios of 1.001 (95% CI, 1.000-1.002; p=0.001), 1.001 (95% CI, 1.000-1.003; p=0.047), and 1.406 (95% CI 1.038-1.904; p=0.028), respectively. CONCLUSIONS:

Colon tumors have a high prevalence in the elderly. A larger waist circumference in women and metabolic syndrome in both men and women elevate the risk of colon tumors. In addition, smoking, drinking, and excessive physical activity are risk factors for adenoma and adenocarcinoma in men. For early detection of colorectal cancer, men older than 45 years and women older than 50 years with these risk factors are recommended to undergo colonoscopy.","ISSN":"2476-762X 1513-7368","note":"PMID: 21133610","journalAbbreviation":"Asian Pac J Cancer Prev","language":"eng","author":[{"family":"Kaneko","given":"Rena"},{"family":"Sato","given":"Yuzuru"},{"family":"An","given":"Yasuyosi"},{"family":"Nakagawa","given":"Motoki"},{"family":"Kusayanagi","given":"Satoshi"},{"family":"Kamisago","given":"Satoshi"},{"family":"Umeda","given":"Tomoyuki"},{"family":"Ogawa","given":"Masazumi"},{"family":"Munakata","given":"Kazuo"},{"family":"Mizuno","given":"Kyoichi"}],"issued":{"date-parts":[["2010"]]}}},{"id":81,"uris":["http://zotero.org/users/2724931/items/7FAPCFIV"],"uri":["http://zotero.org/users/2724931/items/7FAPCFIV"],"itemData":{"id":81,"type":"article-journal","title":"Association of colorectal adenoma with components of metabolic syndrome.","container-title":"Cancer causes & control : CCC","page":"727-735","volume":"23","issue":"5","abstract":"PURPOSE: Recently, some studies have shown that diabetes mellitus and metabolic syndrome increase the risk of colorectal neoplasms. Although the mechanism is not known, those have been proposed to contribute to this phenomenon, including insulin resistance, oxidative stress, and adipokine production. The objective of this study was to assess the association between metabolic risk factors and colorectal neoplasm. METHODS: Study participants visited the National Cancer Center, Korea, for screening (2007-2009). A total of 1,771 diagnosed adenoma patients and 4,667 polyp-free controls were included. The association between risk factors and colorectal neoplasm was evaluated using logistic regression models. RESULTS: High waist circumference, blood pressure, and serum triglyceride levels were associated with an increased risk of colorectal adenoma. Metabolic syndrome (MS) was associated with an increased risk of adenoma (OR = 1.44, 95 % CI = 1.23-1.70). The association between MS and colorectal adenoma was observed regardless of advanced/low-risk adenoma, and multiplicity. MS affected right colon adenomas (OR = 1.50, 95 % CI = 1.22-1.85), left colon adenomas (OR = 1.36, 95 % CI = 1.05-1.76), and adenomas in multiple anatomical locations (OR = 1.59, 95 % CI = 1.19-2.12), but was not associated with rectum. CONCLUSION: Central obesity, triglyceride level, and MS are risk factors for colorectal adenoma including advanced adenoma and multiplicity.","DOI":"10.1007/s10552-012-9942-9","ISSN":"1573-7225 0957-5243","note":"PMID: 22450737","journalAbbreviation":"Cancer Causes Control","language":"eng","author":[{"family":"Kim","given":"Byung Chang"},{"family":"Shin","given":"Aesun"},{"family":"Hong","given":"Chang Won"},{"family":"Sohn","given":"Dae Kyung"},{"family":"Han","given":"Kyung Su"},{"family":"Ryu","given":"Kum Hei"},{"family":"Park","given":"Bum Joon"},{"family":"Nam","given":"Ji Hyung"},{"family":"Park","given":"Ji Won"},{"family":"Chang","given":"Hee Jin"},{"family":"Choi","given":"Hyo Seong"},{"family":"Kim","given":"Jeongseon"},{"family":"Oh","given":"Jae Hwan"}],"issued":{"date-parts":[["2012",5]]}}},{"id":179,"uris":["http://zotero.org/users/2724931/items/G83HJCGN"],"uri":["http://zotero.org/users/2724931/items/G83HJCGN"],"itemData":{"id":179,"type":"article-journal","title":"Prevalence and risk factors of advanced colorectal neoplasms in asymptomatic Korean people between 40 and 49

years of age","container-title":"Journal of Gastroenterology and Hepatology","page":"98-105","volume":"32","issue":"1","source":"PubMed","abstract":"BACKGROUND AND AIM: Current guidelines recommend colon cancer screening for persons aged over 50

years. However, there are few data on colorectal cancer screening in 40- to 49-year-olds. This study assessed the prevalence and risk factors of colorectal neoplasms in 40- to 49-year-old Koreans.\nMETHODS: We analyzed the results of screening colonoscopies of 6680 persons 40-59

years of age (2206 aged 40-49 and 4474 aged 50-59

years).\nRESULTS: The prevalence of overall and advanced neoplasms in the 40- to 49-year age group was lower than in the 50- to 59-year age group (26.7% and 2.4% vs 37.8% and 3.5%, respectively). However, the prevalence of overall and advanced neoplasms increased to 39.1% and 5.4%, respectively, in 45- to 49-year-old individuals with metabolic syndrome. In the 40- to 49-year age group, age, current smoking, and metabolic syndrome were associated with an increased risk of advanced neoplasms (odds ratio [OR] 1.16, 95% confidence interval [CI] 1.04-1.30; OR 3.12, 95% CI 1.20-8.12; and OR 2.00, 95% CI 1.09-3.67, respectively).\nCONCLUSIONS: Individuals aged 40-49

years had a lower prevalence of colorectal neoplasms than those aged 50-59

years, but some 40- to 49-year-olds showed a similar prevalence to those aged 50-59

years. Age, current smoking habits, and metabolic syndrome are associated with an increased risk of advanced neoplasms in subjects aged 40-49

years. Further studies are needed to stratify the risks of colon cancer and guide targeted screening in persons younger than 50

years old.","DOI":"10.1111/jgh.13454","ISSN":"1440-1746","note":"PMID: 27197805","journalAbbreviation":"J. Gastroenterol. Hepatol.","language":"eng","author":[{"family":"Koo","given":"Ja Eun"},{"family":"Kim","given":"Kyung-Jo"},{"family":"Park","given":"Hye Won"},{"family":"Kim","given":"Hong-Kyu"},{"family":"Choe","given":"Jae Won"},{"family":"Chang","given":"Hye-Sook"},{"family":"Lee","given":"Ji Young"},{"family":"Myung","given":"Seung-Jae"},{"family":"Yang","given":"Suk-Kyun"},{"family":"Kim","given":"Jin-Ho"}],"issued":{"date-parts":[["2017",1]]}}},{"id":83,"uris":["http://zotero.org/users/2724931/items/33PI99M5"],"uri":["http://zotero.org/users/2724931/items/33PI99M5"],"itemData":{"id":83,"type":"article-journal","title":"Increased risk of colorectal malignant neoplasm in patients with nonalcoholic fatty liver disease: a large study","container-title":"Molecular Biology Reports","page":"2989-2997","volume":"41","issue":"5","abstract":"Nonalcoholic fatty liver disease (NAFLD) has been suggested to be a strong risk factor of colorectal benign adenomas and advanced neoplasms. The aim of this large cohort study was to further investigate the prevalence of colorectal malignant neoplasm (CRMN) in patients with NAFLD and

determine whether association between NAFLD and CRMN exists. 2,315 community subjects (1,370 males and 945 females) who underwent a routine colonoscopy according to international colorectal cancer screening guideline were recruited. Nature of colorectal lesions determined by biopsy and NAFLD was diagnosed by ultrasound. Binary logistic regression analysis was applied to explore the related associations. Prevalence of CRMN was 29.3 % (77/263) in patients with NAFLD, which was significantly higher than 18.0 % (369/2,052) in the control group (P < 0.05). In addition, malignant neoplasm in NAFLD group occurred more frequently at sigmoid colon than in control group (14.3 vs. 11.9 %). The incidence of highly-differentiated colorectal adenocarcinoma in NAFLD group was significantly higher than control group (62.3 vs. 9.8 %). Univariate analysis showed that NAFLD had strong association with CRMN (OR 2.043; 95 % CI 1.512–2.761; P < 0.05). After adjusting for metabolic and other confounding factors, NAFLD remained as an independent risk factor for CRMN (OR 1.868; 95 % CI 1.360–2.567; P < 0.05). NAFLD was an independent risk factor for CRMN. Sigmoid carcinoma and highly differentiated colorectal adenocarcinoma were more commonly found in NAFLD. (ClinicalTrials.gov number, NCT01657773, website: http://clinicaltrials.gov/ct2/show/NCT01657773?term=zheng+minghua&rank=1)."},"DOI":"10.1007/s11033-014-3157-y","ISSN":"1573-4978","journalAbbreviation":"Molecular Biology Reports","author":[{"family":"Lin","given":"Xian-Feng"},{"family":"Shi","given":"Ke-Qing"},{"family":"You","given":"Jie"},{"family":"Liu","given":"Wen-Yue"},{"family":"Luo","given":"Ying-Wan"},{"family":"Wu","given":"Fa-Ling"},{"family":"Chen","given":"Yong-Ping"},{"family":"Wong","given":"Danny Ka-Ho"},{"family":"Yuen","given":"Man-Fung"},{"family":"Zheng","given":"Ming-Hua"}],"issued":{"date-parts":[["2014"]]}}},{"id":87,"uris":["http://zotero.org/users/2724931/items/VESC9IC5"],"uri":["http://zotero.org/users/2724931/items/VESC9IC5"],"itemData":{"id":87,"type":"article-journal","title":"The relationship of nonalcoholic fatty liver disease and metabolic syndrome for colonoscopy colorectal neoplasm","container-title":"Medicine","page":"e5809","volume":"96","issue":"2","archive":"PMC","archive_location":"PMC5266168",neoplasm is considered to have a strong association with nonalcoholic fatty liver disease (NAFLD) and metabolic syndrome (MetS), respectively. The relationship among NAFLD, MetS, and colorectal neoplasm was assessed in 1793 participants. Participants were divided into 4 groups based on the status of NAFLD and MetS. Relative excess risks of interaction (RERI), attributable proportion (AP), and synergy index (SI) were applied to evaluate the additive interaction. NAFLD and MetS were significantly correlated with colorectal neoplasm and colorectal cancer (CRC), respectively. The incidence of CRC in NAFLD (+) MetS (+) group was significantly higher than other 3 groups. The result of RERI, AP, and SI indicated the significant additive interaction of NAFLD and MetS on the development of CRC. NAFLD and MetS are risk factors for colorectal neoplasm and CRC, respectively. And NAFLD and MetS have an additive effect on the development of CRC."},"DOI":"10.1097/MD.0000000000005809","ISSN":"0025-7974","author":[{"family":"Pan","given":"Shuang"},{"family":"Hong","given":"Wandong"},{"family":"Wu","given":"Wenzhi"},{"family":"Chen","given":"Qinfen"},{"family":"Zhao","given":"Qian"},{"family":"Wu","given":"Jiansheng"},{"family":"Jin","given":"Yin"}],"editor":[{"family":"Žarko.","given":"Babić"}],"issued":{"date-parts":[["2017",1]]}}},{"id":5,"uris":["http://zotero.org/users/2724931/items/QHPCVRZ8"],"uri":["http://zotero.org/users/2724931/items/QHPCVRZ8"],"itemData":{"id":5,"type":"article-journal","title":"Evaluation of the risk factors associated with rectal neuroendocrine tumors: a big data analytic study from a health screening center","container-title":"Journal of Gastroenterology","page":"1112-1121","volume":"51","issue":"12","abstract":"Rectal neuroendocrine tumor (NET) is the most common NET in Asia. The risk factors associated with rectal NETs are unclear because of the overall low incidence rate of these tumors and the associated difficulty in conducting large epidemiological studies on rare cases. The aim of this study was to exploit the benefits of big data analytics to assess the risk factors associated with rectal NET.","DOI":"10.1007/s00535-016-1198-9","ISSN":"1435-5922","journalAbbreviation":"Journal of Gastroenterology","author":[{"family":"Pyo","given":"Jeung Hui"},{"family":"Hong","given":"Sung Noh"},{"family":"Min","given":"Byung-Hoon"},{"family":"Lee","given":"Jun Haeng"},{"family":"Chang","given":"Dong Kyung"},{"family":"Rhee","given":"Poong-Lyul"},{"family":"Kim","given":"Jae Jun"},{"family":"Choi","given":"Sun Kyu"},{"family":"Jung","given":"Sin-Ho"},{"family":"Son","given":"Hee Jung"},{"family":"Kim","given":"Young-Ho"}],"issued":{"date-parts":[["2016",12,1]]}}},{"id":162,"uris":["http://zotero.org/users/2724931/items/R3KQJIJK"],"uri":["http://zotero.org/users/2724931/items/R3KQJIJK"],"itemData":{"id":162,"type":"article-journal","title":"Clinical study on the correlation between metabolic syndrome and colorectal carcinoma","container-title":"ANZ Journal of Surgery","page":"331-336","volume":"80","issue":"5","abstract":"Background: Although metabolic syndrome (MS) has received a lot of attention in recent years, the correlation between MS and colorectal carcinoma is still not very clear. This study aims at exploring the relationship between MS and colorectal carcinoma. Methods: Data was collected from 507 cases of colorectal carcinoma and 507 cases of healthy patients between January 2002 and March 2007 to establish the database. The patients with colorectal cancer were divided into two groups based on the presence of MS. Multivariate analysis of these data for the overall survival and recurrence was performed with the Cox proportional hazard model. Variables examined by multivariate analysis were sex , age, location, histotype, differentiation, tumour, node, metastasis (TNM) stage, the number of lymph nodes detected, etc. Results: The existence of MS in the colorectal carcinoma group was clearly more than that in the control group. The existence of two to four types of abnormal metabolic diseases was significantly more in the colorectal cancer group than in the control group. MS is one of the important elements that can independently influence the survival (odds ratio (OR) = 1.501, 95% confidence interval (CI) = 1.057–2.131) and have the highest risk with worse survival compared with other parameters. Conclusion: There is a close relationship between MS and colorectal carcinoma, and MS is a significantly independent element that influences the survival of the colorectal carcinoma. Decreasing the incidence of MS maybe play a role in improving therapeutic efficacy and prognosis of the cancer.","DOI":"10.1111/j.1445-2197.2009.05084.x","ISSN":"1445-2197","author":[{"family":"Shen","given":"Zhanlong"},{"family":"Wang","given":"Shan"},{"family":"Ye","given":"Yingjiang"},{"family":"Yin","given":"Mujun"},{"family":"Yang","given":"Xiaodong"},{"family":"Jiang","given":"Kewei"},{"family":"Liu","given":"Yan"}],"issued":{"date-parts":[["2010",5,1]]}}},{"id":37,"uris":["http://zotero.org/users/2724931/items/B468CSCB"],"uri":["http://zotero.org/users/2724931/items/B468CSCB"],"itemData":{"id":37,"type":"article-journal","title":"Colorectal cancer and its association with the metabolic syndrome: a Malaysian multi-centric case-control study.","container-title":"Asian Pacific journal of cancer prevention : APJCP","page":"3873-3877","volume":"13","issue":"8","abstract":"OBJECTIVE: Colorectal cancer (CRC) and the metabolic syndrome (MetS) are both on the rise in Malaysia. A multi-centric case-control study was conducted from December 2009 to

January 2011 to determine any relationship between the two. METHODS: Patients with confirmed CRC based on colonoscopy findings and cancer free controls from five local hospitals were assessed for MetS according to the International Diabetes Federation (IDF) definition. Each index case was matched for age, gender and ethnicity with two controls (140: 280). RESULTS: MetS among cases was highly prevalent (70.7%), especially among women (68.7%). MetS as an entity increased CRC risk by almost three fold independently (OR=2.61, 95% CI=1.53-4.47). In men MetS increased the risk of CRC by two fold (OR=2.01, 95%CI, 1.43-4.56), demonstrating an increasing trend in risk with the number of Mets components observed. CONCLUSION: This study provides evidence for a positive association between the metabolic syndrome and colorectal cancer. A prospective study on the Malaysian population is a high priority to confirm these findings.","ISSN":"2476-762X 1513-7368","note":"PMID: 23098486","journalAbbreviation":"Asian Pac J Cancer Prev","language":"eng","author":[{"family":"Ulaganathan","given":"V."},{"family":"Kandiah","given":"M."},{"family":"Zalilah","given":"M. S."},{"family":"Faizal","given":"J. A."},{"family":"Fijeraid","given":"H."},{"family":"Normayah","given":"K."},{"family":"Gooi","given":"B. H."},{"family":"Othman","given":"R."}],"issued":{"date-parts":[["2012"]]}}},"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
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ADDIN ZOTERO_ITEM CSL_CITATION {"citationID":"a27bd6q22or","properties":{"formattedCitation":"{\\rtf \\super 20,27,32,36,39\\uc0\\u8211{}41,43\\nosupersub{}}","plainCitation":"20,27,32,36,39–41,43"},"citationItems":[{"id":164,"uris":["http://zotero.org/users/2724931/items/9WXARXXK"],"uri":["http://zotero.org/users/2724931/items/9WXARXXK"],"itemData":{"id":164,"type":"article-journal","title":"Metabolic Syndrome and Risks of Colon and Rectal Cancer: The European Prospective Investigation into Cancer and Nutrition Study","container-title":"Cancer Prevention Research","page":"1873","volume":"4","issue":"11","abstract":"Metabolic syndrome (MetS) is purportedly related to risk of developing colorectal cancer; however, the association of MetS, as defined according to recent international criteria, and colorectal cancer has not been yet evaluated. In particular, it remains unclear to what extent the MetS components individually account for such an association. We addressed these issues in a nested case–control study that included 1,093 incident cases matched (1:1) to controls by using incidence density sampling. Conditional logistic regression was used to estimate relative risks (RR) and 95% CIs. MetS was defined according to the criteria of the National Cholesterol Education Program/Adult Treatment Panel III (NCEP/ATPIII), the International Diabetes Federation (IDF), and the 2009 harmonized definition. Among individual components, abdominal obesity (RR = 1.51; 95% CI: 1.16–1.96) was associated with colon cancer, whereas abnormal glucose metabolism was associated with both colon (RR = 2.05; 95% CI: 1.57–2.68) and rectal cancer (RR = 2.07; 95% CI: 1.45–2.96). MetS, as defined by each of the definitions, was similarly associated with colon cancer (e.g., RR = 1.91; 95% CI: 1.47–2.42 for MetS by NCEP/ATPIII), whereas MetS by NCEP/ATPIII, but not IDF or harmonized definition, was associated with rectal cancer (RR = 1.45; 95% CI: 1.02–2.06). Overall, these associations were stronger in women than in men. However, the association between MetS and colorectal cancer was accounted for by abdominal obesity and abnormal glucose metabolism such that MetS did not provide risk information beyond these components (likelihood ratio test P = 0.10 for MetS by NCEP/ATPIII). These data suggest that simple assessment of abnormal glucose metabolism and/or abdominal obesity to identify individuals at colorectal cancer risk may have higher clinical utility than applying more complex MetS definitions. Cancer Prev Res; 4(11); 1873–83. ©2011 AACR.","DOI":"10.1158/1940-6207.CAPR-11-0218","journalAbbreviation":"Cancer Prev Res (Phila)","author":[{"family":"Aleksandrova","given":"Krasimira"},{"family":"Boeing","given":"Heiner"},{"family":"Jenab","given":"Mazda"},{"family":"Bas Bueno-de-Mesquita","given":"H."},{"family":"Jansen","given":"Eugene"},{"family":"Duijnhoven","given":"Fränzel J.B.","non-dropping-particle":"van"},{"family":"Fedirko","given":"Veronika"},{"family":"Rinaldi","given":"Sabina"},{"family":"Romieu","given":"Isabelle"},{"family":"Riboli","given":"Elio"},{"family":"Romaguera","given":"Dora"},{"family":"Overvad","given":"Kim"},{"family":"Østergaard","given":"Jane Nautrup"},{"family":"Olsen","given":"Anja"},{"family":"Tjønneland","given":"Anne"},{"family":"Boutron-Ruault","given":"Marie-Christine"},{"family":"Clavel-Chapelon","given":"Françoise"},{"family":"Morois","given":"Sophie"},{"family":"Masala","given":"Giovanna"},{"family":"Agnoli","given":"Claudia"},{"family":"Panico","given":"Salvatore"},{"family":"Tumino","given":"Rosario"},{"family":"Vineis","given":"Paolo"},{"family":"Kaaks","given":"Rudolf"},{"family":"Lukanova","given":"Annekatrin"},{"family":"Trichopoulou","given":"Antonia"},{"family":"Naska","given":"Androniki"},{"family":"Bamia","given":"Christina"},{"family":"Peeters","given":"Petra H."},{"family":"Rodríguez","given":"Laudina"},{"family":"Buckland","given":"Genevieve"},{"family":"Sánchez","given":"María-José"},{"family":"Dorronsoro","given":"Miren"},{"family":"Huerta","given":"Jose-María"},{"family":"Barricarte","given":"Aurelio"},{"family":"Hallmans","given":"Göran"},{"family":"Palmqvist","given":"Richard"},{"family":"Khaw","given":"Kay-Tee"},{"family":"Wareham","given":"Nicholas"},{"family":"Allen","given":"Naomi E."},{"family":"Tsilidis","given":"Konstantinos K"},{"family":"Pischon","given":"Tobias"}],"issued":{"date-parts":[["2011",11,2]]}}},{"id":80,"uris":["http://zotero.org/users/2724931/items/UJ5VD5FU"],"uri":["http://zotero.org/users/2724931/items/UJ5VD5FU"],"itemData":{"id":80,"type":"article-journal","title":"The role of resistin in colorectal cancer.","container-title":"Clinica chimica acta; international journal of clinical chemistry","page":"760-764","volume":"413","issue":"7-8","abstract":"BACKGROUND: To date the role of resistin in colorectal cancer (CRC) is far from being elucidated. The aim of this study was to investigate the association between serum resistin levels and CRC in relation to known risk/protective factors including anthropometric, metabolic, inflammatory parameters as well as lifestyle individual characteristics. METHODS: 40

CRC patients and 40 controls were enrolled. Body weight, height, waist circumference and blood pressure were recorded. Fasting plasma glucose, lipids, C-reactive protein (CRP) and resistin levels were measured. Metabolic Syndrome (MS) was defined according to the harmonized definition. RESULTS: Resistin levels were significantly higher in CRC patients than in controls (p=0.028) and gradually increased with tumor stage progression (p=0.042). A high resistin level was statistically significant determinant of CRC after adjusting for age, sex, body mass index and lifestyle parameters (p=0.029). Resistin showed a strong association with CRP levels (p </= 0.0001). In stepwise regression analysis CRP remained the only independent predictor of both resistin levels (p=0.001) and CRC risk (p=0.021). CONCLUSIONS: These results clarify the nature of the association between resistin and CRC risk suggesting that the proinflammatory state of cancer, rather than the clinical diagnosis of CRC itself or its link with obesity and MS, may govern this association.","DOI":"10.1016/j.cca.2012.01.019","ISSN":"1873-3492 0009-8981","note":"PMID: 22296675","journalAbbreviation":"Clin Chim Acta","language":"eng","author":[{"family":"Danese","given":"Elisa"},{"family":"Montagnana","given":"Martina"},{"family":"Minicozzi","given":"Anna Maria"},{"family":"Bonafini","given":"Sara"},{"family":"Ruzzenente","given":"Orazio"},{"family":"Gelati","given":"Matteo"},{"family":"De Manzoni","given":"Giovanni"},{"family":"Lippi","given":"Giuseppe"},{"family":"Guidi","given":"Gian Cesare"}],"issued":{"date-parts":[["2012",4,11]]}},{"id":49,"uris":["http://zotero.org/users/2724931/items/JZMISB9P"],"uri":["http://zotero.org/users/2724931/items/JZMISB9P"],"itemData":{"id":49,"type":"article-journal","title":"The Metabolic Syndrome, Inflammation, and Colorectal Cancer Risk: An Evaluation of Large Panels of Plasma Protein Markers Using Repeated, Prediagnostic Samples","container-title":"Mediators of Inflammation","page":"4803156","volume":"2017","archive":"PMC","archive_location":"PMC5381203","abstract">syndrome (MetS), a set of metabolic risk factors including obesity, dysglycemia, and dyslipidemia, is associated with increased colorectal cancer (CRC) risk. A putative biological mechanism is chronic, low-grade inflammation, both a feature of MetS and a CRC risk factor. However, excess body fat also induces a proinflammatory state and increases CRC risk. In order to explore the relationship between MetS, body size, inflammation, and CRC, we studied large panels of inflammatory and cancer biomarkers. We included 138 participants from the Västerbotten Intervention Programme with repeated sampling occasions, 10 years apart. Plasma samples were analyzed for 178 protein markers by proximity extension assay. To identify associations between plasma protein levels and MetS components, linear mixed models were fitted for each protein. Twelve proteins were associated with at least one MetS component, six of which were associated with MetS score. MetS alone was not related to any protein. Instead, BMI displayed by far the strongest associations with the biomarkers. One of the 12 MetS score-related proteins (FGF-21), also associated with BMI, was associated with an increased CRC risk (OR 1.71, 95% CI 1.19 –2.47). We conclude that overweight and obesity, acting through both inflammation and other mechanisms, likely explain the MetS-CRC connection.","DOI":"10.1155/2017/4803156","ISSN":"0962-9351","author":[{"family":"Harlid","given":"Sophia"},{"family":"Myte","given":"Robin"},{"family":"Van Guelpen","given":"Bethany"}],"issued":{"date-parts":[["2017"]]}},{"id":79,"uris":["http://zotero.org/users/2724931/items/S9F263MP"],"uri":["http://zotero.org/users/2724931/items/S9F263MP"],"itemData":{"id":79,"type":"article-journal","title":"Metabolic syndrome and colorectal cancer: the protective role of Mediterranean diet--a case-control study.","container-title":"Angiology","page":"390-396","volume":"63","issue":"5","abstract":"The effect of Mediterranean diet on colorectal cancer, in the presence of the metabolic syndrome, was evaluated in 250 patients with first developed cancer (63 +/- 12 years, 59% males) and 250 age-gender-matched controls. Adherence to the Mediterranean diet was evaluated with the modified-MedDietScore (theoretical range 0-75), while assessment of the metabolic syndrome (MetS) was based on the third Adult Treatment Panel ([ATP III] National Cholesterol Education Program) criteria. Presence of MetS (1.66, 95% confidence interval [CI] 1.02, 2.69), age (4.25, 95% CI 2.33, 7.77), smoking (1.85, 95% CI 1.27, 2.70), and family history of colorectal cancer (3.37, 95% CI 1.69, 6.75) had a detrimental effect, whereas adherence to the Mediterranean diet (0.88, 95% CI 0.84, 0.92) and body mass index (0.93, 95%CI 0.89, 0.98) had a protective role regarding colorectal cancer. Mediterranean diet had the same effect in relation to colorectal cancer, in both participants with (0.84, 95% CI 0.76, 0.93) and without MetS (0.89, 95% CI 0.85, 0.94).","DOI":"10.1177/0003319711421164","ISSN":"1940-1574 0003-3197","note":"PMID: 22267847","journalAbbreviation":"Angiology","language":"eng","author":[{"family":"Kontou","given":"Niki"},{"family":"Psaltopoulou","given":"Theodora"},{"family":"Soupos","given":"Nick"},{"family":"Polychronopoulos","given":"Evangelos"},{"family":"Xinopoulos","given":"Dimitrios"},{"family":"Linos","given":"Athena"},{"family":"Panagiotakos","given":"Demosthenes B."}],"issued":{"date-parts":[["2012",7]]}},{"id":177,"uris":["http://zotero.org/users/2724931/items/E2HN5VWH"],"uri":["http://zotero.org/users/2724931/items/E2HN5VWH"],"itemData":{"id":177,"type":"article-journal","title":"Metabolic Predispositions and Increased Risk of Colorectal Adenocarcinoma by Anatomical Location: A Large Population-Based Cohort Study in Norway","container-title":"American Journal of Epidemiology","page":"883-893","volume":"182","issue":"10","abstract":"Whether different definitions of metabolic syndrome (MetS) are differently associated with colorectal adenocarcinoma (CA) by anatomical location is unclear. A population-based cohort study, the Cohort of Norway (CONOR) Study, was conducted in Norway from 1995 to 2010. Anthropometric measurements, blood samples, and lifestyle data were collected at recruitment. CAs were identified through linkage to the Norwegian Cancer Register. A composite index of MetS as defined by the International Diabetes Federation (IDF) or/and the National Cholesterol Education Program's Adult Treatment Panel III (ATP III) and single components of MetS, including anthropometric factors, blood pressure, lipids, triglycerides, and glucose, were analyzed. Cox proportional hazards regression was performed to estimate hazard ratios and 95% confidence intervals. Significant associations between single MetS components and CA, except for reduced high-density lipoprotein cholesterol and nonfasting glucose levels, were observed. MetS defined by 2 criteria separately showed a similar association with CA in general, and MetS defined by both the IDF and ATP III showed consistent results. Stronger associations were observed in the proximal colon among men (IDF: hazard ratio (HR) = 1.51, 95% confidence interval (CI): 1.24, 1.84; ATP III: HR = 1.40, 95% CI: 1.15, 1.70) and in the rectum among women (IDF: HR = 1.42, 95% CI: 1.07, 1.89; ATP III: HR = 1.43, 95% CI: 1.08, 1.90).","DOI":"10.1093/aje/kwv141","ISSN":"0002-9262","journalAbbreviation":"American Journal of Epidemiology","author":[{"family":"Lu","given":"Yunxia"},{"family":"Ness-Jensen","given":"Eivind"},{"family":"Hveem","given":"Kristian"},{"family":"Martling","given":"Anna"}],"issued":{"date-parts":[["2015",11,15]]}}},{"id":160,"uris":["http://zotero.org/users/2724931/items/6XNHFT4N"],"uri":["http://zotero.org/users/2724931/items/6XNHFT4N"],"itemData":{"id":160,"type":"article-journal","title":"Metabolic syndrome is associated with colorectal cancer in men","container-title":"European Journal of Cancer","page":"1866-1872","volume":"46","issue":"10","abstract":"Aim of the study\nWe assessed the relation between metabolic syndrome (MetS) and its components and colorectal cancer.\nMethods\nWe

analysed data from a multicentre case–control study conducted in Italy and Switzerland, including 1378 cases of colon cancer, 878 cases of rectal cancer and 4661 controls. All cases were incident and histologically confirmed. Controls were subjects admitted to the same hospitals as cases with acute non-malignant conditions. MetS was defined according to the International Diabetes Federation criteria. Odds ratios (ORs) and the corresponding 95% confidence intervals (CIs) were estimated by multiple logistic regression models, including terms for major identified confounding factors for colorectal cancer.\nResults\nWith reference to each component of the MetS, the ORs of colorectal cancer in men were 1.27 (95% CI, 0.95–1.69) for diabetes, 1.24 (95% CI, 1.03–1.48) for hypertension, 1.14 (95% CI, 0.93–1.40) for hypercholesterolaemia and 1.26 (95% CI, 1.08–1.48) for overweight at age 30. The corresponding ORs in women were 1.20 (95% CI, 0.82–1.75), 0.87 (95% CI, 0.71–1.06), 0.83 (95% CI, 0.66–1.03) and 1.06 (95% CI, 0.86–1.30). Colorectal cancer risk was increased in men (OR = 1.86; 95% CI, 1.21–2.86), but not in women (OR = 1.13; 95% CI, 0.66–1.93), with MetS. The ORs were 2.09 (95% CI, 1.38–3.18) in men and 1.15 (95% CI, 0.68–1.94) in women with
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3 components of the MetS, as compared to no component. Results were similar for colon and rectal cancers.\nConclusion\nThis study supports a direct association between MetS and both colon and rectal cancers in men, but not in women.","DOI":"10.1016/j.ejca.2010.03.010","ISSN":"0959-8049","journalAbbreviation":"European Journal of Cancer","author":[{"family":"Pelucchi","given":"Claudio"},{"family":"Negri","given":"Eva"},{"family":"Talamini","given":"Renato"},{"family":"Levi","given":"Fabio"},{"family":"Giacosa","given":"Attilio"},{"family":"Crispo","given":"Anna"},{"family":"Bidoli","given":"Ettore"},{"family":"Montella","given":"Maurizio"},{"family":"Franceschi","given":"Silvia"},{"family":"La Vecchia","given":"Carlo"}],"issued":{"date-parts":[["2010",7]]}},{"id":175,"uris":["http://zotero.org/users/2724931/items/SMIADFP7"],"uri":["http://zotero.org/users/2724931/items/SMIADFP7"],"itemData":{"id":175,"type":"article-journal","title":"Metabolic syndrome and colorectal neoplasms: An ominous association","container-title":"World Journal of Gastroenterology","page":"5320","volume":"21","issue":"17","source":"CrossRef","DOI":"10.3748/wjg.v21.i17.5
9327","shortTitle":"Metabolic syndrome and colorectal neoplasms","language":"en","author":[{"family":"Trabulo","given":"Daniel"}],"issued":{"date-parts":[["2015"]]}}},{"id":4,"uris":["http://zotero.org/users/2724931/items/C7S4WQSB"],"uri":["http://zotero.org/users/2724931/items/C7S4WQSB"],"itemData":{"id":4,"type":"article-journal","title":"Cancer Risk in Patients with Manifest Vascular Disease: Effects of Smoking, Obesity, and Metabolic Syndrome","container-title":"Cancer Epidemiology and Prevention Biomarkers","page":"1267-1277","volume":"22","issue":"7","source":"cebp.aacrjournals.org","abstract":"Background: Patients with vascular disease may be at increased risk of cancer because of shared risk factors and common pathogenesis.\nMethods: Patients with vascular disease (n = 6,172) were prospectively followed for cancer incidence. Standardized incidence ratios (SIRs) were calculated to compare the cancer incidence of the study population with that of the general population. Multivariable-adjusted hazard ratio's (HRs) of cancer were estimated for smoking status, pack-years, body mass index, waist circumference and visceral adipose tissue (VAT), and metabolic syndrome (MetS).\nResults: During a median follow-up of 5.5 years, 563 patients were diagnosed with cancer. Patients with vascular disease were at increased risk of cancer [SIR = 1.19; 95% confidence interval (CI), 1.10–1.29]. Specifically, risk of lung cancer (SIR = 1.56; 95% CI, 1.31–1.83), as well as bladder cancer (SIR = 1.60; 95% CI, 1.11–2.24) and cancer of the lip, oral cavity, or pharynx in men (SIR = 1.51; 95% CI, 0.89–2.39), and colorectal (SIR = 1.71; 95% CI, 1.11–2.53) and kidney cancer (SIR = 2.92; 95% CI, 1.05–6.38) in women was increased. A relation between smoking and cancer risk was observed (HR for current smokers = 1.37; 95% CI, 1.05–1.73), whereas an increase in VAT was associated with higher breast cancer risk in women (HR = 1.42; 95% CI, 1.03–1.96). No relation between MetS and cancer risk was found.\nConclusions: Patients with vascular disease have a 19% higher cancer risk compared to the general population. Smoking increased cancer risk and abdominal obesity is a risk factor for breast cancer in female patients with vascular disease.\nImpact: These results call for awareness of the increased cancer risk in patients with vascular disease among physicians and underline the necessity of lifestyle improvement not only for reducing cardiovascular risk. Cancer Epidemiol Biomarkers Prev; 22(7); 1267–77. ©2013 AACR.","DOI":"10.1158/1055-9965.EPI-13-0090","ISSN":"1055-9965, 1538-7755","note":"PMID: 23677576","shortTitle":"Cancer Risk in Patients with Manifest Vascular Disease","journalAbbreviation":"Cancer Epidemiol Biomarkers Prev","language":"en","author":[{"family":"Kruijsdijk","given":"Rob C. M.","dropping-particle":"van"},{"family":"Graaf","given":"Yolanda","dropping-particle":"van der"},{"family":"Peeters","given":"Petra H. M."},{"family":"Visseren","given":"Frank L. J."},{"family":"Group","given":"on behalf of the Second Manifestations of ARTerial disease (SMART)","dropping-particle":"study"}],"issued":{"date-parts":[["2013",7,1]]}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
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international criteria, and colorectal cancer has not been yet evaluated. In particular, it remains unclear to what extent the MetS components individually account for such an association. We addressed these issues in a nested case–control study that included 1,093 incident cases matched (1:1) to controls by using incidence density sampling. Conditional logistic regression was used to estimate relative risks (RR) and 95% CIs. MetS was defined according to the criteria of the National Cholesterol Education Program/Adult Treatment Panel III (NCEP/ATPIII), the International Diabetes Federation (IDF), and the 2009 harmonized definition. Among individual components, abdominal obesity (RR = 1.51; 95% CI: 1.16–1.96) was associated with colon cancer, whereas abnormal glucose metabolism was associated with both colon (RR = 2.05; 95% CI: 1.57–2.68) and rectal cancer (RR = 2.07; 95% CI: 1.45–2.96). MetS, as defined by each of the definitions, was similarly associated with colon cancer (e.g., RR = 1.91; 95% CI: 1.47–2.42 for MetS by NCEP/ATPIII), whereas MetS by NCEP/ATPIII, but not IDF or harmonized definition, was associated with rectal cancer (RR = 1.45; 95% CI: 1.02–2.06). Overall, these associations were stronger in women than in men. However, the association between MetS and colorectal cancer was accounted for by abdominal obesity and abnormal glucose metabolism such that MetS did not provide risk information beyond these components (likelihood ratio test P = 0.10 for MetS by NCEP/ATPIII). These data suggest that simple assessment of abnormal glucose metabolism and/or abdominal obesity to identify individuals at colorectal cancer risk may have higher clinical utility than applying more complex MetS definitions. Cancer Prev Res; 4(11); 1873–83. ©2011 AACR.","DOI":"10.1158/1940-6207.CAPR-11-0218","journalAbbreviation":"Cancer Prev Res (Phila)","author":[{"family":"Aleksandrova","given":"Krasimira"},{"family":"Boeing","given":"Heiner"},{"family":"Jenab","given":"Mazda"},{"family":"Bas Bueno-de-Mesquita","given":"H."},{"family":"Jansen","given":"Eugene"},{"family":"Duijnhoven","given":"Fränzel J.B.","non-dropping-particle":"van"},{"family":"Fedirko","given":"Veronika"},{"family":"Rinaldi","given":"Sabina"},{"family":"Romieu","given":"Isabelle"},{"family":"Riboli","given":"Elio"},{"family":"Romaguera","given":"Dora"},{"family":"Overvad","given":"Kim"},{"family":"Østergaard","given":"Jane Nautrup"},{"family":"Olsen","given":"Anja"},{"family":"Tjønneland","given":"Anne"},{"family":"Boutron-Ruault","given":"Marie-Christine"},{"family":"Clavel-Chapelon","given":"Françoise"},{"family":"Morois","given":"Sophie"},{"family":"Masala","given":"Giovanna"},{"family":"Agnoli","given":"Claudia"},{"family":"Panico","given":"Salvatore"},{"family":"Tumino","given":"Rosario"},{"family":"Vineis","given":"Paolo"},{"family":"Kaaks","given":"Rudolf"},{"family":"Lukanova","given":"Annekatrin"},{"family":"Trichopoulou","given":"Antonia"},{"family":"Naska","given":"Androniki"},{"family":"Bamia","given":"Christina"},{"family":"Peeters","given":"Petra H."},{"family":"Rodríguez","given":"Laudina"},{"family":"Buckland","given":"Genevieve"},{"family":"Sánchez","given":"María-José"},{"family":"Dorronsoro","given":"Miren"},{"family":"Huerta","given":"Jose-María"},{"family":"Barricarte","given":"Aurelio"},{"family":"Hallmans","given":"Göran"},{"family":"Palmqvist","given":"Richard"},{"family":"Khaw","given":"Kay-Tee"},{"family":"Wareham","given":"Nicholas"},{"family":"Allen","given":"Naomi E."},{"family":"Tsilidis","given":"Konstantinos K"},{"family":"Pischon","given":"Tobias"}],"issued":{"date-parts":[["2011",11,2]]}}},{"id":81,"uris":["http://zotero.org/users/2724931/items/7FAPCFIV"],"uri":["http://zotero.org/users/2724931/items/7FAPCFIV"],"itemData":{"id":81,"type":"article-journal","title":"Association of colorectal adenoma with components of metabolic syndrome.","container-title":"Cancer causes & control : CCC","page":"727-735","volume":"23","issue":"5","abstract":"PURPOSE: Recently, some studies have shown that diabetes mellitus and metabolic syndrome increase the risk of colorectal neoplasms. Although the mechanism is not known, those have been proposed to contribute to this phenomenon, including insulin resistance, oxidative stress, and adipokine production. The objective of this study was to assess the association between metabolic risk factors and colorectal neoplasm. METHODS: Study participants visited the National Cancer Center, Korea, for screening (2007-2009). A total of 1,771 diagnosed adenoma patients and 4,667 polyp-free controls were included. The association between risk factors and colorectal neoplasm was evaluated using logistic regression models. RESULTS: High waist circumference, blood pressure, and serum triglyceride levels were associated with an increased risk of colorectal adenoma. Metabolic syndrome (MS) was associated with an increased risk of adenoma (OR = 1.44, 95 % CI = 1.23-1.70). The association between MS and colorectal adenoma was observed regardless of advanced/low-risk adenoma, and multiplicity. MS affected right colon adenomas (OR = 1.50, 95 % CI = 1.22-1.85), left colon adenomas (OR = 1.36, 95 % CI = 1.05-1.76), and adenomas in multiple anatomical locations (OR = 1.59, 95 % CI = 1.19-2.12), but was not associated with rectum. CONCLUSION: Central obesity, triglyceride level, and MS are risk factors for colorectal adenoma including advanced adenoma and multiplicity.","DOI":"10.1007/s10552-012-9942-9","ISSN":"1573-7225 0957-5243","note":"PMID: 22450737","journalAbbreviation":"Cancer Causes Control","language":"eng","author":[{"family":"Kim","given":"Byung Chang"},{"family":"Shin","given":"Aesun"},{"family":"Hong","given":"Chang Won"},{"family":"Sohn","given":"Dae Kyung"},{"family":"Han","given":"Kyung Su"},{"family":"Ryu","given":"Kum Hei"},{"family":"Park","given":"Bum Joon"},{"family":"Nam","given":"Ji Hyung"},{"family":"Park","given":"Ji Won"},{"family":"Chang","given":"Hee Jin"},{"family":"Choi","given":"Hyo Seong"},{"family":"Kim","given":"Jeongseon"},{"family":"Oh","given":"Jae Hwan"}],"issued":{"date-parts":[["2012",5]]}}},{"id":79,"uris":["http://zotero.org/users/2724931/items/S9F263MP"],"uri":["http://zotero.org/users/2724931/items/S9F263MP"],"itemData":{"id":79,"type":"article-journal","title":"Metabolic syndrome and colorectal cancer: the protective role of Mediterranean diet--a case-control study.","container-title":"Angiology","page":"390-396","volume":"63","issue":"5","abstract":"The effect of Mediterranean diet on colorectal cancer, in the presence of the metabolic syndrome, was evaluated in 250 patients with first developed cancer (63 +/- 12 years, 59% males) and 250 age-gender-matched controls. Adherence to the Mediterranean diet was evaluated with the modified-MedDietScore (theoretical range 0-75), while assessment of the metabolic syndrome (MetS) was based on the third Adult Treatment Panel ([ATP III] National Cholesterol Education Program) criteria. Presence of MetS (1.66, 95% confidence interval [CI] 1.02, 2.69), age (4.25, 95% CI 2.33, 7.77), smoking (1.85, 95% CI 1.27, 2.70), and family history of colorectal cancer (3.37, 95% CI 1.69, 6.75) had a detrimental effect, whereas adherence to the Mediterranean diet (0.88, 95% CI 0.84, 0.92) and body mass index (0.93, 95%CI 0.89, 0.98) had a protective role regarding colorectal cancer. Mediterranean diet had the same effect in relation to colorectal cancer, in both participants with (0.84, 95% CI 0.76, 0.93) and without MetS (0.89, 95% CI 0.85, 0.94).","DOI":"10.1177/0003319711421164","ISSN":"1940-1574 0003-3197","note":"PMID: 22267847","journalAbbreviation":"Angiology","language":"eng","author":[{"family":"Kontou","given":"Niki"},{"family":"Psaltopoulou","given":"Theodora"},{"family":"Soupos","given":"Nick"},{"family":"Polychronopoulos","given":"Evangelos"},{"family":"Xinopoulos","given":"Dimitrios"},{"family":"Linos","given":"Athena"},

{"family":"Panagiotakos","given":"Demosthenes B."}],"issued":{"date-parts":[["2012",7]]}}},{"id":179,"uris":["http://zotero.org/users/2724931/items/G83HJCGN"],"uri":["http://zotero.org/users/2724931/items/G83HJCGN"],"itemData":{"id":179,"type":"article-journal","title":"Prevalence and risk factors of advanced colorectal neoplasms in asymptomatic Korean people between 40 and 49

years of age","container-title":"Journal of Gastroenterology and Hepatology","page":"98-105","volume":"32","issue":"1","source":"PubMed","abstract":"BACKGROUND AND AIM: Current guidelines recommend colon cancer screening for persons aged over 50

years. However, there are few data on colorectal cancer screening in 40- to 49-year-olds. This study assessed the prevalence and risk factors of colorectal neoplasms in 40- to 49-year-old Koreans.\nMETHODS: We analyzed the results of screening colonoscopies of 6680 persons 40-59

years of age (2206 aged 40-49 and 4474 aged 50-59

years).\nRESULTS: The prevalence of overall and advanced neoplasms in the 40- to 49-year age group was lower than in the 50- to 59-year age group (26.7% and 2.4% vs 37.8% and 3.5%, respectively). However, the prevalence of overall and advanced neoplasms increased to 39.1% and 5.4%, respectively, in 45- to 49-year-old individuals with metabolic syndrome. In the 40- to 49-year age group, age, current smoking, and metabolic syndrome were associated with an increased risk of advanced neoplasms (odds ratio [OR] 1.16, 95% confidence interval [CI] 1.04-1.30; OR 3.12, 95% CI 1.20-8.12; and OR 2.00, 95% CI 1.09-3.67, respectively).\nCONCLUSIONS: Individuals aged 40-49

years had a lower prevalence of colorectal neoplasms than those aged 50-59

years, but some 40- to 49-year-olds showed a similar prevalence to those aged 50-59

years. Age, current smoking habits, and metabolic syndrome are associated with an increased risk of advanced neoplasms in subjects aged 40-49

years. Further studies are needed to stratify the risks of colon cancer and guide targeted screening in persons younger than 50

years old.","DOI":"10.1111/jgh.13454","ISSN":"1440-1746","note":"PMID: 27197805","journalAbbreviation":"J. Gastroenterol. Hepatol.","language":"eng","author":[{"family":"Koo","given":"Ja Eun"},{"family":"Kim","given":"Kyung-Jo"},{"family":"Park","given":"Hye Won"},{"family":"Kim","given":"Hong-Kyu"},{"family":"Choe","given":"Jae Won"},{"family":"Chang","given":"Hye-Sook"},{"family":"Lee","given":"Ji Young"},{"family":"Myung","given":"Seung-Jae"},{"family":"Yang","given":"Suk-Kyun"},{"family":"Kim","given":"Jin-Ho"}],"issued":{"date-parts":[["2017",1]]}}},{"id":83,"uris":["http://zotero.org/users/2724931/items/33PI99M5"],"uri":["http://zotero.org/users/2724931/items/33PI99M5"],"itemData":{"id":83,"type":"article-journal","title":"Increased risk of colorectal malignant neoplasm in patients with nonalcoholic fatty liver disease: a large study","container-title":"Molecular Biology Reports","page":"2989-2997","volume":"41","issue":"5","abstract":"Nonalcoholic fatty liver disease (NAFLD) has been suggested to be a strong risk factor of colorectal benign adenomas and advanced neoplasms. The aim of this large cohort study was to further investigate the prevalence of colorectal malignant neoplasm (CRMN) in patients with NAFLD and determine whether association between NAFLD and CRMN exists. 2,315 community subjects (1,370 males and 945 females) who underwent a routine colonoscopy according to international colorectal cancer screening guideline were recruited. Nature of colorectal lesions determined by biopsy and NAFLD was diagnosed by ultrasound. Binary logistic regression analysis was applied to explore the related associations. Prevalence of CRMN was 29.3 % (77/263) in patients with NAFLD, which was significantly higher than 18.0 % (369/2,052) in the control group (P < 0.05). In addition, malignant neoplasm in NAFLD group occurred more frequently at sigmoid colon than in control group (14.3 vs. 11.9 %). The incidence of highly-differentiated colorectal adenocarcinoma in NAFLD group was significantly higher than control group (62.3 vs. 9.8 %). Univariate analysis showed that NAFLD had strong association with CRMN (OR 2.043; 95 % CI 1.512–2.761; P < 0.05). After adjusting for metabolic and other confounding factors, NAFLD remained as an independent risk factor for CRMN (OR 1.868; 95 % CI 1.360–2.567; P < 0.05). NAFLD was an independent risk factor for CRMN. Sigmoid carcinoma and highly differentiated colorectal adenocarcinoma were more commonly found in NAFLD. (ClinicalTrials.gov number, NCT01657773, website: http://clinicaltrials.gov/ct2/show/NCT01657773?term=zheng+minghua&rank=1)."},"DOI":"10.1007/s11033-014-3157-y","ISSN":"1573-4978","journalAbbreviation":"Molecular Biology Reports","author":[{"family":"Lin","given":"Xian-Feng"},{"family":"Shi","given":"Ke-Qing"},{"family":"You","given":"Jie"},{"family":"Liu","given":"Wen-Yue"},{"family":"Luo","given":"Ying-Wan"},{"family":"Wu","given":"Fa-Ling"},{"family":"Chen","given":"Yong-Ping"},{"family":"Wong","given":"Danny Ka-Ho"},{"family":"Yuen","given":"Man-Fung"},{"family":"Zheng","given":"Ming-Hua"}],"issued":{"date-parts":[["2014"]]}}},{"id":177,"uris":["http://zotero.org/users/2724931/items/E2HN5VWH"],"uri":["http://zotero.org/users/2724931/items/E2HN5VWH"],"itemData":{"id":177,"type":"article-journal","title":"Metabolic Predispositions and Increased Risk of Colorectal Adenocarcinoma by Anatomical Location: A Large Population-Based Cohort Study in Norway","container-title":"American Journal of Epidemiology","page":"883-893","volume":"182","issue":"10","abstract":"Whether different definitions of metabolic syndrome (MetS) are differently associated with colorectal adenocarcinoma (CA) by anatomical location is unclear. A population-based cohort study, the Cohort of Norway (CONOR) Study, was conducted in Norway from 1995 to 2010. Anthropometric measurements, blood samples, and lifestyle data were collected at recruitment. CAs were identified through linkage to the Norwegian Cancer Register. A composite index of MetS as defined by the International Diabetes Federation (IDF) or/and the National Cholesterol Education Program's Adult Treatment Panel III (ATP III) and single components of MetS, including anthropometric factors, blood pressure, lipids, triglycerides, and glucose, were analyzed. Cox proportional hazards regression was performed to estimate hazard ratios and 95% confidence intervals. Significant associations between single MetS components and CA, except for reduced high-density lipoprotein cholesterol and nonfasting glucose levels, were observed. MetS defined by 2 criteria separately showed a similar association with CA in general, and MetS defined by both the IDF and ATP III showed consistent results. Stronger associations were observed in the proximal colon among

men (IDF: hazard ratio (HR) = 1.51, 95% confidence interval (CI): 1.24, 1.84; ATP III: HR = 1.40, 95% CI: 1.15, 1.70) and in the rectum among women (IDF: HR = 1.42, 95% CI: 1.07, 1.89; ATP III: HR = 1.43, 95% CI: 1.08, 1.90).","DOI":"10.1093/aje/kwv141","ISSN":"0002-9262","journalAbbreviation":"American Journal of Epidemiology","author":[{"family":"Lu","given":"Yunxia"},{"family":"Ness-Jensen","given":"Eivind"},{"family":"Hveem","given":"Kristian"},{"family":"Martling","given":"Anna"}],"issued":{"date-parts":[["2015",11,15]]}}},{"id":175,"uris":["http://zotero.org/users/2724931/items/SMIADFP7"],"uri":["http://zotero.org/users/2724931/items/SMIADFP7"],"itemData":{"id":175,"type":"article-journal","title":"Metabolic syndrome and colorectal neoplasms: An ominous association","container-title":"World Journal of Gastroenterology","page":"5320","volume":"21","issue":"17","source":"CrossRef","DOI":"10.3748/wjg.v21.i17.5320","shortTitle":"Metabolic syndrome and colorectal neoplasms","language":"en","author":[{"family":"Trabulo","given":"Daniel"}],"issued":{"date-parts":[["2015"]]}}},{"id":4,"uris":["http://zotero.org/users/2724931/items/C7S4WQSB"],"uri":["http://zotero.org/users/2724931/items/C7S4WQSB"],"itemData":{"id":4,"type":"article-journal","title":"Cancer Risk in Patients with Manifest Vascular Disease: Effects of Smoking, Obesity, and Metabolic Syndrome","container-title":"Cancer Epidemiology and Prevention Biomarkers","page":"1267-1277","volume":"22","issue":"7","source":"cebp.aacrjournals.org","abstract":"Background: Patients with vascular disease may be at increased risk of cancer because of shared risk factors and common pathogenesis.\nMethods: Patients with vascular disease (n = 6,172) were prospectively followed for cancer incidence. Standardized incidence ratios (SIRs) were calculated to compare the cancer incidence of the study population with that of the general population. Multivariable-adjusted hazard ratio's (HRs) of cancer were estimated for smoking status, pack-years, body mass index, waist circumference and visceral adipose tissue (VAT), and metabolic syndrome (MetS).\nResults: During a median follow-up of 5.5 years, 563 patients were diagnosed with cancer. Patients with vascular disease were at increased risk of cancer [SIR = 1.19; 95% confidence interval (CI), 1.10–1.29]. Specifically, risk of lung cancer (SIR = 1.56; 95% CI, 1.31–1.83), as well as bladder cancer (SIR = 1.60; 95% CI, 1.11–2.24) and cancer of the lip, oral cavity, or pharynx in men (SIR = 1.51; 95% CI, 0.89–2.39), and colorectal (SIR = 1.71; 95% CI, 1.11–2.53) and kidney cancer (SIR = 2.92; 95% CI, 1.05–6.38) in women was increased. A relation between smoking and cancer risk was observed (HR for current smokers = 1.37; 95% CI, 1.05–1.73), whereas an increase in VAT was associated with higher breast cancer risk in women (HR = 1.42; 95% CI, 1.03–1.96). No relation between MetS and cancer risk was found.\nConclusions: Patients with vascular disease have a 19% higher cancer risk compared to the general population. Smoking increased cancer risk and abdominal obesity is a risk factor for breast cancer in female patients with vascular disease.\nImpact: These results call for awareness of the increased cancer risk in patients with vascular disease among physicians and underline the necessity of lifestyle improvement not only for reducing cardiovascular risk. Cancer Epidemiol Biomarkers Prev; 22(7); 1267–77. ©2013 AACR.","DOI":"10.1158/1055-9965.EPI-13-0090","ISSN":"1055-9965, 1538-7755","note":"PMID: 23677576","shortTitle":"Cancer Risk in Patients with Manifest Vascular Disease","journalAbbreviation":"Cancer Epidemiol Biomarkers Prev","language":"en","author":[{"family":"Kruijsdijk","given":"Rob C. M.","dropping-particle":"van"},{"family":"Graaf","given":"Yolanda","dropping-particle":"van der"},{"family":"Peeters","given":"Petra H. M."},{"family":"Visseren","given":"Frank L. J."},{"family":"Group","given":"on behalf of the Second Manifestations of ARTerial disease (SMART)","dropping-particle":"study"}],"issued":{"date-parts":[["2013",7,1]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}

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1.41 [1.28, 1.56]

6.86

(P < 0.00001)

71

0.02

52.59, df = 15

(P < 0.00001)

IDF

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[{"family":"Aleksandrova","given":"Krasimira"},{"family":"Boeing","given":"Heiner"},
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{"family":"Tsilidis","given":"Konstantinos K"},{"family":"Pischon","given":"Tobias"}],"issued":{"date-parts":[["2011",11,2]]}}},{"id":49,"uris":["http://zotero.org/users/2724931/items/JZMISB9P"],"uri":["http://zotero.org/users/2724931/items/JZMISB9P"],"itemData":{"id":49,"type":"article-journal","title":"The Metabolic Syndrome, Inflammation, and Colorectal Cancer Risk: An Evaluation of Large Panels of Plasma Protein Markers Using Repeated, Prediagnostic Samples","container-title":"Mediators of Inflammation","page":"4803156","volume":"2017","archive":"PMC","archive_location":"PMC5381203","abstract
syndrome (MetS), a set of metabolic risk factors including obesity, dysglycemia, and dyslipidemia, is associated with increased colorectal cancer (CRC) risk. A putative biological mechanism is chronic, low-grade inflammation, both a feature of MetS and a CRC risk factor. However, excess body fat also induces a proinflammatory state and increases CRC risk. In order to explore the relationship between MetS, body size, inflammation, and CRC, we studied large panels of inflammatory and cancer biomarkers. We included 138 participants from the Västerbotten Intervention Programme with repeated sampling occasions, 10 years apart. Plasma samples were analyzed for 178 protein markers by proximity extension assay. To identify associations between plasma protein levels and MetS components, linear mixed models were fitted for each protein. Twelve proteins were associated with at least one MetS component, six of which were associated with MetS score. MetS alone was not related to any protein. Instead, BMI displayed by far the strongest associations with the biomarkers. One of the 12 MetS score-related proteins (FGF-21), also associated with BMI, was associated with an increased CRC risk (OR 1.71, 95% CI 1.19–2.47). We conclude that overweight and obesity, acting through both inflammation and other mechanisms, likely explain the MetS-CRC connection.
,"DOI":"10.1155/2017/4803156","ISSN":"0962-9351","author":[{"family":"Harlid","given":"Sophia"},{"family":"Myte","given":"Robin"},{"family":"Van Guelpen","given":"Bethany"}],"issued":{"date-parts":[["2017"]]}}},{"id":177,"uris":["http://zotero.org/users/2724931/items/E2HN5VWH"],"uri":["http://zotero.org/users/2724931/items/E2HN5VWH"],"itemData":{"id":177,"type":"article-journal","title":"Metabolic Predispositions and Increased Risk of Colorectal Adenocarcinoma by Anatomical Location: A Large Population-Based Cohort Study in Norway","container-title":"American Journal of Epidemiology","page":"883-893","volume":"182","issue":"10","abstract":"Whether different definitions of metabolic syndrome (MetS) are differently associated with colorectal adenocarcinoma (CA) by anatomical location is unclear. A population-based cohort study, the Cohort of Norway (CONOR) Study, was conducted in Norway from 1995 to 2010. Anthropometric measurements, blood samples, and lifestyle data were collected at recruitment. CAs were identified through linkage to the Norwegian Cancer Register. A composite index of MetS as defined by the International Diabetes Federation (IDF) or/and the National Cholesterol Education Program's Adult Treatment Panel III (ATP III) and single components of MetS, including anthropometric factors, blood pressure, lipids, triglycerides, and glucose, were analyzed. Cox proportional hazards regression was performed to estimate hazard ratios and 95% confidence intervals. Significant associations between single MetS components and CA, except for reduced high-density lipoprotein cholesterol and nonfasting glucose levels, were observed. MetS defined by 2 criteria separately showed a similar association with CA in general, and MetS defined by both the IDF and ATP III showed consistent results. Stronger associations were observed in the proximal colon among men (IDF: hazard ratio (HR) = 1.51, 95% confidence interval (CI): 1.24, 1.84; ATP III: HR = 1.40, 95% CI: 1.15, 1.70) and in the rectum among women (IDF: HR = 1.42, 95% CI: 1.07, 1.89; ATP III: HR = 1.43, 95% CI: 1.08, 1.90).","DOI":"10.1093/aje/kwv141","ISSN":"0002-9262","journalAbbreviation":"American Journal of Epidemiology","author":[{"family":"Lu","given":"Yunxia"},{"family":"Ness-Jensen","given":"Eivind"},{"family":"Hveem","given":"Kristian"},{"family":"Martling","given":"Anna"}],"issued":{"date-parts":[["2015",11,15]]}}},{"id":160,"uris":["http://zotero.org/users/2724931/items/6XNHFT4N"],"uri":["http://zotero.org/users/2724931/items/6XNHFT4N"],"itemData":{"id":160,"type":"article-journal","title":"Metabolic syndrome is associated with colorectal cancer in men","container-title":"European Journal of Cancer","page":"1866-1872","volume":"46","issue":"10","abstract":"Aim of the study\nWe assessed the relation between metabolic syndrome (MetS) and its components and colorectal cancer.\nMethods\nWe analysed data from a multicentre case–control study conducted in Italy and Switzerland, including 1378 cases of colon cancer, 878 cases of rectal cancer and 4661 controls. All cases were incident and histologically confirmed. Controls were subjects admitted to the same hospitals as cases with acute non-malignant conditions. MetS was defined according to the International Diabetes Federation criteria. Odds ratios (ORs) and the corresponding 95% confidence intervals (CIs) were estimated by multiple logistic regression models, including terms for major identified confounding factors for colorectal cancer.\nResults\nWith reference to each component of the MetS, the ORs of colorectal cancer in men were 1.27 (95% CI, 0.95–1.69) for diabetes, 1.24 (95% CI, 1.03–1.48) for hypertension, 1.14 (95% CI, 0.93–1.40) for hypercholesterolaemia and 1.26 (95% CI, 1.08–1.48) for overweight at age 30. The corresponding ORs in women were 1.20 (95% CI, 0.82–1.75), 0.87 (95% CI, 0.71–1.06), 0.83 (95% CI, 0.66–1.03) and 1.06 (95% CI, 0.86–1.30). Colorectal cancer risk was increased in men (OR = 1.86; 95% CI, 1.21–2.86), but not in women (OR = 1.13; 95% CI, 0.66–1.93), with MetS. The ORs were 2.09 (95% CI, 1.38–3.18) in men and 1.15 (95% CI, 0.68–1.94) in women with
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3 components of the MetS, as compared to no component. Results were similar for colon and rectal cancers.\nConclusion\nThis study supports a direct association between MetS and both colon and rectal cancers in

men, but not in women.","DOI":"10.1016/j.ejca.2010.03.010","ISSN":"0959-8049","journalAbbreviation":"European Journal of Cancer","author":[{"family":"Pelucchi","given":"Claudio"},{"family":"Negri","given":"Eva"},{"family":"Talamini","given":"Renato"},{"family":"Levi","given":"Fabio"},{"family":"Giacosa","given":"Attilio"},{"family":"Crispo","given":"Anna"},{"family":"Bidoli","given":"Ettore"},{"family":"Montella","given":"Maurizio"},{"family":"Franceschi","given":"Silvia"},{"family":"La Vecchia","given":"Carlo"}],"issued":{"date-parts":[["2010",7]]}}},{"id":37,"uris":["http://zotero.org/users/2724931/items/B468CSCB"],"uri":["http://zotero.org/users/2724931/items/B468CSCB"],"itemData":{"id":37,"type":"article-journal","title":"Colorectal cancer and its association with the metabolic syndrome: a Malaysian multi-centric case-control study.","container-title":"Asian Pacific journal of cancer prevention : APJCP","page":"3873-3877","volume":"13","issue":"8","abstract":"OBJECTIVE: Colorectal cancer (CRC) and the metabolic syndrome (MetS) are both on the rise in Malaysia. A multi-centric case-control study was conducted from December 2009 to January 2011 to determine any relationship between the two. METHODS: Patients with confirmed CRC based on colonoscopy findings and cancer free controls from five local hospitals were assessed for MetS according to the International Diabetes Federation (IDF) definition. Each index case was matched for age, gender and ethnicity with two controls (140: 280). RESULTS: MetS among cases was highly prevalent (70.7%), especially among women (68.7%). MetS as an entity increased CRC risk by almost three fold independently (OR=2.61, 95% CI=1.53-4.47). In men MetS increased the risk of CRC by two fold (OR=2.01, 95%CI, 1.43-4.56), demonstrating an increasing trend in risk with the number of Mets components observed. CONCLUSION: This study provides evidence for a positive association between the metabolic syndrome and colorectal cancer. A prospective study on the Malaysian population is a high priority to confirm these findings.","ISSN":"2476-762X 1513-7368","note":"PMID: 23098486","journalAbbreviation":"Asian Pac J Cancer Prev","language":"eng","author":[{"family":"Ulaganathan","given":"V."},{"family":"Kandiah","given":"M."},{"family":"Zalilah","given":"M. S."},{"family":"Faizal","given":"J. A."},{"family":"Fijeraid","given":"H."},{"family":"Normayah","given":"K."},{"family":"Gooi","given":"B. H."},{"family":"Othman","given":"R."}],"issued":{"date-parts":[["2012"]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
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{"family":"Tsilidis","given":"Konstantinos K"},{"family":"Pischon","given":"Tobias"}],"issued":{"date-parts":
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role of resistin in colorectal cancer.","container-title":"Clinica chimica acta; international journal of clinical
chemistry","page":"760-764","volume":"413","issue":"7-8","abstract":"BACKGROUND: To date the role of
resistin in colorectal cancer (CRC) is far from being elucidated. The aim of this study was to investigate the
association between serum resistin levels and CRC in relation to known risk/protective factors including
anthropometric, metabolic, inflammatory parameters as well as lifestyle individual characteristics. METHODS: 40
CRC patients and 40 controls were enrolled. Body weight, height, waist circumference and blood pressure were
recorded. Fasting plasma glucose, lipids, C-reactive protein (CRP) and resistin levels were measured. Metabolic
Syndrome (MS) was defined according to the harmonized definition. RESULTS: Resistin levels were significantly
higher in CRC patients than in controls (p=0.028) and gradually increased with tumor stage progression
(p=0.042). A high resistin level was statistically significant determinant of CRC after adjusting for age, sex, body
mass index and lifestyle parameters (p=0.029). Resistin showed a strong association with CRP levels (p </=
0.0001). In stepwise regression analysis CRP remained the only independent predictor of both resistin levels
(p=0.001) and CRC risk (p=0.021). CONCLUSIONS: These results clarify the nature of the association between
resistin and CRC risk suggesting that the proinflammatory state of cancer, rather than the clinical diagnosis of
CRC itself or its link with obesity and MS, may govern this
association.","DOI":"10.1016/j.cca.2012.01.019","ISSN":"1873-3492 0009-8981","note":"PMID:
22296675","journalAbbreviation":"Clin Chim Acta","language":"eng","author":
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′
-UTR polymorphisms in the vascular endothelial growth factor (VEGF) gene and metabolic syndrome in
determining the risk of colorectal cancer in Koreans","container-title":"BMC
Cancer","page":"881","volume":"14","archive":"PMC","archive_location":"PMC4289193","abstract":"BACKGRO
Polymorphisms in angiogenesis-related genes and metabolic syndrome (MetS) risk factors play important roles in
cancer development. Moreover, recent studies have reported associations between a number of 3
′
-UTR polymorphisms and a variety of cancers. The aim of this study was to investigate the associations of three
VEGF 3
′
-UTR polymorphisms (1451C

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T [rs3025040], 1612G

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A [rs10434], and 1725G

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A [rs3025053]) and MetS with colorectal cancer (CRC) susceptibility in Koreans. METHODS: A total of 850
participants (450 CRC patients and 400 controls) were enrolled in the study. The genotyping of VEGF
polymorphisms was performed by TaqMan allelic discrimination assays. Cancer risks of genetic variations and
gene-environment interactions were assessed by adjusted odds ratios (AORs) and 95% confidence intervals (CIs)
of multivariate logistic regression analyses. RESULTS: VEGF 1451C

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T was significantly associated with rectal cancer risk (Dominant model; AOR =1.58; 95% CI = 1.09 - 2.28; p =
0.015) whereas VEGF 1725G

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A correlated with MetS risk (Dominant model; AOR =1.61; 95% CI =1.06 - 2.46; p = 0.026). Of the gene-environment combined effects, the interaction of VEGF 1451C

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T and MetS contributed to increased rectal cancer risk (AOR = 3.15; 95% CI = 1.74 - 5.70; p <

.001) whereas the combination of VEGF 1725G

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A and MetS was involved with elevated colon cancer risk (AOR = 2.68; 95% CI = 1.30 - 1.55; p =0.008). CONCLUSIONS: Our results implicate that VEGF 1451C

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T and 1725G

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A may predispose to CRC susceptibility and the genetic contributions may be varied with the presence of MetS. ELECTRONIC SUPPLEMENTARY MATERIAL: The online version of this article (doi:10.1186/1471-2407-14-881) contains supplementary material, which is available to authorized users.","DOI":"10.1186/1471-2407-14-881","ISSN":"1471-2407","author":[{"family":"Jeon","given":"Young Joo"},{"family":"Kim","given":"Jong Woo"},{"family":"Park","given":"Hye Mi"},{"family":"Jang","given":"Hyo Geun"},{"family":"Kim","given":"Jung O"},{"family":"Oh","given":"Jisu"},{"family":"Chong","given":"So Young"},{"family":"Kwon","given":"Sung Won"},{"family":"Kim","given":"Eo Jin"},{"family":"Oh","given":"Doyeun"},{"family":"Kim","given":"Nam Keun"}],"issued":{"date-parts":[["2014"]]}}},{"id":170,"uris":["http://zotero.org/users/2724931/items/2S89J5KW"],"uri":["http://zotero.org/users/2724931/items/2S89J5KW"],"itemData":{"id":170,"type":"article-journal","title":"Risk factors associated with rectal neuroendocrine tumors: a cross-sectional study.","container-title":"Cancer epidemiology, biomarkers & prevention : a publication of the American Association for Cancer Research, cosponsored by the American Society of Preventive Oncology","page":"1406-1413","volume":"23","issue":"7","abstract":"BACKGROUND: The incidence of rectal neuroendocrine tumors (NET) has been increasing since the implementation of the screening colonoscopy. However, very little is known about risk factors associated with rectal NETs. We examined the prevalence of and the risk factors for rectal NETs in a Korean population. METHODS: A cross-sectional study was performed on 62,171 Koreans who underwent screening colonoscopy. The clinical characteristics and serum biochemical parameters of subjects with rectal NET were compared with those of subjects without rectal NET using multivariate logistic regression. RESULTS: Of a total of 57,819 participants, 101 [OR, 0.17%; 95% confidence interval (CI), 0.14-0.20] had a rectal NET. Young age (<50 years; OR, 2.09; 95% CI, 1.06-4.15), male gender (OR, 1.92; 95% CI, 1.15-3.20), alcohol drinking [adjusted OR (AOR), 1.56; 95% CI, 1.01-2.42], and a low high-density lipoprotein-cholesterol (HDL-C) level (AOR, 1.85; 95% CI, 1.10-3.11) were independent risk factors for rectal NETs. Cigarette smoking, fatty liver, metabolic syndrome, higher triglyceride level (>/=150 mg/dL), and higher homeostasis model assessment of insulin resistance (>/=2.5) were not independently associated with rectal NETs, although these factors were more common in individuals with rectal NETs in the univariate analysis. CONCLUSIONS: Young age (<50 years), male gender, alcohol drinking, and a low","DOI":"10.1158/1055-9965.EPI-14-0132","ISSN":"1538-7755 1055-9965","note":"PMID: 24813818","journalAbbreviation":"Cancer Epidemiol Biomarkers Prev","language":"eng","author":[{"family":"Jung","given":"Yoon Suk"},{"family":"Yun","given":"Kyung Eun"},{"family":"Chang","given":"Yoosoo"},{"family":"Ryu","given":"Seungho"},{"family":"Park","given":"Jung Ho"},{"family":"Kim","given":"Hong Joo"},{"family":"Cho","given":"Yong Kyun"},{"family":"Sohn","given":"Chong Il"},{"family":"Jeon","given":"Woo Kyu"},{"family":"Kim","given":"Byung Ik"},{"family":"Park","given":"Dong Il"}],"issued":{"date-parts":[["2014",7]]}}},{"id":36,"uris":["http://zotero.org/users/2724931/items/437ZFQED"],"uri":["http://zotero.org/users/2724931/items/437ZFQED"],"itemData":{"id":36,"type":"article-journal","title":"Clinico-epidemiologic study of the metabolic syndrome and lifestyle factors associated with the risk of colon adenoma and adenocarcinoma.","container-title":"Asian Pacific journal of cancer prevention : APJCP","page":"975-983","volume":"11","issue":"4","abstract":"BACKGROUND: The numbers of patients with colorectal cancer and associated deaths have been increasing in Japan, probably due to rapid lifestyle changes. Prevention is clearly important and the present study aimed to clarify risk factors and to promote colon cancer screening. METHODS: We investigated lifestyle factors, biochemical data, and pathological features of 727 individuals who underwent colonoscopy. Data were subjected to statistical analysis using SPSS software. RESULTS: Low-grade adenoma was more frequent among the elderly and in men. All of the men and 87.5% of the women with high-grade adenoma or adenocarcinoma were aged>/=45 and>/=50 years, respectively. In women, a larger waist circumference (=80 cm) increased the odds ratio for colon adenoma or adenocarcinoma (colon tumors) by 1.033 (95% confidence index (CI), 1.001-1.066; p=0.040). Metabolic syndrome significantly increased the odds ratio of colon tumors in men, but not in women. Cigarette smoking, drinking alcohol, and increased physical activity were significant risk factors for colon tumors in men, with odds ratios of 1.001 (95% CI, 1.000-1.002; p=0.001), 1.001 (95% CI, 1.000-1.003; p=0.047), and 1.406 (95% CI 1.038-1.904; p=0.028), respectively. CONCLUSIONS: Colon tumors have a high prevalence in the elderly. A larger waist circumference in women and metabolic syndrome in both men and women elevate the risk of colon tumors. In addition, smoking, drinking, and excessive physical activity are risk factors for adenoma and adenocarcinoma in men. For early detection of colorectal cancer, men older than 45 years and women older than 50 years with these risk factors are recommended to undergo colonoscopy.","ISSN":"2476-762X 1513-7368","note":"PMID: 21133610","journalAbbreviation":"Asian Pac J Cancer Prev","language":"eng","author":[{"family":"Kaneko","given":"Rena"},{"family":"Sato","given":"Yuzuru"},{"family":"An","given":"Yasuyosi"},{"family":"Nakagawa","given":"Motoki"},{"family":"Kusayanagi","given":"Satoshi"},{"family":"Kamisago","given":"Satoshi"},{"family":"Umeda","given":"Tomoyuki"},{"family":"Ogawa","given":"Masazumi"},{"family":"Munakata","given":"Kazuo"},{"family":"Mizuno","given":"Kyoichi"}],"issued":{"date-parts":[["2010"]]}}},{"id":87,"uris":["http://zotero.org/users/2724931/items/VESC9IC5"],"uri":["http://zotero.org/users/2724931/items/VESC9IC5"],"itemData":{"id":87,"type":"article-journal","title":"The

relationship of nonalcoholic fatty liver disease and metabolic syndrome for colonoscopy colorectal neoplasm","container-title":"Medicine","page":"e5809","volume":"96","issue":"2","archive":"PMC","archive_location":"PMC5266168", neoplasm is considered to have a strong association with nonalcoholic fatty liver disease (NAFLD) and metabolic syndrome (MetS), respectively. The relationship among NAFLD, MetS, and colorectal neoplasm was assessed in 1793 participants. Participants were divided into 4 groups based on the status of NAFLD and MetS. Relative excess risks of interaction (RERI), attributable proportion (AP), and synergy index (SI) were applied to evaluate the additive interaction. NAFLD and MetS were significantly correlated with colorectal neoplasm and colorectal cancer (CRC), respectively. The incidence of CRC in NAFLD (+) MetS (+) group was significantly higher than other 3 groups. The result of RERI, AP, and SI indicated the significant additive interaction of NAFLD and MetS on the development of CRC. NAFLD and MetS are risk factors for colorectal neoplasm and CRC, respectively. And NAFLD and MetS have an additive effect on the development of CRC.","DOI":"10.1097/MD.0000000000005809","ISSN":"0025-7974","author":[{"family":"Pan","given":"Shuang"},{"family":"Hong","given":"Wandong"},{"family":"Wu","given":"Wenzhi"},{"family":"Chen","given":"Qinfen"},{"family":"Zhao","given":"Qian"},{"family":"Wu","given":"Jiansheng"},{"family":"Jin","given":"Yin"}],"editor":[{"family":"Žarko.","given":"Babi
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"}],"issued":{"date-parts":[["2017",1]]}},{"id":5,"uris":["http://zotero.org/users/2724931/items/QHPCVRZ8"],"uri":["http://zotero.org/users/2724931/items/QHPCVRZ8"],"itemData":{"id":5,"type":"article-journal","title":"Evaluation of the risk factors associated with rectal neuroendocrine tumors: a big data analytic study from a health screening center","container-title":"Journal of Gastroenterology","page":"1112-1121","volume":"51","issue":"12","abstract":"Rectal neuroendocrine tumor (NET) is the most common NET in Asia. The risk factors associated with rectal NETs are unclear because of the overall low incidence rate of these tumors and the associated difficulty in conducting large epidemiological studies on rare cases. The aim of this study was to exploit the benefits of big data analytics to assess the risk factors associated with rectal NET.","DOI":"10.1007/s00535-016-1198-9","ISSN":"1435-5922","journalAbbreviation":"Journal of Gastroenterology","author":[{"family":"Pyo","given":"Jeung Hui"},{"family":"Hong","given":"Sung Noh"},{"family":"Min","given":"Byung-Hoon"},{"family":"Lee","given":"Jun Haeng"},{"family":"Chang","given":"Dong Kyung"},{"family":"Rhee","given":"Poong-Lyul"},{"family":"Kim","given":"Jae Jun"},{"family":"Choi","given":"Sun Kyu"},{"family":"Jung","given":"Sin-Ho"},{"family":"Son","given":"Hee Jung"},{"family":"Kim","given":"Young-Ho"}],"issued":{"date-parts":[["2016",12,1]]}}},{"id":162,"uris":["http://zotero.org/users/2724931/items/R3KQJIJK"],"uri":["http://zotero.org/users/2724931/items/R3KQJIJK"],"itemData":{"id":162,"type":"article-journal","title":"Clinical study on the correlation between metabolic syndrome and colorectal carcinoma","container-title":"ANZ Journal of Surgery","page":"331-336","volume":"80","issue":"5","abstract":"Background: Although metabolic syndrome (MS) has received a lot of attention in recent years, the correlation between MS and colorectal carcinoma is still not very clear. This study aims at exploring the relationship between MS and colorectal carcinoma. Methods: Data was collected from 507 cases of colorectal carcinoma and 507 cases of healthy patients between January 2002 and March 2007 to establish the database. The patients with colorectal cancer were divided into two groups based on the presence of MS. Multivariate analysis of these data for the overall survival and recurrence was performed with the Cox proportional hazard model. Variables examined by multivariate analysis were sex , age, location, histotype, differentiation, tumour, node, metastasis (TNM) stage, the number of lymph nodes detected, etc. Results: The existence of MS in the colorectal carcinoma group was clearly more than that in the control group. The existence of two to four types of abnormal metabolic diseases was significantly more in the colorectal cancer group than in the control group. MS is one of the important elements that can independently influence the survival (odds ratio (OR) = 1.501, 95% confidence interval (CI) = 1.057–2.131) and have the highest risk with worse survival compared with other parameters. Conclusion: There is a close relationship between MS and colorectal carcinoma, and MS is a significantly independent element that influences the survival of the colorectal carcinoma. Decreasing the incidence of MS maybe play a role in improving therapeutic efficacy and prognosis of the cancer.","DOI":"10.1111/j.1445-2197.2009.05084.x","ISSN":"1445-2197","author":[{"family":"Shen","given":"Zhanlong"},{"family":"Wang","given":"Shan"},{"family":"Ye","given":"Yingjiang"},{"family":"Yin","given":"Mujun"},{"family":"Yang","given":"Xiaodong"},{"family":"Jiang","given":"Kewei"},{"family":"Liu","given":"Yan"}],"issued":{"date-parts":[["2010",5,1]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
30, 33, 37, 42, 45, 48
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(P < 0.00001)
14
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(P = 0.32)
Gender
Men
6 (15)
[
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according to the criteria of the National Cholesterol Education Program/Adult Treatment Panel III (NCEP/ATPIII), the International Diabetes Federation (IDF), and the 2009 harmonized definition. Among individual components, abdominal obesity (RR = 1.51; 95% CI: 1.16–1.96) was associated with colon cancer, whereas abnormal glucose metabolism was associated with both colon (RR = 2.05; 95% CI: 1.57–2.68) and rectal cancer (RR = 2.07; 95% CI: 1.45–2.96). MetS, as defined by each of the definitions, was similarly associated with colon cancer (e.g., RR = 1.91; 95% CI: 1.47–2.42 for MetS by NCEP/ATPIII), whereas MetS by NCEP/ATPIII, but not IDF or harmonized definition, was associated with rectal cancer (RR = 1.45; 95% CI: 1.02–2.06). Overall, these associations were stronger in women than in men. However, the association between MetS and colorectal cancer was accounted for by abdominal obesity and abnormal glucose metabolism such that MetS did not provide risk information beyond these components (likelihood ratio test P = 0.10 for MetS by NCEP/ATPIII). These data suggest that simple assessment of abnormal glucose metabolism and/or abdominal obesity to identify individuals at colorectal cancer risk may have higher clinical utility than applying more complex MetS definitions. Cancer Prev Res; 4(11); 1873–83. ©2011 AACR.","DOI":"10.1158/1940-6207.CAPR-11-0218","journalAbbreviation":"Cancer Prev Res (Phila)","author":[{"family":"Aleksandrova","given":"Krasimira"},{"family":"Boeing","given":"Heiner"},{"family":"Jenab","given":"Mazda"},{"family":"Bas Bueno-de-Mesquita","given":"H."},{"family":"Jansen","given":"Eugene"},{"family":"Duijnhoven","given":"Fränzel J.B.","non-dropping-particle":"van"},{"family":"Fedirko","given":"Veronika"},{"family":"Rinaldi","given":"Sabina"},{"family":"Romieu","given":"Isabelle"},{"family":"Riboli","given":"Elio"},{"family":"Romaguera","given":"Dora"},{"family":"Overvad","given":"Kim"},{"family":"Østergaard","given":"Jane Nautrup"},{"family":"Olsen","given":"Anja"},{"family":"Tjønneland","given":"Anne"},{"family":"Boutron-Ruault","given":"Marie-Christine"},{"family":"Clavel-Chapelon","given":"Françoise"},{"family":"Morois","given":"Sophie"},{"family":"Masala","given":"Giovanna"},{"family":"Agnoli","given":"Claudia"},{"family":"Panico","given":"Salvatore"},{"family":"Tumino","given":"Rosario"},{"family":"Vineis","given":"Paolo"},{"family":"Kaaks","given":"Rudolf"},{"family":"Lukanova","given":"Annekatrin"},{"family":"Trichopoulou","given":"Antonia"},{"family":"Naska","given":"Androniki"},{"family":"Bamia","given":"Christina"},{"family":"Peeters","given":"Petra H."},{"family":"Rodríguez","given":"Laudina"},{"family":"Buckland","given":"Genevieve"},{"family":"Sánchez","given":"María-José"},{"family":"Dorronsoro","given":"Miren"},{"family":"Huerta","given":"Jose-María"},{"family":"Barricarte","given":"Aurelio"},{"family":"Hallmans","given":"Göran"},{"family":"Palmqvist","given":"Richard"},{"family":"Khaw","given":"Kay-Tee"},{"family":"Wareham","given":"Nicholas"},{"family":"Allen","given":"Naomi E."},{"family":"Tsilidis","given":"Konstantinos K"},{"family":"Pischon","given":"Tobias"}],"issued":{"date-parts":[["2011",11,2]]}}},{"id":36,"uris":["http://zotero.org/users/2724931/items/437ZFQED"],"uri":["http://zotero.org/users/2724931/items/437ZFQED"],"itemData":{"id":36,"type":"article-journal","title":"Clinico-epidemiologic study of the metabolic syndrome and lifestyle factors associated with the risk of colon adenoma and adenocarcinoma.","container-title":"Asian Pacific journal of cancer prevention : APJCP","page":"975-983","volume":"11","issue":"4","abstract":"BACKGROUND: The numbers of patients with colorectal cancer and associated deaths have been increasing in Japan, probably due to rapid lifestyle changes. Prevention is clearly important and the present study aimed to clarify risk factors and to promote colon cancer screening. METHODS: We investigated lifestyle factors, biochemical data, and pathological features of 727 individuals who underwent colonoscopy. Data were subjected to statistical analysis using SPSS software. RESULTS: Low-grade adenoma was more frequent among the elderly and in men. All of the men and 87.5% of the women with high-grade adenoma or adenocarcinoma were aged>/=45 and>/=50 years, respectively. In women, a larger waist circumference (=80 cm) increased the odds ratio for colon adenoma or adenocarcinoma (colon tumors) by 1.033 (95% confidence index (CI), 1.001-1.066; p=0.040). Metabolic syndrome significantly increased the odds ratio of colon tumors in men, but not in women. Cigarette smoking, drinking alcohol, and increased physical activity were significant risk factors for colon tumors in men, with odds ratios of 1.001 (95% CI, 1.000-1.002; p=0.001), 1.001 (95% CI, 1.000-1.003; p=0.047), and 1.406 (95% CI 1.038-1.904; p=0.028), respectively. CONCLUSIONS: Colon tumors have a high prevalence in the elderly. A larger waist circumference in women and metabolic syndrome in both men and women elevate the risk of colon tumors. In addition, smoking, drinking, and excessive physical activity are risk factors for adenoma and adenocarcinoma in men. For early detection of colorectal cancer, men older than 45 years and women older than 50 years with these risk factors are recommended to undergo colonoscopy.","ISSN":"2476-762X 1513-7368","note":"PMID: 21133610","journalAbbreviation":"Asian Pac J Cancer Prev","language":"eng","author":[{"family":"Kaneko","given":"Rena"},{"family":"Sato","given":"Yuzuru"},{"family":"An","given":"Yasuyosi"},{"family":"Nakagawa","given":"Motoki"},{"family":"Kusayanagi","given":"Satoshi"},{"family":"Kamisago","given":"Satoshi"},{"family":"Umeda","given":"Tomoyuki"},{"family":"Ogawa","given":"Masazumi"},{"family":"Munakata","given":"Kazuo"},{"family":"Mizuno","given":"Kyoichi"}],"issued":{"date-parts":[["2010"]]}}},{"id":83,"uris":["http://zotero.org/users/2724931/items/33PI99M5"],"uri":["http://zotero.org/users/2724931/items/33PI99M5"],"itemData":{"id":83,"type":"article-journal","title":"Increased risk of colorectal malignant neoplasm in patients with nonalcoholic fatty liver disease: a large study","container-title":"Molecular Biology Reports","page":"2989-2997","volume":"41","issue":"5","abstract":"Nonalcoholic fatty liver disease (NAFLD) has been suggested to be a strong risk factor of colorectal benign adenomas and advanced neoplasms. The aim of this large cohort study was to further investigate the prevalence of colorectal malignant neoplasm (CRMN) in patients with NAFLD and determine whether association between NAFLD and CRMN exists. 2,315 community subjects (1,370 males and 945 females) who underwent a routine colonoscopy according to international colorectal cancer screening guideline were recruited. Nature of colorectal lesions determined by biopsy and NAFLD was diagnosed by ultrasound. Binary logistic regression analysis was applied to explore the related associations. Prevalence of CRMN was 29.3 % (77/263) in patients with NAFLD, which was significantly higher than 18.0 % (369/2,052) in the control group (P < 0.05). In addition, malignant neoplasm in NAFLD group occurred more frequently at sigmoid colon than in control group (14.3 vs. 11.9 %). The incidence of highly-differentiated colorectal adenocarcinoma in NAFLD group was significantly higher than control group (62.3 vs. 9.8 %). Univariate analysis showed that NAFLD had strong association with CRMN (OR 2.043; 95 % CI 1.512–2.761; P < 0.05). After adjusting for metabolic and other confounding factors, NAFLD remained as an independent risk factor for CRMN (OR 1.868; 95 % CI 1.360–2.567; P < 0.05). NAFLD was an independent risk factor for CRMN. Sigmoid carcinoma and highly differentiated colorectal adenocarcinoma were more commonly found in NAFLD. (ClinicalTrials.gov number, NCT01657773, website: http://clinicaltrials.gov/ct2/show/NCT01657773?

term=zheng+minghua&rank=1)."},"DOI":"10.1007/s11033-014-3157-y","ISSN":"1573-4978","journalAbbreviation":"Molecular Biology Reports","author":[{"family":"Lin","given":"Xian-Feng"},{"family":"Shi","given":"Ke-Qing"},{"family":"You","given":"Jie"},{"family":"Liu","given":"Wen-Yue"},{"family":"Luo","given":"Ying-Wan"},{"family":"Wu","given":"Fa-Ling"},{"family":"Chen","given":"Yong-Ping"},{"family":"Wong","given":"Danny Ka-Ho"},{"family":"Yuen","given":"Man-Fung"},{"family":"Zheng","given":"Ming-Hua"}],"issued":{"date-parts":[["2014"]]}}},{"id":177,"uris":["http://zotero.org/users/2724931/items/E2HN5VWH"],"uri":["http://zotero.org/users/2724931/items/E2HN5VWH"],"itemData":{"id":177,"type":"article-journal","title":"Metabolic Predispositions and Increased Risk of Colorectal Adenocarcinoma by Anatomical Location: A Large Population-Based Cohort Study in Norway","container-title":"American Journal of Epidemiology","page":"883-893","volume":"182","issue":"10","abstract":"Whether different definitions of metabolic syndrome (MetS) are differently associated with colorectal adenocarcinoma (CA) by anatomical location is unclear. A population-based cohort study, the Cohort of Norway (CONOR) Study, was conducted in Norway from 1995 to 2010. Anthropometric measurements, blood samples, and lifestyle data were collected at recruitment. CAs were identified through linkage to the Norwegian Cancer Register. A composite index of MetS as defined by the International Diabetes Federation (IDF) or/and the National Cholesterol Education Program's Adult Treatment Panel III (ATP III) and single components of MetS, including anthropometric factors, blood pressure, lipids, triglycerides, and glucose, were analyzed. Cox proportional hazards regression was performed to estimate hazard ratios and 95% confidence intervals. Significant associations between single MetS components and CA, except for reduced high-density lipoprotein cholesterol and nonfasting glucose levels, were observed. MetS defined by 2 criteria separately showed a similar association with CA in general, and MetS defined by both the IDF and ATP III showed consistent results. Stronger associations were observed in the proximal colon among men (IDF: hazard ratio (HR) = 1.51, 95% confidence interval (CI): 1.24, 1.84; ATP III: HR = 1.40, 95% CI: 1.15, 1.70) and in the rectum among women (IDF: HR = 1.42, 95% CI: 1.07, 1.89; ATP III: HR = 1.43, 95% CI: 1.08, 1.90).","DOI":"10.1093/aje/kwv141","ISSN":"0002-9262","journalAbbreviation":"American Journal of Epidemiology","author":[{"family":"Lu","given":"Yunxia"},{"family":"Ness-Jensen","given":"Eivind"},{"family":"Hveem","given":"Kristian"},{"family":"Martling","given":"Anna"}],"issued":{"date-parts":[["2015",11,15]]}}},{"id":160,"uris":["http://zotero.org/users/2724931/items/6XNHFT4N"],"uri":["http://zotero.org/users/2724931/items/6XNHFT4N"],"itemData":{"id":160,"type":"article-journal","title":"Metabolic syndrome is associated with colorectal cancer in men","container-title":"European Journal of Cancer","page":"1866-1872","volume":"46","issue":"10","abstract":"Aim of the study\nWe assessed the relation between metabolic syndrome (MetS) and its components and colorectal cancer.\nMethods\nWe analysed data from a multicentre case–control study conducted in Italy and Switzerland, including 1378 cases of colon cancer, 878 cases of rectal cancer and 4661 controls. All cases were incident and histologically confirmed. Controls were subjects admitted to the same hospitals as cases with acute non-malignant conditions. MetS was defined according to the International Diabetes Federation criteria. Odds ratios (ORs) and the corresponding 95% confidence intervals (CIs) were estimated by multiple logistic regression models, including terms for major identified confounding factors for colorectal cancer.\nResults\nWith reference to each component of the MetS, the ORs of colorectal cancer in men were 1.27 (95% CI, 0.95–1.69) for diabetes, 1.24 (95% CI, 1.03–1.48) for hypertension, 1.14 (95% CI, 0.93–1.40) for hypercholesterolaemia and 1.26 (95% CI, 1.08–1.48) for overweight at age 30. The corresponding ORs in women were 1.20 (95% CI, 0.82–1.75), 0.87 (95% CI, 0.71–1.06), 0.83 (95% CI, 0.66–1.03) and 1.06 (95% CI, 0.86–1.30). Colorectal cancer risk was increased in men (OR = 1.86; 95% CI, 1.21–2.86), but not in women (OR = 1.13; 95% CI, 0.66–1.93), with MetS. The ORs were 2.09 (95% CI, 1.38–3.18) in men and 1.15 (95% CI, 0.68–1.94) in women with
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3 components of the MetS, as compared to no component. Results were similar for colon and rectal cancers.\nConclusion\nThis study supports a direct association between MetS and both colon and rectal cancers in men, but not in women.","DOI":"10.1016/j.ejca.2010.03.010","ISSN":"0959-8049","journalAbbreviation":"European Journal of Cancer","author":[{"family":"Pelucchi","given":"Claudio"},{"family":"Negri","given":"Eva"},{"family":"Talamini","given":"Renato"},{"family":"Levi","given":"Fabio"},{"family":"Giacosa","given":"Attilio"},{"family":"Crispo","given":"Anna"},{"family":"Bidoli","given":"Ettore"},{"family":"Montella","given":"Maurizio"},{"family":"Franceschi","given":"Silvia"},{"family":"La Vecchia","given":"Carlo"}],"issued":{"date-parts":[["2010",7]]}}},{"id":37,"uris":["http://zotero.org/users/2724931/items/B468CSCB"],"uri":["http://zotero.org/users/2724931/items/B468CSCB"],"itemData":{"id":37,"type":"article-journal","title":"Colorectal cancer and its association with the metabolic syndrome: a Malaysian multi-centric case-control study.","container-title":"Asian Pacific journal of cancer prevention : APJCP","page":"3873-3877","volume":"13","issue":"8","abstract":"OBJECTIVE: Colorectal cancer (CRC) and the metabolic syndrome (MetS) are both on the rise in Malaysia. A multi-centric case-control study was conducted from December 2009 to January 2011 to determine any relationship between the two. METHODS: Patients with confirmed CRC based on colonoscopy findings and cancer free controls from five local hospitals were assessed for MetS according to the International Diabetes Federation (IDF) definition. Each index case was matched for age, gender and ethnicity with two controls (140: 280). RESULTS: MetS among cases was highly prevalent (70.7%), especially among women (68.7%). MetS as an entity increased CRC risk by almost three fold independently (OR=2.61, 95% CI=1.53-4.47). In men MetS increased the risk of CRC by two fold (OR=2.01, 95%CI, 1.43-4.56), demonstrating an increasing trend in risk with the number of Mets components observed. CONCLUSION: This study provides evidence for a positive association between the metabolic syndrome and colorectal cancer. A prospective study on the Malaysian population is a high priority to confirm these findings.","ISSN":"2476-762X 1513-7368","note":"PMID: 23098486","journalAbbreviation":"Asian Pac J Cancer Prev","language":"eng","author":[{"family":"Ulaganathan","given":"V."},{"family":"Kandiah","given":"M."},{"family":"Zalilah","given":"M. S."},{"family":"Faizal","given":"J. A."},{"family":"Fijeraid","given":"H."},{"family":"Normayah","given":"K."},{"family":"Gooi","given":"B. H."},{"family":"Othman","given":"R."}],"issued":{"date-parts":[["2012"]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
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5.52
(P < 0.00001)
82
0.04
78.45, df = 14

(P < 0.00001)
Women
6 (15)
[
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We addressed these issues in a nested case–control study that included 1,093 incident cases matched (1:1) to controls by using incidence density sampling. Conditional logistic regression was used to estimate relative risks (RR) and 95% CIs. MetS was defined according to the criteria of the National Cholesterol Education Program/Adult Treatment Panel III (NCEP/ATPIII), the International Diabetes Federation (IDF), and the 2009 harmonized definition. Among individual components, abdominal obesity (RR = 1.51; 95% CI: 1.16–1.96) was associated with colon cancer, whereas abnormal glucose metabolism was associated with both colon (RR = 2.05; 95% CI: 1.57–2.68) and rectal cancer (RR = 2.07; 95% CI: 1.45–2.96). MetS, as defined by each of the definitions, was similarly associated with colon cancer (e.g., RR = 1.91; 95% CI: 1.47–2.42 for MetS by NCEP/ATPIII), whereas MetS by NCEP/ATPIII, but not IDF or harmonized definition, was associated with rectal cancer (RR = 1.45; 95% CI: 1.02–2.06). Overall, these associations were stronger in women than in men. However, the association between MetS and colorectal cancer was accounted for by abdominal obesity and abnormal glucose metabolism such that MetS did not provide risk information beyond these components (likelihood ratio test P = 0.10 for MetS by NCEP/ATPIII). These data suggest that simple assessment of abnormal glucose metabolism and/or abdominal obesity to identify individuals at colorectal cancer risk may have higher clinical utility than applying more complex MetS definitions. Cancer Prev Res; 4(11); 1873–83. ©2011 AACR.","DOI":"10.1158/1940-6207.CAPR-11-0218","journalAbbreviation":"Cancer Prev Res (Phila)","author":[{"family":"Aleksandrova","given":"Krasimira"},{"family":"Boeing","given":"Heiner"},{"family":"Jenab","given":"Mazda"},{"family":"Bas Bueno-de-Mesquita","given":"H."},{"family":"Jansen","given":"Eugene"},{"family":"Duijnhoven","given":"Fränzel J.B.","non-dropping-particle":"van"},{"family":"Fedirko","given":"Veronika"},{"family":"Rinaldi","given":"Sabina"},{"family":"Romieu","given":"Isabelle"},{"family":"Riboli","given":"Elio"},{"family":"Romaguera","given":"Dora"},{"family":"Overvad","given":"Kim"},{"family":"Østergaard","given":"Jane Nautrup"},{"family":"Olsen","given":"Anja"},{"family":"Tjønneland","given":"Anne"},{"family":"Boutron-Ruault","given":"Marie-Christine"},{"family":"Clavel-Chapelon","given":"Françoise"},{"family":"Morois","given":"Sophie"},{"family":"Masala","given":"Giovanna"},{"family":"Agnoli","given":"Claudia"},{"family":"Panico","given":"Salvatore"},{"family":"Tumino","given":"Rosario"},{"family":"Vineis","given":"Paolo"},{"family":"Kaaks","given":"Rudolf"},{"family":"Lukanova","given":"Annekatrin"},{"family":"Trichopoulou","given":"Antonia"},{"family":"Naska","given":"Androniki"},{"family":"Bamia","given":"Christina"},{"family":"Peeters","given":"Petra H."},{"family":"Rodríguez","given":"Laudina"},{"family":"Buckland","given":"Genevieve"},{"family":"Sánchez","given":"María-José"},{"family":"Dorronsoro","given":"Miren"},{"family":"Huerta","given":"Jose-María"},{"family":"Barricarte","given":"Aurelio"},{"family":"Hallmans","given":"Göran"},{"family":"Palmqvist","given":"Richard"},{"family":"Khaw","given":"Kay-Tee"},{"family":"Wareham","given":"Nicholas"},{"family":"Allen","given":"Naomi E."},{"family":"Tsilidis","given":"Konstantinos K"},{"family":"Pischon","given":"Tobias"}],"issued":{"date-parts":[["2011",11,2]]}}},{"id":36,"uris":["http://zotero.org/users/2724931/items/437ZFQED"],"uri":["http://zotero.org/users/2724931/items/437ZFQED"],"itemData":{"id":36,"type":"article-journal","title":"Clinico-epidemiologic study of the metabolic syndrome and lifestyle factors associated with the risk of colon adenoma and adenocarcinoma.","container-title":"Asian Pacific journal of cancer prevention : APJCP","page":"975-983","volume":"11","issue":"4","abstract":"BACKGROUND: The numbers of patients with colorectal cancer and associated deaths have been increasing in Japan, probably due to rapid lifestyle changes. 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Cigarette smoking, drinking alcohol, and increased physical activity were significant risk factors for colon tumors in men, with odds ratios of 1.001 (95% CI, 1.000-1.002; p=0.001), 1.001 (95% CI, 1.000-1.003; p=0.047), and 1.406 (95% CI 1.038-1.904; p=0.028), respectively. CONCLUSIONS: Colon tumors have a high prevalence in the elderly. A larger waist circumference in women and metabolic syndrome in both men and women elevate the risk of colon tumors. In addition, smoking, drinking, and excessive physical activity are risk factors for adenoma and adenocarcinoma in men. For early detection of colorectal cancer, men older than 45 years and women older than 50 years with these risk factors are recommended to undergo colonoscopy.","ISSN":"2476-762X 1513-7368","note":"PMID: 21133610","journalAbbreviation":"Asian Pac J Cancer Prev","language":"eng","author":[{"family":"Kaneko","given":"Rena"},{"family":"Sato","given":"Yuzuru"},{"family":"An","given":"Yasuyosi"},{"family":"Nakagawa","given":"Motoki"},{"family":"Kusayanagi","given":"Satoshi"},{"family":"Kamisago","given":"Satoshi"},{"family":"Umeda","given":"Tomoyuki"},{"family":"Ogawa","given":"Masazumi"},{"family":"Munakata","given":"Kazuo"},{"family":"Mizuno","given":"Kyoichi"}],"issued":{"date-parts":[["2010"]]}}},{"id":83,"uris":["http://zotero.org/users/2724931/items/33PI99M5"],"uri":["http://zotero.org/users/2724931/items/33PI99M5"],"itemData":{"id":83,"type":"article-journal","title":"Increased risk of colorectal malignant neoplasm in patients with nonalcoholic fatty liver disease: a

large study","container-title":"Molecular Biology Reports","page":"2989-2997","volume":"41","issue":"5","abstract":"Nonalcoholic fatty liver disease (NAFLD) has been suggested to be a strong risk factor of colorectal benign adenomas and advanced neoplasms. The aim of this large cohort study was to further investigate the prevalence of colorectal malignant neoplasm (CRMN) in patients with NAFLD and determine whether association between NAFLD and CRMN exists. 2,315 community subjects (1,370 males and 945 females) who underwent a routine colonoscopy according to international colorectal cancer screening guideline were recruited. Nature of colorectal lesions determined by biopsy and NAFLD was diagnosed by ultrasound. Binary logistic regression analysis was applied to explore the related associations. Prevalence of CRMN was 29.3 % (77/263) in patients with NAFLD, which was significantly higher than 18.0 % (369/2,052) in the control group (P < 0.05). In addition, malignant neoplasm in NAFLD group occurred more frequently at sigmoid colon than in control group (14.3 vs. 11.9 %). The incidence of highly-differentiated colorectal adenocarcinoma in NAFLD group was significantly higher than control group (62.3 vs. 9.8 %). Univariate analysis showed that NAFLD had strong association with CRMN (OR 2.043; 95 % CI 1.512–2.761; P < 0.05). After adjusting for metabolic and other confounding factors, NAFLD remained as an independent risk factor for CRMN (OR 1.868; 95 % CI 1.360–2.567; P < 0.05). NAFLD was an independent risk factor for CRMN. Sigmoid carcinoma and highly differentiated colorectal adenocarcinoma were more commonly found in NAFLD. (ClinicalTrials.gov number, NCT01657773, website: http://clinicaltrials.gov/ct2/show/NCT01657773?term=zheng+minghua&rank=1)."","DOI":"10.1007/s11033-014-3157-y","ISSN":"1573-4978","journalAbbreviation":"Molecular Biology Reports","author":[{"family":"Lin","given":"Xian-Feng"},{"family":"Shi","given":"Ke-Qing"},{"family":"You","given":"Jie"},{"family":"Liu","given":"Wen-Yue"},{"family":"Luo","given":"Ying-Wan"},{"family":"Wu","given":"Fa-Ling"},{"family":"Chen","given":"Yong-Ping"},{"family":"Wong","given":"Danny Ka-Ho"},{"family":"Yuen","given":"Man-Fung"},{"family":"Zheng","given":"Ming-Hua"}],"issued":{"date-parts":[["2014"]]}}},{"id":177,"uris":["http://zotero.org/users/2724931/items/E2HN5VWH"],"uri":["http://zotero.org/users/2724931/items/E2HN5VWH"],"itemData":{"id":177,"type":"article-journal","title":"Metabolic Predispositions and Increased Risk of Colorectal Adenocarcinoma by Anatomical Location: A Large Population-Based Cohort Study in Norway","container-title":"American Journal of Epidemiology","page":"883-893","volume":"182","issue":"10","abstract":"Whether different definitions of metabolic syndrome (MetS) are differently associated with colorectal adenocarcinoma (CA) by anatomical location is unclear. A population-based cohort study, the Cohort of Norway (CONOR) Study, was conducted in Norway from 1995 to 2010. Anthropometric measurements, blood samples, and lifestyle data were collected at recruitment. CAs were identified through linkage to the Norwegian Cancer Register. A composite index of MetS as defined by the International Diabetes Federation (IDF) or/and the National Cholesterol Education Program's Adult Treatment Panel III (ATP III) and single components of MetS, including anthropometric factors, blood pressure, lipids, triglycerides, and glucose, were analyzed. Cox proportional hazards regression was performed to estimate hazard ratios and 95% confidence intervals. Significant associations between single MetS components and CA, except for reduced high-density lipoprotein cholesterol and nonfasting glucose levels, were observed. MetS defined by 2 criteria separately showed a similar association with CA in general, and MetS defined by both the IDF and ATP III showed consistent results. Stronger associations were observed in the proximal colon among men (IDF: hazard ratio (HR) = 1.51, 95% confidence interval (CI): 1.24, 1.84; ATP III: HR = 1.40, 95% CI: 1.15, 1.70) and in the rectum among women (IDF: HR = 1.42, 95% CI: 1.07, 1.89; ATP III: HR = 1.43, 95% CI: 1.08, 1.90)."","DOI":"10.1093/aje/kwv141","ISSN":"0002-9262","journalAbbreviation":"American Journal of Epidemiology","author":[{"family":"Lu","given":"Yunxia"},{"family":"Ness-Jensen","given":"Eivind"},{"family":"Hveem","given":"Kristian"},{"family":"Martling","given":"Anna"}],"issued":{"date-parts":[["2015",11,15]]}}},{"id":160,"uris":["http://zotero.org/users/2724931/items/6XNHFT4N"],"uri":["http://zotero.org/users/2724931/items/6XNHFT4N"],"itemData":{"id":160,"type":"article-journal","title":"Metabolic syndrome is associated with colorectal cancer in men","container-title":"European Journal of Cancer","page":"1866-1872","volume":"46","issue":"10","abstract":"Aim of the study\nWe assessed the relation between metabolic syndrome (MetS) and its components and colorectal cancer.\nMethods\nWe analysed data from a multicentre case–control study conducted in Italy and Switzerland, including 1378 cases of colon cancer, 878 cases of rectal cancer and 4661 controls. All cases were incident and histologically confirmed. Controls were subjects admitted to the same hospitals as cases with acute non-malignant conditions. MetS was defined according to the International Diabetes Federation criteria. Odds ratios (ORs) and the corresponding 95% confidence intervals (CIs) were estimated by multiple logistic regression models, including terms for major identified confounding factors for colorectal cancer.\nResults\nWith reference to each component of the MetS, the ORs of colorectal cancer in men were 1.27 (95% CI, 0.95–1.69) for diabetes, 1.24 (95% CI, 1.03–1.48) for hypertension, 1.14 (95% CI, 0.93–1.40) for hypercholesterolaemia and 1.26 (95% CI, 1.08–1.48) for overweight at age 30. The corresponding ORs in women were 1.20 (95% CI, 0.82–1.75), 0.87 (95% CI, 0.71–1.06), 0.83 (95% CI, 0.66–1.03) and 1.06 (95% CI, 0.86–1.30). Colorectal cancer risk was increased in men (OR = 1.86; 95% CI, 1.21–2.86), but not in women (OR = 1.13; 95% CI, 0.66–1.93), with MetS. The ORs were 2.09 (95% CI, 1.38–3.18) in men and 1.15 (95% CI, 0.68–1.94) in women with
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3 components of the MetS, as compared to no component. Results were similar for colon and rectal cancers.\nConclusion\nThis study supports a direct association between MetS and both colon and rectal cancers in men, but not in women."","DOI":"10.1016/j.ejca.2010.03.010","ISSN":"0959-8049","journalAbbreviation":"European Journal of Cancer","author":[{"family":"Pelucchi","given":"Claudio"},{"family":"Negri","given":"Eva"},{"family":"Talamini","given":"Renato"},{"family":"Levi","given":"Fabio"},{"family":"Giacosa","given":"Attilio"},{"family":"Crispo","given":"Anna"},{"family":"Bidoli","given":"Ettore"},{"family":"Montella","given":"Maurizio"},{"family":"Franceschi","given":"Silvia"},{"family":"La Vecchia","given":"Carlo"}],"issued":{"date-parts":[["2010",7]]}}},{"id":37,"uris":["http://zotero.org/users/2724931/items/B468CSCB"],"uri":["http://zotero.org/users/2724931/items/B468CSCB"],"itemData":{"id":37,"type":"article-journal","title":"Colorectal cancer and its association with the metabolic syndrome: a Malaysian multi-centric case-control study.","container-title":"Asian Pacific journal of cancer prevention : APJCP","page":"3873-3877","volume":"13","issue":"8","abstract":"OBJECTIVE: Colorectal cancer (CRC) and the metabolic syndrome (MetS) are both on the rise in Malaysia. A multi-centric case-control study was conducted from December 2009 to January 2011 to determine any relationship between the two. METHODS: Patients with confirmed CRC based on colonoscopy findings and cancer free controls from five local hospitals were assessed for MetS according to the International Diabetes Federation (IDF) definition. Each index case was matched for age, gender and ethnicity with two controls (140: 280). RESULTS: MetS among cases was highly prevalent (70.7%), especially among women (68.7%). MetS as an entity increased CRC risk by almost three fold independently (OR=2.61, 95% CI=1.53-4.47). In men MetS increased the risk of CRC by two fold (OR=2.01, 95%CI, 1.43-4.56), demonstrating

an increasing trend in risk with the number of Mets components observed. CONCLUSION: This study provides evidence for a positive association between the metabolic syndrome and colorectal cancer. A prospective study on the Malaysian population is a high priority to confirm these findings.","ISSN":"2476-762X 1513-7368","note":"PMID: 23098486","journalAbbreviation":"Asian Pac J Cancer Prev","language":"eng","author":[{"family":"Ulaganathan","given":"V."},{"family":"Kandiah","given":"M."},{"family":"Zalilah","given":"M. S."},{"family":"Faizal","given":"J. A."},{"family":"Fijeraid","given":"H."},{"family":"Normayah","given":"K."},{"family":"Gooi","given":"B. H."},{"family":"Othman","given":"R."}],"issued":{"date-parts":[["2012"]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
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-UTR polymorphisms in the vascular endothelial growth factor (VEGF) gene and metabolic syndrome in determining the risk of colorectal cancer in Koreans","container-title":"BMC Cancer","page":"881","volume":"14","archive":"PMC","archive_location":"PMC4289193","abstract":"BACKGRO Polymorphisms in angiogenesis-related genes and metabolic syndrome (MetS) risk factors play important roles in cancer development. Moreover, recent studies have reported associations between a number of 3
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-UTR polymorphisms and a variety of cancers. The aim of this study was to investigate the associations of three VEGF 3

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-UTR polymorphisms (1451C

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T [rs3025040], 1612G

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A [rs10434], and 1725G

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A [rs3025053]) and MetS with colorectal cancer (CRC) susceptibility in Koreans. METHODS: A total of 850 participants (450 CRC patients and 400 controls) were enrolled in the study. The genotyping of VEGF polymorphisms was performed by TaqMan allelic discrimination assays. Cancer risks of genetic variations and gene-environment interactions were assessed by adjusted odds ratios (AORs) and 95% confidence intervals (CIs) of multivariate logistic regression analyses. RESULTS: VEGF 1451C

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T was significantly associated with rectal cancer risk (Dominant model; AOR =1.58; 95% CI = 1.09 - 2.28; p = 0.015) whereas VEGF 1725G

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A correlated with MetS risk (Dominant model; AOR =1.61; 95% CI =1.06 - 2.46; p = 0.026). Of the gene-environment combined effects, the interaction of VEGF 1451C

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T and MetS contributed to increased rectal cancer risk (AOR = 3.15; 95% CI = 1.74 - 5.70; p <

.001) whereas the combination of VEGF 1725G

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A and MetS was involved with elevated colon cancer risk (AOR = 2.68; 95% CI = 1.30 - 1.55; p =0.008). CONCLUSIONS: Our results implicate that VEGF 1451C

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T and 1725G

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A may predispose to CRC susceptibility and the genetic contributions may be varied with the presence of MetS. ELECTRONIC SUPPLEMENTARY MATERIAL: The online version of this article (doi:10.1186/1471-2407-14-881) contains supplementary material, which is available to authorized users.","DOI":"10.1186/1471-2407-14-881","ISSN":"1471-2407","author":[{"family":"Jeon","given":"Young Joo"},{"family":"Kim","given":"Jong Woo"},{"family":"Park","given":"Hye Mi"},{"family":"Jang","given":"Hyo Geun"},{"family":"Kim","given":"Jung O"},{"family":"Oh","given":"Jisu"},{"family":"Chong","given":"So Young"},{"family":"Kwon","given":"Sung Won"},{"family":"Kim","given":"Eo Jin"},{"family":"Oh","given":"Doyeun"},{"family":"Kim","given":"Nam Keun"}],"issued":{"date-parts":[["2014"]]}}},{"id":81,"uris":["http://zotero.org/users/2724931/items/7FAPCFIV"],"uri":["http://zotero.org/users/2724931/items/7FAPCFIV"],"itemData":{"id":81,"type":"article-journal","title":"Association of colorectal adenoma with components of metabolic syndrome.","container-title":"Cancer causes & control : CCC","page":"727-735","volume":"23","issue":"5","abstract":"PURPOSE: Recently, some studies have shown that diabetes mellitus and metabolic syndrome increase the risk of colorectal neoplasms. Although the mechanism is not known, those have been proposed to contribute to this phenomenon, including insulin resistance, oxidative stress, and adipokine production. The objective of this study was to assess the association between metabolic risk factors and colorectal neoplasm. METHODS: Study participants visited the National Cancer Center, Korea, for screening (2007-2009). A total of 1,771 diagnosed adenoma patients and 4,667 polyp-free controls were included. The association between risk factors and colorectal neoplasm was evaluated using logistic regression models. RESULTS: High waist circumference, blood pressure, and serum triglyceride levels were associated with an increased risk of colorectal adenoma. Metabolic syndrome (MS) was associated with an increased risk of adenoma (OR = 1.44, 95 % CI = 1.23-1.70). The association between MS and colorectal adenoma was observed regardless of advanced/low-risk adenoma, and multiplicity. MS affected right colon adenomas (OR = 1.50, 95 % CI = 1.22-1.85), left colon adenomas (OR = 1.36, 95 % CI = 1.05-1.76), and adenomas in multiple anatomical locations (OR = 1.59, 95 % CI = 1.19-2.12), but was not associated with rectum. CONCLUSION: Central obesity, triglyceride level, and MS are risk factors for colorectal adenoma including advanced adenoma and multiplicity.","DOI":"10.1007/s10552-012-9942-9","ISSN":"1573-7225 0957-5243","note":"PMID: 22450737","journalAbbreviation":"Cancer Causes Control","language":"eng","author":[{"family":"Kim","given":"Byung Chang"},{"family":"Shin","given":"Aesun"},{"family":"Hong","given":"Chang Won"},{"family":"Sohn","given":"Dae Kyung"},{"family":"Han","given":"Kyung Su"},{"family":"Ryu","given":"Kum Hei"},{"family":"Park","given":"Bum Joon"},{"family":"Nam","given":"Ji Hyung"},{"family":"Park","given":"Ji Won"},{"family":"Chang","given":"Hee Jin"},{"family":"Choi","given":"Hyo Seong"},{"family":"Kim","given":"Jeongseon"},{"family":"Oh","given":"Jae Hwan"}],"issued":{"date-parts":[["2012",5]]}}},{"id":177,"uris":["http://zotero.org/users/2724931/items/E2HN5VWH"],"uri":["http://zotero.org/users/2724931/items/E2HN5VWH"],"itemData":{"id":177,"type":"article-journal","title":"Metabolic Predispositions and Increased Risk of Colorectal Adenocarcinoma by Anatomical

Location: A Large Population-Based Cohort Study in Norway","container-title":"American Journal of Epidemiology","page":"883-893","volume":"182","issue":"10","abstract":"Whether different definitions of metabolic syndrome (MetS) are differently associated with colorectal adenocarcinoma (CA) by anatomical location is unclear. A population-based cohort study, the Cohort of Norway (CONOR) Study, was conducted in Norway from 1995 to 2010. Anthropometric measurements, blood samples, and lifestyle data were collected at recruitment. CAs were identified through linkage to the Norwegian Cancer Register. A composite index of MetS as defined by the International Diabetes Federation (IDF) or/and the National Cholesterol Education Program's Adult Treatment Panel III (ATP III) and single components of MetS, including anthropometric factors, blood pressure, lipids, triglycerides, and glucose, were analyzed. Cox proportional hazards regression was performed to estimate hazard ratios and 95% confidence intervals. Significant associations between single MetS components and CA, except for reduced high-density lipoprotein cholesterol and nonfasting glucose levels, were observed. MetS defined by 2 criteria separately showed a similar association with CA in general, and MetS defined by both the IDF and ATP III showed consistent results. Stronger associations were observed in the proximal colon among men (IDF: hazard ratio (HR) = 1.51, 95% confidence interval (CI): 1.24, 1.84; ATP III: HR = 1.40, 95% CI: 1.15, 1.70) and in the rectum among women (IDF: HR = 1.42, 95% CI: 1.07, 1.89; ATP III: HR = 1.43, 95% CI: 1.08, 1.90).","DOI":"10.1093/aje/kwv141","ISSN":"0002-9262","journalAbbreviation":"American Journal of Epidemiology","author":[{"family":"Lu","given":"Yunxia"},{"family":"Ness-Jensen","given":"Eivind"},{"family":"Hveem","given":"Kristian"},{"family":"Martling","given":"Anna"}],"issued":{"date-parts":[["2015",11,15]]}}},{"id":160,"uris":["http://zotero.org/users/2724931/items/6XNHFT4N"],"uri":["http://zotero.org/users/2724931/items/6XNHFT4N"],"itemData":{"id":160,"type":"article-journal","title":"Metabolic syndrome is associated with colorectal cancer in men","container-title":"European Journal of Cancer","page":"1866-1872","volume":"46","issue":"10","abstract":"Aim of the study\nWe assessed the relation between metabolic syndrome (MetS) and its components and colorectal cancer.\nMethods\nWe analysed data from a multicentre case–control study conducted in Italy and Switzerland, including 1378 cases of colon cancer, 878 cases of rectal cancer and 4661 controls. All cases were incident and histologically confirmed. Controls were subjects admitted to the same hospitals as cases with acute non-malignant conditions. MetS was defined according to the International Diabetes Federation criteria. Odds ratios (ORs) and the corresponding 95% confidence intervals (CIs) were estimated by multiple logistic regression models, including terms for major identified confounding factors for colorectal cancer.\nResults\nWith reference to each component of the MetS, the ORs of colorectal cancer in men were 1.27 (95% CI, 0.95–1.69) for diabetes, 1.24 (95% CI, 1.03–1.48) for hypertension, 1.14 (95% CI, 0.93–1.40) for hypercholesterolaemia and 1.26 (95% CI, 1.08–1.48) for overweight at age 30. The corresponding ORs in women were 1.20 (95% CI, 0.82–1.75), 0.87 (95% CI, 0.71–1.06), 0.83 (95% CI, 0.66–1.03) and 1.06 (95% CI, 0.86–1.30). Colorectal cancer risk was increased in men (OR = 1.86; 95% CI, 1.21–2.86), but not in women (OR = 1.13; 95% CI, 0.66–1.93), with MetS. The ORs were 2.09 (95% CI, 1.38–3.18) in men and 1.15 (95% CI, 0.68–1.94) in women with
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3 components of the MetS, as compared to no component. Results were similar for colon and rectal cancers.\nConclusion\nThis study supports a direct association between MetS and both colon and rectal cancers in men, but not in women.","DOI":"10.1016/j.ejca.2010.03.010","ISSN":"0959-8049","journalAbbreviation":"European Journal of Cancer","author":[{"family":"Pelucchi","given":"Claudio"},{"family":"Negri","given":"Eva"},{"family":"Talamini","given":"Renato"},{"family":"Levi","given":"Fabio"},{"family":"Giacosa","given":"Attilio"},{"family":"Crispo","given":"Anna"},{"family":"Bidoli","given":"Ettore"},{"family":"Montella","given":"Maurizio"},{"family":"Franceschi","given":"Silvia"},{"family":"La Vecchia","given":"Carlo"}],"issued":{"date-parts":[["2010",7]]}}},{"id":162,"uris":["http://zotero.org/users/2724931/items/R3KQJIJK"],"uri":["http://zotero.org/users/2724931/items/R3KQJIJK"],"itemData":{"id":162,"type":"article-journal","title":"Clinical study on the correlation between metabolic syndrome and colorectal carcinoma","container-title":"ANZ Journal of Surgery","page":"331-336","volume":"80","issue":"5","abstract":"Background: Although metabolic syndrome (MS) has received a lot of attention in recent years, the correlation between MS and colorectal carcinoma is still not very clear. This study aims at exploring the relationship between MS and colorectal carcinoma. Methods: Data was collected from 507 cases of colorectal carcinoma and 507 cases of healthy patients between January 2002 and March 2007 to establish the database. The patients with colorectal cancer were divided into two groups based on the presence of MS. Multivariate analysis of these data for the overall survival and recurrence was performed with the Cox proportional hazard model. Variables examined by multivariate analysis were sex , age, location, histotype, differentiation, tumour, node, metastasis (TNM) stage, the number of lymph nodes detected, etc. Results: The existence of MS in the colorectal carcinoma group was clearly more than that in the control group. The existence of two to four types of abnormal metabolic diseases was significantly more in the colorectal cancer group than in the control group. MS is one of the important elements that can independently influence the survival (odds ratio (OR) = 1.501, 95% confidence interval (CI) = 1.057–2.131) and have the highest risk with worse survival compared with other parameters. Conclusion: There is a close relationship between MS and colorectal carcinoma, and MS is a significantly independent element that influences the survival of the colorectal carcinoma. Decreasing the incidence of MS maybe play a role in improving therapeutic efficacy and prognosis of the cancer.","DOI":"10.1111/j.1445-2197.2009.05084.x","ISSN":"1445-2197","author":[{"family":"Shen","given":"Zhanlong"},{"family":"Wang","given":"Shan"},{"family":"Ye","given":"Yingjiang"},{"family":"Yin","given":"Mujun"},{"family":"Yang","given":"Xiaodong"},{"family":"Jiang","given":"Kewei"},{"family":"Liu","given":"Yan"}],"issued":{"date-parts":[["2010",5,1]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
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ADDIN ZOTERO_ITEM CSL_CITATION {"citationID":"a3tgn2q653","properties":{"formattedCitation":"{\\rtf \\super 20,29,33,37,41\\uc0\\u8211{}43,48\\nosupersub{}}","plainCitation":"20,29,33,37,41–43,48"},"citationItems":[{"id":164,"uris":["http://zotero.org/users/2724931/items/9WXARXXK"],"uri":["http://zotero.org/users/2724931/items/9WXARXXK"],"itemData":{"id":164,"type":"article-journal","title":"Metabolic Syndrome and Risks of Colon and Rectal Cancer: The European Prospective Investigation into Cancer and Nutrition Study","container-title":"Cancer Prevention Research","page":"1873","volume":"4","issue":"11","abstract":"Metabolic syndrome (MetS) is purportedly related to risk of developing colorectal cancer; however, the association of MetS, as defined according to recent international criteria, and colorectal cancer has not been yet evaluated. In particular, it remains unclear to what extent the MetS components individually account for such an association. We addressed these issues in a nested case–control study that included 1,093 incident cases matched (1:1) to controls by using incidence density sampling. Conditional logistic regression was used to estimate relative risks (RR) and 95% CIs. MetS was defined according to the criteria of the National Cholesterol Education Program/Adult Treatment Panel III (NCEP/ATPIII), the International Diabetes Federation (IDF), and the 2009 harmonized definition. Among individual components, abdominal obesity (RR = 1.51; 95% CI: 1.16–1.96) was associated with colon cancer, whereas abnormal glucose metabolism was associated with both colon (RR = 2.05; 95% CI: 1.57–2.68) and rectal cancer (RR = 2.07; 95% CI: 1.45–2.96). MetS, as defined by each of the definitions, was similarly associated with colon cancer (e.g., RR = 1.91; 95% CI: 1.47–2.42 for MetS by NCEP/ATPIII), whereas MetS by NCEP/ATPIII, but not IDF or harmonized definition, was associated with rectal cancer (RR = 1.45; 95% CI: 1.02–2.06). Overall, these associations were stronger in women than in men. However, the association between MetS and colorectal cancer was accounted for by abdominal obesity and abnormal glucose metabolism such that MetS did not provide risk information beyond these components (likelihood ratio test P = 0.10 for MetS by NCEP/ATPIII). These data suggest that simple assessment of abnormal glucose metabolism and/or abdominal obesity to identify individuals at colorectal cancer risk may have higher clinical utility than applying more complex MetS definitions. Cancer Prev Res; 4(11); 1873–83. ©2011 AACR.","DOI":"10.1158/1940-6207.CAPR-11-0218","journalAbbreviation":"Cancer Prev Res (Phila)","author":[{"family":"Aleksandrova","given":"Krasimira"},{"family":"Boeing","given":"Heiner"},{"family":"Jenab","given":"Mazda"},{"family":"Bas Bueno-de-Mesquita","given":"H."},{"family":"Jansen","given":"Eugene"},{"family":"Duijnhoven","given":"Fränzel J.B.","non-dropping-particle":"van"},{"family":"Fedirko","given":"Veronika"},{"family":"Rinaldi","given":"Sabina"},{"family":"Romieu","given":"Isabelle"},{"family":"Riboli","given":"Elio"},{"family":"Romaguera","given":"Dora"},{"family":"Overvad","given":"Kim"},{"family":"Østergaard","given":"Jane Nautrup"},{"family":"Olsen","given":"Anja"},{"family":"Tjønneland","given":"Anne"},{"family":"Boutron-Ruault","given":"Marie-Christine"},{"family":"Clavel-Chapelon","given":"Françoise"},{"family":"Morois","given":"Sophie"},{"family":"Masala","given":"Giovanna"},{"family":"Agnoli","given":"Claudia"},{"family":"Panico","given":"Salvatore"},{"family":"Tumino","given":"Rosario"},{"family":"Vineis","given":"Paolo"},{"family":"Kaaks","given":"Rudolf"},{"family":"Lukanova","given":"Annekatrin"},{"family":"Trichopoulou","given":"Antonia"},{"family":"Naska","given":"Androniki"},{"family":"Bamia","given":"Christina"},{"family":"Peeters","given":"Petra H."},{"family":"Rodríguez","given":"Laudina"},{"family":"Buckland","given":"Genevieve"},{"family":"Sánchez","given":"María-José"},{"family":"Dorronsoro","given":"Miren"},{"family":"Huerta","given":"Jose-María"},{"family":"Barricarte","given":"Aurelio"},{"family":"Hallmans","given":"Göran"},{"family":"Palmqvist","given":"Richard"},{"family":"Khaw","given":"Kay-Tee"},{"family":"Wareham","given":"Nicholas"},{"family":"Allen","given":"Naomi E."},{"family":"Tsilidis","given":"Konstantinos K"},{"family":"Pischon","given":"Tobias"}],"issued":{"date-parts":[["2011",11,2]]}}},{"id":85,"uris":["http://zotero.org/users/2724931/items/ENWMID8V"],"uri":["http://zotero.org/users/2724931/items/ENWMID8V"],"itemData":{"id":85,"type":"article-journal","title":"Interplay between 3
′
-UTR polymorphisms in the vascular endothelial growth factor (VEGF) gene and metabolic syndrome in determining the risk of colorectal cancer in Koreans","container-title":"BMC Cancer","page":"881","volume":"14","archive":"PMC","archive_location":"PMC4289193","abstract":"BACKGRO
Polymorphisms in angiogenesis-related genes and metabolic syndrome (MetS) risk factors play important roles in cancer development. Moreover, recent studies have reported associations between a number of 3
′
-UTR polymorphisms and a variety of cancers. The aim of this study was to investigate the associations of three VEGF 3
′
-UTR polymorphisms (1451C

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T [rs3025040], 1612G

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A [rs10434], and 1725G

>

A [rs3025053]) and MetS with colorectal cancer (CRC) susceptibility in Koreans. METHODS: A total of 850 participants (450 CRC patients and 400 controls) were enrolled in the study. The genotyping of VEGF polymorphisms was performed by TaqMan allelic discrimination assays. Cancer risks of genetic variations and gene-environment interactions were assessed by adjusted odds ratios (AORs) and 95% confidence intervals (CIs) of multivariate logistic regression analyses. RESULTS: VEGF 1451C

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T was significantly associated with rectal cancer risk (Dominant model; AOR =1.58; 95% CI = 1.09 - 2.28; p = 0.015) whereas VEGF 1725G

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A correlated with MetS risk (Dominant model; AOR =1.61; 95% CI =1.06 - 2.46; p = 0.026). Of the gene-environment combined effects, the interaction of VEGF 1451C

>

T and MetS contributed to increased rectal cancer risk (AOR = 3.15; 95% CI = 1.74 - 5.70; p <

.001) whereas the combination of VEGF 1725G

>

A and MetS was involved with elevated colon cancer risk (AOR = 2.68; 95% CI = 1.30 - 1.55; p =0.008). CONCLUSIONS: Our results implicate that VEGF 1451C

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T and 1725G

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A may predispose to CRC susceptibility and the genetic contributions may be varied with the presence of MetS. ELECTRONIC SUPPLEMENTARY MATERIAL: The online version of this article (doi:10.1186/1471-2407-14-881) contains supplementary material, which is available to authorized users.","DOI":"10.1186/1471-2407-14-881","ISSN":"1471-2407","author":[{"family":"Jeon","given":"Young Joo"},{"family":"Kim","given":"Jong Woo"},{"family":"Park","given":"Hye Mi"},{"family":"Jang","given":"Hyo Geun"},{"family":"Kim","given":"Jung O"},{"family":"Oh","given":"Jisu"},{"family":"Chong","given":"So Young"},{"family":"Kwon","given":"Sung Won"},{"family":"Kim","given":"Eo Jin"},{"family":"Oh","given":"Doyeun"},{"family":"Kim","given":"Nam Keun"}],"issued":{"date-parts":[["2014"]]}}},{"id":170,"uris":["http://zotero.org/users/2724931/items/2S89J5KW"],"uri":["http://zotero.org/users/2724931/items/2S89J5KW"],"itemData":{"id":170,"type":"article-journal","title":"Risk factors associated with rectal neuroendocrine tumors: a cross-sectional study.","container-title":"Cancer epidemiology, biomarkers & prevention : a publication of the American Association for Cancer Research, cosponsored by the American Society of Preventive Oncology","page":"1406-1413","volume":"23","issue":"7","abstract":"BACKGROUND: The incidence of rectal neuroendocrine tumors (NET) has been increasing since the implementation of the screening colonoscopy. However, very little is known about risk factors associated with rectal NETs. We examined the prevalence of and the risk factors for rectal NETs in a Korean population. METHODS: A cross-sectional study was performed on 62,171 Koreans who underwent screening colonoscopy. The clinical characteristics and serum biochemical parameters of subjects with rectal NET were compared with those of subjects without rectal NET using multivariate logistic regression. RESULTS: Of a total of 57,819 participants, 101 [OR, 0.17%; 95% confidence interval (CI), 0.14-0.20] had a rectal NET. Young age (<50 years; OR, 2.09; 95% CI, 1.06-4.15), male gender (OR, 1.92; 95% CI, 1.15-3.20), alcohol drinking [adjusted OR (AOR), 1.56; 95% CI, 1.01-2.42], and a low high-density lipoprotein-cholesterol (HDL-C) level (AOR, 1.85; 95% CI, 1.10-3.11) were independent risk factors for rectal NETs. Cigarette smoking, fatty liver, metabolic syndrome, higher triglyceride level (>/=150 mg/dL), and higher homeostasis model assessment of insulin resistance (>/=2.5) were not independently associated with rectal NETs, although these factors were more common in individuals with rectal NETs in the univariate analysis. CONCLUSIONS: Young age (<50 years), male gender, alcohol drinking, and a low","DOI":"10.1158/1055-9965.EPI-14-0132","ISSN":"1538-7755 1055-9965","note":"PMID: 24813818","journalAbbreviation":"Cancer Epidemiol Biomarkers Prev","language":"eng","author":[{"family":"Jung","given":"Yoon Suk"},{"family":"Yun","given":"Kyung Eun"},{"family":"Chang","given":"Yoosoo"},{"family":"Ryu","given":"Seungho"},{"family":"Park","given":"Jung Ho"},{"family":"Kim","given":"Hong Joo"},{"family":"Cho","given":"Yong Kyun"},{"family":"Sohn","given":"Chong Il"},{"family":"Jeon","given":"Woo Kyu"},{"family":"Kim","given":"Byung Ik"},{"family":"Park","given":"Dong Il"}],"issued":{"date-parts":[["2014",7]]}}},{"id":81,"uris":["http://zotero.org/users/2724931/items/7FAPCFIV"],"uri":["http://zotero.org/users/2724931/items/7FAPCFIV"],"itemData":{"id":81,"type":"article-journal","title":"Association of colorectal adenoma with components of metabolic syndrome.","container-title":"Cancer causes & control : CCC","page":"727-735","volume":"23","issue":"5","abstract":"PURPOSE: Recently, some studies have shown that diabetes mellitus and metabolic syndrome increase the risk of colorectal neoplasms. Although the mechanism is not known, those have been proposed to contribute to this phenomenon, including insulin resistance, oxidative stress, and adipokine production. The objective of this study was to assess the association between metabolic risk factors and colorectal neoplasm. METHODS: Study participants visited the National Cancer Center, Korea, for screening (2007-2009). A total of 1,771 diagnosed adenoma patients and 4,667 polyp-free controls were included. The association between risk factors and colorectal neoplasm was evaluated using logistic regression models. RESULTS: High waist circumference, blood pressure, and serum triglyceride levels were associated with an increased risk of colorectal adenoma. Metabolic syndrome (MS) was associated with an increased risk of adenoma (OR = 1.44, 95 % CI = 1.23-1.70). The association between MS and colorectal adenoma was observed regardless of advanced/low-risk adenoma, and multiplicity. MS affected right colon adenomas (OR = 1.50, 95 % CI = 1.22-1.85), left colon adenomas (OR = 1.36, 95 % CI = 1.05-1.76), and adenomas in multiple anatomical locations (OR = 1.59, 95 % CI = 1.19-2.12), but was not associated with rectum. CONCLUSION: Central obesity, triglyceride level, and MS are risk factors for colorectal adenoma including advanced adenoma and multiplicity.","DOI":"10.1007/s10552-012-9942-9","ISSN":"1573-7225 0957-5243","note":"PMID: 22450737","journalAbbreviation":"Cancer Causes Control","language":"eng","author":[{"family":"Kim","given":"Byung Chang"},{"family":"Shin","given":"Aesun"},{"family":"Hong","given":"Chang Won"},{"family":"Sohn","given":"Dae Kyung"},{"family":"Han","given":"Kyung Su"},{"family":"Ryu","given":"Kum Hei"},{"family":"Park","given":"Bum Joon"},{"family":"Nam","given":"Ji Hyung"},{"family":"Park","given":"Ji Won"},{"family":"Chang","given":"Hee Jin"},{"family":"Choi","given":"Hyo Seong"},{"family":"Kim","given":"Jeongseon"},{"family":"Oh","given":"Jae Hwan"}],"issued":{"date-parts":[["2012",5]]}}},{"id":177,"uris":["http://zotero.org/users/2724931/items/E2HN5VWH"],"uri":

["http://zotero.org/users/2724931/items/E2HN5VWH"],"itemData":{"id":177,"type":"article-journal","title":"Metabolic Predispositions and Increased Risk of Colorectal Adenocarcinoma by Anatomical Location: A Large Population-Based Cohort Study in Norway","container-title":"American Journal of Epidemiology","page":"883-893","volume":"182","issue":"10","abstract":"Whether different definitions of metabolic syndrome (MetS) are differently associated with colorectal adenocarcinoma (CA) by anatomical location is unclear. A population-based cohort study, the Cohort of Norway (CONOR) Study, was conducted in Norway from 1995 to 2010. Anthropometric measurements, blood samples, and lifestyle data were collected at recruitment. CAs were identified through linkage to the Norwegian Cancer Register. A composite index of MetS as defined by the International Diabetes Federation (IDF) or/and the National Cholesterol Education Program's Adult Treatment Panel III (ATP III) and single components of MetS, including anthropometric factors, blood pressure, lipids, triglycerides, and glucose, were analyzed. Cox proportional hazards regression was performed to estimate hazard ratios and 95% confidence intervals. Significant associations between single MetS components and CA, except for reduced high-density lipoprotein cholesterol and nonfasting glucose levels, were observed. MetS defined by 2 criteria separately showed a similar association with CA in general, and MetS defined by both the IDF and ATP III showed consistent results. Stronger associations were observed in the proximal colon among men (IDF: hazard ratio (HR) = 1.51, 95% confidence interval (CI): 1.24, 1.84; ATP III: HR = 1.40, 95% CI: 1.15, 1.70) and in the rectum among women (IDF: HR = 1.42, 95% CI: 1.07, 1.89; ATP III: HR = 1.43, 95% CI: 1.08, 1.90).","DOI":"10.1093/aje/kwv141","ISSN":"0002-9262","journalAbbreviation":"American Journal of Epidemiology","author":[{"family":"Lu","given":"Yunxia"},{"family":"Ness-Jensen","given":"Eivind"},{"family":"Hveem","given":"Kristian"},{"family":"Martling","given":"Anna"}],"issued":{"date-parts":[["2015",11,15]]}}},{"id":160,"uris":["http://zotero.org/users/2724931/items/6XNHFT4N"],"uri":["http://zotero.org/users/2724931/items/6XNHFT4N"],"itemData":{"id":160,"type":"article-journal","title":"Metabolic syndrome is associated with colorectal cancer in men","container-title":"European Journal of Cancer","page":"1866-1872","volume":"46","issue":"10","abstract":"Aim of the study\nWe assessed the relation between metabolic syndrome (MetS) and its components and colorectal cancer.\nMethods\nWe analysed data from a multicentre case–control study conducted in Italy and Switzerland, including 1378 cases of colon cancer, 878 cases of rectal cancer and 4661 controls. All cases were incident and histologically confirmed. Controls were subjects admitted to the same hospitals as cases with acute non-malignant conditions. MetS was defined according to the International Diabetes Federation criteria. Odds ratios (ORs) and the corresponding 95% confidence intervals (CIs) were estimated by multiple logistic regression models, including terms for major identified confounding factors for colorectal cancer.\nResults\nWith reference to each component of the MetS, the ORs of colorectal cancer in men were 1.27 (95% CI, 0.95–1.69) for diabetes, 1.24 (95% CI, 1.03–1.48) for hypertension, 1.14 (95% CI, 0.93–1.40) for hypercholesterolaemia and 1.26 (95% CI, 1.08–1.48) for overweight at age 30. The corresponding ORs in women were 1.20 (95% CI, 0.82–1.75), 0.87 (95% CI, 0.71–1.06), 0.83 (95% CI, 0.66–1.03) and 1.06 (95% CI, 0.86–1.30). Colorectal cancer risk was increased in men (OR = 1.86; 95% CI, 1.21–2.86), but not in women (OR = 1.13; 95% CI, 0.66–1.93), with MetS. The ORs were 2.09 (95% CI, 1.38–3.18) in men and 1.15 (95% CI, 0.68–1.94) in women with
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3 components of the MetS, as compared to no component. Results were similar for colon and rectal cancers.\nConclusion\nThis study supports a direct association between MetS and both colon and rectal cancers in men, but not in women.","DOI":"10.1016/j.ejca.2010.03.010","ISSN":"0959-8049","journalAbbreviation":"European Journal of Cancer","author":[{"family":"Pelucchi","given":"Claudio"},{"family":"Negri","given":"Eva"},{"family":"Talamini","given":"Renato"},{"family":"Levi","given":"Fabio"},{"family":"Giacosa","given":"Attilio"},{"family":"Crispo","given":"Anna"},{"family":"Bidoli","given":"Ettore"},{"family":"Montella","given":"Maurizio"},{"family":"Franceschi","given":"Silvia"},{"family":"La Vecchia","given":"Carlo"}],"issued":{"date-parts":[["2010",7]]}}},{"id":5,"uris":["http://zotero.org/users/2724931/items/QHPCVRZ8"],"uri":["http://zotero.org/users/2724931/items/QHPCVRZ8"],"itemData":{"id":5,"type":"article-journal","title":"Evaluation of the risk factors associated with rectal neuroendocrine tumors: a big data analytic study from a health screening center","container-title":"Journal of Gastroenterology","page":"1112-1121","volume":"51","issue":"12","abstract":"Rectal neuroendocrine tumor (NET) is the most common NET in Asia. The risk factors associated with rectal NETs are unclear because of the overall low incidence rate of these tumors and the associated difficulty in conducting large epidemiological studies on rare cases. The aim of this study was to exploit the benefits of big data analytics to assess the risk factors associated with rectal NET.","DOI":"10.1007/s00535-016-1198-9","ISSN":"1435-5922","journalAbbreviation":"Journal of Gastroenterology","author":[{"family":"Pyo","given":"Jeung Hui"},{"family":"Hong","given":"Sung Noh"},{"family":"Min","given":"Byung-Hoon"},{"family":"Lee","given":"Jun Haeng"},{"family":"Chang","given":"Dong Kyung"},{"family":"Rhee","given":"Poong-Lyul"},{"family":"Kim","given":"Jae Jun"},{"family":"Choi","given":"Sun Kyu"},{"family":"Jung","given":"Sin-Ho"},{"family":"Son","given":"Hee Jung"},{"family":"Kim","given":"Young-Ho"}],"issued":{"date-parts":[["2016",12,1]]}}},{"id":162,"uris":["http://zotero.org/users/2724931/items/R3KQJIJK"],"uri":["http://zotero.org/users/2724931/items/R3KQJIJK"],"itemData":{"id":162,"type":"article-journal","title":"Clinical study on the correlation between metabolic syndrome and colorectal carcinoma","container-title":"ANZ Journal of Surgery","page":"331-336","volume":"80","issue":"5","abstract":"Background: Although metabolic syndrome (MS) has received a lot of attention in recent years, the correlation between MS and colorectal carcinoma is still not very clear. This study aims at exploring the relationship between MS and colorectal carcinoma. Methods: Data was collected from 507 cases of colorectal carcinoma and 507 cases of healthy patients between January 2002 and March 2007 to establish the database. The patients with colorectal cancer were divided into two groups based on the presence of MS. Multivariate analysis of these data for the overall survival and recurrence was performed with the Cox proportional hazard model. Variables examined by multivariate analysis were sex , age, location, histotype, differentiation, tumour, node, metastasis (TNM) stage, the number of lymph nodes detected, etc. Results: The existence of MS in the colorectal carcinoma group was clearly more than that in the control group. The existence of two to four types of abnormal metabolic diseases was significantly more in the colorectal cancer group than in the control group. MS is one of the important elements that can independently influence the survival (odds ratio (OR) = 1.501, 95% confidence interval (CI) = 1.057–2.131) and have the highest risk with worse survival compared with other parameters. Conclusion: There is a close relationship between MS and colorectal carcinoma, and MS is a significantly independent element that influences the survival of the colorectal carcinoma. Decreasing the incidence of MS maybe play a role in improving therapeutic efficacy and prognosis of the cancer.","DOI":"10.1111/j.1445-2197.2009.05084.x","ISSN":"1445-2197","author":[{"family":"Shen","given":"Zhanlong"},{"family":"Wang","given":"Shan"},{"family":"Ye","given":"Yingjiang"},{"family":"Yin","given":"Mujun"},{"family":"Yang","given":"Xiaodong"},

{"family":"Jiang","given":"Kewei"},{"family":"Liu","given":"Yan"}],"issued":{"date-parts":[["2010",5,1]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}

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1.45 [1.29, 1.63]

6.19

(P < 0.00001)

72

0.04

56.50, df = 16

(P < 0.00001)

Colorectal adenomas versus colorectal cancer

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METHODS: We investigated lifestyle factors, biochemical data, and pathological features of 727 individuals who underwent colonoscopy. Data were subjected to statistical analysis using SPSS software. RESULTS: Low-grade adenoma was more frequent among the elderly and in men. All of the men and 87.5% of the women with high-grade adenoma or adenocarcinoma were aged>/=45 and>/=50 years, respectively. In women, a larger waist circumference (=80 cm) increased the odds ratio for colon adenoma or adenocarcinoma (colon tumors) by 1.033 (95% confidence index (CI), 1.001-1.066; p=0.040). Metabolic syndrome significantly increased the odds ratio of colon tumors in men, but not in women. Cigarette smoking, drinking alcohol, and increased physical activity were significant risk factors for colon tumors in men, with odds ratios of 1.001 (95% CI, 1.000-1.002; p=0.001), 1.001 (95% CI, 1.000-1.003; p=0.047), and 1.406 (95% CI 1.038-1.904; p=0.028), respectively. CONCLUSIONS: Colon tumors have a high prevalence in the elderly. A larger waist circumference in women and metabolic syndrome in both men and women elevate the risk of colon tumors. In addition, smoking, drinking, and excessive physical activity are risk factors for adenoma and adenocarcinoma in men. For early detection of colorectal cancer, men older than 45 years and women older than 50 years with these risk factors are recommended to undergo colonoscopy.","ISSN":"2476-762X 1513-7368","note":"PMID: 21133610","journalAbbreviation":"Asian Pac J Cancer Prev","language":"eng","author":[{"family":"Kaneko","given":"Rena"},{"family":"Sato","given":"Yuzuru"},{"family":"An","given":"Yasuyosi"},{"family":"Nakagawa","given":"Motoki"},{"family":"Kusayanagi","given":"Satoshi"},{"family":"Kamisago","given":"Satoshi"},{"family":"Umeda","given":"Tomoyuki"},{"family":"Ogawa","given":"Masazumi"},{"family":"Munakata","given":"Kazuo"},{"family":"Mizuno","given":"Kyoichi"}],"issued":{"date-parts":[["2010"]]}}},{"id":81,"uris":["http://zotero.org/users/2724931/items/7FAPCFIV"],"uri":["http://zotero.org/users/2724931/items/7FAPCFIV"],"itemData":{"id":81,"type":"article-journal","title":"Association of colorectal adenoma with components of metabolic syndrome.","container-title":"Cancer causes & control : CCC","page":"727-735","volume":"23","issue":"5","abstract":"PURPOSE: Recently, some studies have shown that diabetes mellitus and metabolic syndrome increase the risk of colorectal neoplasms. Although the mechanism is not known, those have been proposed to contribute to this phenomenon, including insulin resistance, oxidative stress, and adipokine production. The objective of this study was to assess the association between metabolic risk factors and colorectal neoplasm. METHODS: Study participants visited the National Cancer Center, Korea, for screening (2007-2009). A total of 1,771 diagnosed adenoma patients and 4,667 polyp-free controls were included. The association between risk factors and colorectal neoplasm was evaluated using logistic regression models. RESULTS: High waist circumference, blood pressure, and serum triglyceride levels were associated with an increased risk of colorectal adenoma. Metabolic syndrome (MS) was associated with an increased risk of adenoma (OR = 1.44, 95 % CI = 1.23-1.70). The association between MS and colorectal adenoma was observed regardless of advanced/low-risk adenoma, and multiplicity. MS affected right colon adenomas (OR = 1.50, 95 % CI = 1.22-1.85), left colon adenomas (OR = 1.36, 95 % CI = 1.05-1.76), and adenomas in multiple anatomical locations (OR = 1.59, 95 % CI = 1.19-2.12), but was not associated with rectum. CONCLUSION: Central obesity, triglyceride level, and MS are risk factors for colorectal adenoma including advanced adenoma and multiplicity.","DOI":"10.1007/s10552-012-9942-9","ISSN":"1573-7225 0957-5243","note":"PMID: 22450737","journalAbbreviation":"Cancer Causes Control","language":"eng","author":[{"family":"Kim","given":"Byung Chang"},{"family":"Shin","given":"Aesun"},{"family":"Hong","given":"Chang Won"},{"family":"Sohn","given":"Dae Kyung"},{"family":"Han","given":"Kyung Su"},{"family":"Ryu","given":"Kum Hei"},{"family":"Park","given":"Bum Joon"},{"family":"Nam","given":"Ji Hyung"},{"family":"Park","given":"Ji Won"},{"family":"Chang","given":"Hee Jin"},{"family":"Choi","given":"Hyo Seong"},{"family":"Kim","given":"Jeongseon"},{"family":"Oh","given":"Jae Hwan"}],"issued":{"date-parts":[["2012",5]]}}},{"id":179,"uris":["http://zotero.org/users/2724931/items/G83HJCGN"],"uri":["http://zotero.org/users/2724931/items/G83HJCGN"],"itemData":{"id":179,"type":"article-journal","title":"Prevalence and risk factors of advanced colorectal neoplasms in asymptomatic Korean people between 40 and 49

years of age","container-title":"Journal of Gastroenterology and Hepatology","page":"98-105","volume":"32","issue":"1","source":"PubMed","abstract":"BACKGROUND AND AIM: Current guidelines recommend colon cancer screening for persons aged over 50

years. However, there are few data on colorectal cancer screening in 40- to 49-year-olds. This study assessed the prevalence and risk factors of colorectal neoplasms in 40- to 49-year-old Koreans.\nMETHODS: We analyzed the results of screening colonoscopies of 6680 persons 40-59

years of age (2206 aged 40-49 and 4474 aged 50-59

years).\nRESULTS: The prevalence of overall and advanced neoplasms in the 40- to 49-year age group was lower than in the 50- to 59-year age group (26.7% and 2.4% vs 37.8% and 3.5%, respectively). However, the prevalence of overall and advanced neoplasms increased to 39.1% and 5.4%, respectively, in 45- to 49-year-old individuals with metabolic syndrome. In the 40- to 49-year age group, age, current smoking, and metabolic syndrome were associated with an increased risk of advanced neoplasms (odds ratio [OR] 1.16, 95% confidence interval [CI] 1.04-1.30; OR 3.12, 95% CI 1.20-8.12; and OR 2.00, 95% CI 1.09-3.67, respectively).\nCONCLUSIONS: Individuals aged 40-49

years had a lower prevalence of colorectal neoplasms than those aged 50-59

years, but some 40- to 49-year-olds showed a similar prevalence to those aged 50-59

years. Age, current smoking habits, and metabolic syndrome are associated with an increased risk of advanced neoplasms in subjects aged 40-49

years. Further studies are needed to stratify the risks of colon cancer and guide targeted screening in persons younger than 50

years old.","DOI":"10.1111/jgh.13454","ISSN":"1440-1746","note":"PMID: 27197805","journalAbbreviation":"J. Gastroenterol. Hepatol.","language":"eng","author":[{"family":"Koo","given":"Ja Eun"},{"family":"Kim","given":"Kyung-Jo"},{"family":"Park","given":"Hye Won"},{"family":"Kim","given":"Hong-Kyu"},{"family":"Choe","given":"Jae Won"},{"family":"Chang","given":"Hye-Sook"},{"family":"Lee","given":"Ji Young"},{"family":"Myung","given":"Seung-Jae"},{"family":"Yang","given":"Suk-Kyun"},{"family":"Kim","given":"Jin-Ho"}],"issued":{"date-parts":[["2017",1]]}},{"id":83,"uris":["http://zotero.org/users/2724931/items/33PI99M5"],"uri":["http://zotero.org/users/2724931/items/33PI99M5"],"itemData":{"id":83,"type":"article-journal","title":"Increased risk of colorectal malignant neoplasm in patients with nonalcoholic fatty liver disease: a large study","container-title":"Molecular Biology Reports","page":"2989-2997","volume":"41","issue":"5","abstract":"Nonalcoholic fatty liver disease (NAFLD) has been suggested to be a strong risk factor of colorectal benign adenomas and advanced neoplasms. The aim of this large cohort study was to further investigate the prevalence of colorectal malignant neoplasm (CRMN) in patients with NAFLD and determine whether association between NAFLD and CRMN exists. 2,315 community subjects (1,370 males and 945 females) who underwent a routine colonoscopy according to international colorectal cancer screening guideline were recruited. Nature of colorectal lesions determined by biopsy and NAFLD was diagnosed by ultrasound. Binary logistic regression analysis was applied to explore the related associations. Prevalence of CRMN was 29.3 % (77/263) in patients with NAFLD, which was significantly higher than 18.0 % (369/2,052) in the control group (P < 0.05). In addition, malignant neoplasm in NAFLD group occurred more frequently at sigmoid colon than in control group (14.3 vs. 11.9 %). The incidence of highly-differentiated colorectal adenocarcinoma in NAFLD group was significantly higher than control group (62.3 vs. 9.8 %). Univariate analysis showed that NAFLD had strong association with CRMN (OR 2.043; 95 % CI 1.512–2.761; P < 0.05). After adjusting for metabolic and other confounding factors, NAFLD remained as an independent risk factor for CRMN (OR 1.868; 95 % CI 1.360–2.567; P < 0.05). NAFLD was an independent risk factor for CRMN. Sigmoid carcinoma and highly differentiated colorectal adenocarcinoma were more commonly found in NAFLD. (ClinicalTrials.gov number, NCT01657773, website: http://clinicaltrials.gov/ct2/show/NCT01657773?term=zheng+minghua&rank=1)."},"DOI":"10.1007/s11033-014-3157-y","ISSN":"1573-4978","journalAbbreviation":"Molecular Biology Reports","author":[{"family":"Lin","given":"Xian-Feng"},{"family":"Shi","given":"Ke-Qing"},{"family":"You","given":"Jie"},{"family":"Liu","given":"Wen-Yue"},{"family":"Luo","given":"Ying-Wan"},{"family":"Wu","given":"Fa-Ling"},{"family":"Chen","given":"Yong-Ping"},{"family":"Wong","given":"Danny Ka-Ho"},{"family":"Yuen","given":"Man-Fung"},{"family":"Zheng","given":"Ming-Hua"}],"issued":{"date-parts":[["2014"]]}},{"id":175,"uris":["http://zotero.org/users/2724931/items/SMIADFP7"],"uri":["http://zotero.org/users/2724931/items/SMIADFP7"],"itemData":{"id":175,"type":"article-journal","title":"Metabolic syndrome and colorectal neoplasms: An ominous association","container-title":"World Journal of Gastroenterology","page":"5320","volume":"21","issue":"17","source":"CrossRef","DOI":"10.3748/wjg.v21.i17.5327","shortTitle":"Metabolic syndrome and colorectal neoplasms","language":"en","author":[{"family":"Trabulo","given":"Daniel"}],"issued":{"date-parts":[["2015"]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
26, 29, 30, 36, 46
]
RE
1.38 [1.13, 1.68]
3.19
(P = 0.001)
93
0.07
118.45, df = 8
(P < 0.00001)
CRC
5 (8)
[
ADDIN ZOTERO_ITEM CSL_CITATION {"citationID":"atf3ooeprq","properties":{"formattedCitation":"{\\rtf \\super 26,29,30,36,46\\nosupersub{}}","plainCitation":"26,29,30,36,46"},"citationItems":[{"id":36,"uris":["http://zotero.org/users/2724931/items/437ZFQED"],"uri":["http://zotero.org/users/2724931/items/437ZFQED"],"itemData":{"id":36,"type":"article-journal","title":"Clinico-epidemiologic study of the metabolic syndrome and lifestyle factors associated with the risk of colon adenoma and adenocarcinoma.","container-title":"Asian Pacific journal of cancer prevention : APJCP","page":"975-983","volume":"11","issue":"4","abstract":"BACKGROUND: The numbers of patients with colorectal cancer and associated deaths have been increasing in Japan, probably due to rapid lifestyle changes. Prevention is clearly

important and the present study aimed to clarify risk factors and to promote colon cancer screening. METHODS: We investigated lifestyle factors, biochemical data, and pathological features of 727 individuals who underwent colonoscopy. Data were subjected to statistical analysis using SPSS software. RESULTS: Low-grade adenoma was more frequent among the elderly and in men. All of the men and 87.5% of the women with high-grade adenoma or adenocarcinoma were aged>/=45 and>/=50 years, respectively. In women, a larger waist circumference (=80 cm) increased the odds ratio for colon adenoma or adenocarcinoma (colon tumors) by 1.033 (95% confidence index (CI), 1.001-1.066; p=0.040). Metabolic syndrome significantly increased the odds ratio of colon tumors in men, but not in women. Cigarette smoking, drinking alcohol, and increased physical activity were significant risk factors for colon tumors in men, with odds ratios of 1.001 (95% CI, 1.000-1.002; p=0.001), 1.001 (95% CI, 1.000-1.003; p=0.047), and 1.406 (95% CI 1.038-1.904; p=0.028), respectively. CONCLUSIONS: Colon tumors have a high prevalence in the elderly. A larger waist circumference in women and metabolic syndrome in both men and women elevate the risk of colon tumors. In addition, smoking, drinking, and excessive physical activity are risk factors for adenoma and adenocarcinoma in men. For early detection of colorectal cancer, men older than 45 years and women older than 50 years with these risk factors are recommended to undergo colonoscopy.","ISSN":"2476-762X 1513-7368","note":"PMID: 21133610","journalAbbreviation":"Asian Pac J Cancer Prev","language":"eng","author":[{"family":"Kaneko","given":"Rena"},
{"family":"Sato","given":"Yuzuru"},{"family":"An","given":"Yasuyosi"},
{"family":"Nakagawa","given":"Motoki"},{"family":"Kusayanagi","given":"Satoshi"},
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{"family":"Ogawa","given":"Masazumi"},{"family":"Munakata","given":"Kazuo"},
{"family":"Mizuno","given":"Kyoichi"}],"issued":{"date-parts":[["2010"]]}}},{"id":81,"uris":
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journal","title":"Association of colorectal adenoma with components of metabolic syndrome.","container-
title":"Cancer causes & control : CCC","page":"727-735","volume":"23","issue":"5","abstract":"PURPOSE: Recently, some studies have shown that diabetes mellitus and metabolic syndrome increase the risk of colorectal neoplasms. Although the mechanism is not known, those have been proposed to contribute to this phenomenon, including insulin resistance, oxidative stress, and adipokine production. The objective of this study was to assess the association between metabolic risk factors and colorectal neoplasm. METHODS: Study participants visited the National Cancer Center, Korea, for screening (2007-2009). A total of 1,771 diagnosed adenoma patients and 4,667 polyp-free controls were included. The association between risk factors and colorectal neoplasm was evaluated using logistic regression models. RESULTS: High waist circumference, blood pressure, and serum triglyceride levels were associated with an increased risk of colorectal adenoma. Metabolic syndrome (MS) was associated with an increased risk of adenoma (OR = 1.44, 95 % CI = 1.23-1.70). The association between MS and colorectal adenoma was observed regardless of advanced/low-risk adenoma, and multiplicity. MS affected right colon adenomas (OR = 1.50, 95 % CI = 1.22-1.85), left colon adenomas (OR = 1.36, 95 % CI = 1.05-1.76), and adenomas in multiple anatomical locations (OR = 1.59, 95 % CI = 1.19-2.12), but was not associated with rectum. CONCLUSION: Central obesity, triglyceride level, and MS are risk factors for colorectal adenoma including advanced adenoma and multiplicity.","DOI":"10.1007/s10552-012-9942-9","ISSN":"1573-7225 0957-5243","note":"PMID: 22450737","journalAbbreviation":"Cancer Causes Control","language":"eng","author":
[{"family":"Kim","given":"Byung Chang"},{"family":"Shin","given":"Aesun"},
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{"family":"Han","given":"Kyung Su"},{"family":"Ryu","given":"Kum Hei"},{"family":"Park","given":"Bum Joon"},{"family":"Nam","given":"Ji Hyung"},{"family":"Park","given":"Ji Won"},
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[["2012",5]]}}},{"id":179,"uris":["http://zotero.org/users/2724931/items/G83HJCGN"],"uri":
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journal","title":"Prevalence and risk factors of advanced colorectal neoplasms in asymptomatic Korean people between 40 and 49

years of age","container-title":"Journal of Gastroenterology and Hepatology","page":"98-105","volume":"32","issue":"1","source":"PubMed","abstract":"BACKGROUND AND AIM: Current guidelines recommend colon cancer screening for persons aged over 50

years. However, there are few data on colorectal cancer screening in 40- to 49-year-olds. This study assessed the prevalence and risk factors of colorectal neoplasms in 40- to 49-year-old Koreans.\nMETHODS: We analyzed the results of screening colonoscopies of 6680 persons 40-59

years of age (2206 aged 40-49 and 4474 aged 50-59

years).\nRESULTS: The prevalence of overall and advanced neoplasms in the 40- to 49-year age group was lower than in the 50- to 59-year age group (26.7% and 2.4% vs 37.8% and 3.5%, respectively). However, the prevalence of overall and advanced neoplasms increased to 39.1% and 5.4%, respectively, in 45- to 49-year-old individuals with metabolic syndrome. In the 40- to 49-year age group, age, current smoking, and metabolic syndrome were associated with an increased risk of advanced neoplasms (odds ratio [OR] 1.16, 95% confidence interval [CI] 1.04-1.30; OR 3.12, 95% CI 1.20-8.12; and OR 2.00, 95% CI 1.09-3.67, respectively).\nCONCLUSIONS: Individuals aged 40-49

years had a lower prevalence of colorectal neoplasms than those aged 50-59

years, but some 40- to 49-year-olds showed a similar prevalence to those aged 50-59

years. Age, current smoking habits, and metabolic syndrome are associated with an increased risk of advanced neoplasms in subjects aged 40-49

years. Further studies are needed to stratify the risks of colon cancer and guide targeted screening in persons younger than 50

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{"family":"Lee","given":"Ji Young"},{"family":"Myung","given":"Seung-Jae"},{"family":"Yang","given":"Suk-
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journal","title":"Increased risk of colorectal malignant neoplasm in patients with nonalcoholic fatty liver disease: a
large study","container-title":"Molecular Biology Reports","page":"2989-
2997","volume":"41","issue":"5","abstract":"Nonalcoholic fatty liver disease (NAFLD) has been suggested to be a
strong risk factor of colorectal benign adenomas and advanced neoplasms. The aim of this large cohort study was
to further investigate the prevalence of colorectal malignant neoplasm (CRMN) in patients with NAFLD and
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After adjusting for metabolic and other confounding factors, NAFLD remained as an independent risk factor for
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carcinoma and highly differentiated colorectal adenocarcinoma were more commonly found in NAFLD.
(ClinicalTrials.gov number, NCT01657773, website: http://clinicaltrials.gov/ct2/show/NCT01657773?
term=zheng+minghua&rank=1)."},"DOI":"10.1007/s11033-014-3157-y","ISSN":"1573-
4978","journalAbbreviation":"Molecular Biology Reports","author":[{"family":"Lin","given":"Xian-Feng"},
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Ping"},{"family":"Wong","given":"Danny Ka-Ho"},{"family":"Yuen","given":"Man-Fung"},
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Journal of
Gastroenterology","page":"5320","volume":"21","issue":"17","source":"CrossRef","DOI":"10.3748/wjg.v21.i17.53
9327","shortTitle":"Metabolic syndrome and colorectal neoplasms","language":"en","author":
[{"family":"Trabulo","given":"Daniel"}],"issued":{"date-parts":
[["2015"]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
26, 29, 30, 36, 46

]

RE

1.48 [1.20, 1.82]

3.69

(P = 0.0002)

65

0.04

20.23, df = 7

(P = 0.005)

df degree of freedom, FE fixed effect,

MetS

metabolic syndrome, NA not applicable, NCEP-ATPIII National Cholesterol Education Program-Adult Treatment Panel III,
RE random effect, RR risk ratio

Association of

MetS

with advanced adenomas

A fixed-effect meta-analysis model, since there was no evidence of heterogeneity, consisting of six studies and seven datasets reporting the incidence of advanced adenomas among individuals with

MetS

as compared with individuals without

MetS

gave evidence of a strong association (Table 2). A RR of 1.85 (95% CI = 1.58, 2.17) was observed, with no heterogeneity (P = 0.61, I2 = 0%).

Association of

MetS

with CRC

Eighteen studies including 45 datasets were available for the meta-analysis (

Figure

4;

Table 2).

MetS

patients showed

an RR of 1.46 (95% CI = 1.36, 1.56) to develop CRC compared with individuals without

MetS

.

503555

9525

0

0

-1270

8060690

Figure

SEQ Figure * ARABIC

4

:
Funnel plot of the association between
MetS
and CRC
0
0
Figure
SEQ Figure * ARABIC
4
:
Funnel plot of the association between
MetS
and CRC
center
5378450
0
0
-1270
2565400
Figure
SEQ Figure * ARABIC
5
:
Forest plot of association between
MetS
and CRC risk
AC Adenocarcinoma, ATPIII (NCEP-ATPIII) National Cholesterol Education Program-Adult Treatment Panel III, CC Colon Cancer, CI confidence interval, CRC Colorectal Cancer, IDF International Diabetes Foundation, M Men, RC Rectal Cancer, W Women.
0
0
Figure
SEQ Figure * ARABIC
5
:
Forest plot of association between
MetS
and CRC risk
AC Adenocarcinoma, ATPIII (NCEP-ATPIII) National Cholesterol Education Program-Adult Treatment Panel III, CC Colon Cancer, CI confidence interval, CRC Colorectal Cancer, IDF International Diabetes Foundation, M Men, RC Rectal Cancer, W Women.

Differences between cohort, case-control, and cross-sectional studies were noticed. No significant heterogeneity was observed for cross-sectional studies (P = 0.68) and no evidence of publication bias was noticed (
Figure
5). Positive and significant risk estimates were obtained for both Asian and European populations and for studies provided data for both sexes separately. Comparing studies using different definitions of
MetS
, studies using the harmonized definition and the other definitions had the lowest and the highest risk with no significant heterogeneity (RR = 1.22; 95% CI = 1.07, 1.38; P value for heterogeneity = 0.08) and (RR = 1.74; 95% CI = 1.58, 1.91; P value for heterogeneity = 0.32) respectively. Our results showed that the risk of developing rectal cancer is slightly lower than that of colon cancer with an RR of 1.45 (95% CI = 1.29, 1.63) and 1.53 (95% CI = 1.41, 1.67) correspondingly.

Colorectal adenomas versus colorectal cancer

We weighted the association of
MetS
with CRA and CRC using the same datasets. Five studies reported data for both CRA and CRC. The comparison showed that the risk of developing CRC is 10% higher than the risk of developing CRA (RR = 1.48; 95% CI = 1.20, 1.82) and (RR = 1.38; 95% CI = 1.13, 1.68) respectively.

discussion
161925
19050
0
0

Our meta-analysis of 35 studies provided evidence that metabolic syndrome increases the risk of colorectal neoplasm, especially for advanced adenoma and colorectal cancer. To sum up, the results showed 46% and 43% increased CRC and CRA risk among subjects with
MetS
compared to those without
MetS
.
Including different types of studies (cohort, case-control, and cross-sectional),
MetS
definition (NCEP/ATPIII, IDF, the harmonized, and other), gender (men and women), populations (Asia, Europe, and the USA), and the type and location of the lesion slightly influenced the risk estimates.

Several factors and signaling pathways are reported to be implicated. The insulin receptor and the IGF-1 receptor are over-stimulated which reduces apoptosis and promotes cancer cells proliferation. Insulin favors type II T helper cell production by modulating the polarization of effector T cells which indirectly favors cancer cells progression and metastasis [

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characterized by a group of metabolic disturbances which lead to an enhanced risk of cardiovascular diseases and type 2 diabetes mellitus. MS constitutes a preoccupant issue with elevated prevalence in the western countries and is often related with cancer development. Elucidating the mechanisms linking these two pathologies is, therefore, essential to identify potential therapeutic molecular targets for cancer treatment in MS patients. The main goals of this review are, to identify the relation between MS and cancer development, handling specifically each one of the main players on this process: insulin and IGF system, estrogen, pro-inflammatory cytokines and others; and, given that colorectal cancer is one of the most prevalent types of cancer in MS patients, we intend to particularly highlight the mechanisms that promote colorectal cancer development in MS individuals. Finally, we will also focus on the clinical implications of the presented mechanisms on cancer therapy and care.","DOI":"10.1016/j.metabol.2014.10.008","ISSN":"0026-0495","journalAbbreviation":"Metabolism","author":[{"family":"Mendonça","given":"Fernando Miguel"},{"family":"Sousa","given":"Filipa Rodrigues","non-dropping-particle":"de"},{"family":"Barbosa","given":"Ana Luísa"},{"family":"Martins","given":"Sara Costa"},{"family":"Araújo","given":"Raquel Lage"},{"family":"Soares","given":"Raquel"},{"family":"Abreu","given":"Cristina"}],"issued":{"date-parts":[["2015",2]]}}},"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}

58

]. In a case-control study including 615 CRC patients and 650 control healthy individuals, high levels of IGF-1 were possibly linked with the initiation of CRC [

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59

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Moreover, the adipose tissue is the largest endocrine organ of the human body producing free fatty acids, different cytokines (interleukin 6, monocyte chemoattractant protein1, tumor necrosis factor-α) and hormones (leptin, aromatase, adiponectin, plasminogen activator inhibitor 1), which may be involved in cancer genesis and progression [

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60, 61

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TNF-α, IL-6, and IL-1β can promote pro-inflammatory gene expression and induce CRC cell lines to express a variety of cytokines and chemokines that recruit and activate APCs and granulocytes through numerous signaling pathways such as MAPK-, JAK/STAT, and NF-

κ
B-mediated signaling. Similarly, inflammation-induced DNA damage has been linked to altered expression of genes involved in CRC such as p53, APC, KRAS, and BCL-2 [
ADDIN ZOTERO_ITEM CSL_CITATION {"citationID":"a5e6fkko82","properties":{"formattedCitation":"{\\rtf \\super 62 \\nosupersub{}}","plainCitation":"62"},"citationItems":[{"id":55,"uris":["http://zotero.org/users/2724931/items/RKX364E8"],"uri":["http://zotero.org/users/2724931/items/RKX364E8"],"itemData":{"id":55,"type":"chapter","title":"Inflammation, Obesity, and Colon Cancer","container-title":"Obesity, Inflammation and Cancer","publisher":"Springer New York","publisher-place":"New York, NY","page":"147-180","event-place":"New York, NY","URL":"http://dx.doi.org/10.1007/978-1-4614-6819-6_7","ISBN":"978-1-4614-6819-6","note":"DOI: 10.1007/978-1-4614-6819-6_7","author":[{"family":"Doerner","given":"Stephanie K."},{"family":"Heaney","given":"Jason D."}],"editor":[{"family":"Dannenberg","given":"Andrew J."},{"family":"Berger","given":"Nathan A."}],"issued":{"date-parts":[["2013"]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
62
]. For instance, the expression of leptin in tissues of 80 CRC patients was assessed in a research study and the results revealed that leptin affects CRC stem cells growth and survival and induces the activation of JAK and ERK signaling pathways that regulate the invasion and adhesion of these cells [
ADDIN ZOTERO_ITEM CSL_CITATION {"citationID":"aqqq0feiep","properties":{"formattedCitation":"{\\rtf \\super 63 \\nosupersub{}}","plainCitation":"63"},"citationItems":[{"id":878,"uris":["http://zotero.org/users/2724931/items/NVNFTHDC"],"uri":["http://zotero.org/users/2724931/items/NVNFTHDC"],"itemData":{"id":878,"type":"article-journal","title":"Leptin-induced adhesion and invasion in colorectal cancer cell lines","container-title":"Oncology Reports","page":"2493-2498","volume":"31","issue":"6","source":"www.spandidos-publications.com","ISSN":"1021-335X","author":[{"family":"Yoon","given":"Kyung-Won"},{"family":"Park","given":"Seon-Young"},{"family":"Kim","given":"Ji-Young"},{"family":"Lee","given":"Su-Mi"},{"family":"Park","given":"Chang-Hwan"},{"family":"Cho","given":"Sung-Bum"},{"family":"Lee","given":"Wan-Sik"},{"family":"Joo","given":"Young-Eun"},{"family":"Lee","given":"Jae-Hyuk"},{"family":"Kim","given":"Hyun-Soo"},{"family":"Choi","given":"Sung-Kyu"},{"family":"Rew","given":"Jong-Sun"}],"issued":{"date-parts":[["2014",6,1]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
63
].
MetS
is
as well strongly associated with other types of cancer [
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58
]. A study was undertaken in the USA has concluded that subjects with prostate cancer have a high prevalence of
MetS
[
ADDIN ZOTERO_ITEM CSL_CITATION {"citationID":"a4igck4atp","properties":{"formattedCitation":"{\\rtf \\super 64 \\nosupersub{}}","plainCitation":"64"},"citationItems":[{"id":896,"uris":["http://zotero.org/users/2724931/items/HYSN7LID"],"uri":["http://zotero.org/users/2724931/items/HYSN7LID"],"itemData":{"id":896,"type":"article-journal","title":"Prostate cancer is associated with the metabolic syndrome","container-title":"Journal of Men's Health","page":"125-129","volume":"6","issue":"2","abstract":"Abstract\nObesity has been linked consistently to an increased risk of developing several malignancies, including cancers of the breast, colon, kidney, pancreas, and gallbladder. The link between obesity and the metabolic syndrome (MS) remains elusive. The objective of this study was to evaluate the prevalence of the MS and diabetes at initial diagnosis of prostate cancer and to evaluate the relationship between the components of the MS in subjects with prostate cancer. In a retrospective study, we reviewed clinical data, specifically the components of the metabolic syndrome (MS), to evaluate the prevalence of the MS and diabetes at the initial diagnosis of prostate cancer. At initial diagnosis among 1408 subjects with prostate cancer, 60% of these subjects had the MS and 29% had diabetes. Among those subjects with the MS, 38% had diabetes and 89% had hypertension. Hypertension, elevated blood glucose levels, elevated body mass index, low high density lipoproteins and high triglycerides were the leading components of the MS, while low density lipoprotein cholesterol played a lesser role. We conclude that the prevalence of the MS is high in subjects with prostate cancer.","DOI":"10.1016/j.jomh.2009.01.005","ISSN":"1875-6867","journalAbbreviation":"Journal of Men's Health","author":[{"family":"Yaturu","given":"Subhashini"},{"family":"Fort","given":"Charlton"}],"issued":{"date-parts":[["2009",6,1]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
64
]. In accordance, a Japanese retrospective cohort study endeavored to elucidate the relationship between
MetS
and the incidence of cancer found that
MetS
increased the risk of breast cancer and prostate cancer [
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title":"Cancer Epidemiology","page":"141-147","volume":"36","issue":"2","abstract":"Abstract\nAim of the study To clarify the relationship between the presence of metabolic syndrome and the incidence of cancer in a general Japanese population. Methods A retrospective cohort study was conducted among 8329 male and 15,386 female subjects between 1992 and 2000. The analysis used five definitions of metabolic syndrome. The information on the site-specific cancer was obtained from the population-based cancer registry. A Cox proportional hazard model was adapted for the statistical analyses. The average follow-up period was 9.1 years. Results The National Cholesterol Education Program Adult Treatment Panel III 2001 criteria of metabolic syndrome revealed that the hazard ratio of metabolic syndrome for liver cancer was 1.89 (95% confidence interval (CI) 1.11–3.22) for males, and 3.67 (CI 1.78–7.57) for females. The hazard ratio for female breast cancer was 2.87 (CI 1.67–4.94). When the analysis was limited to postmenopausal women (55 years of age or older), the ratio increased to 6.73 (CI 2.93–15.43). The NCEP-ATPIII 2001 criteria were superior to the other four proposed criteria for predicting the incidence of cancer. In the statistical model, which included all components of the metabolic syndrome and the metabolic syndrome (present or absent), high blood glucose was a significant associated factor for all sites and liver cancers, whereas the metabolic syndrome was found to be a significant associated factor for breast cancer. Conclusion Metabolic syndrome may play an important role in the incidence of breast cancer. High fasting plasma glucose level is considered to be useful as an associated factor for the incidence of all-sites and liver cancer.","DOI":"10.1016/j.canep.2011.03.007","ISSN":"1877-7821","journalAbbreviation":"Cancer Epidemiology","author":[{"family":"Osaki","given":"Yoneatsu"},{"family":"Taniguchi","given":"Shin-ichi"},{"family":"Tahara","given":"Aya"},{"family":"Okamoto","given":"Mikizo"},{"family":"Kishimoto","given":"Takuji"}],"issued":{"date-parts":[["2012",4,1]]}}},"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
65
].
Although, epidemiological studies provide a strong evidence of an association between
MetS
and colorectal neoplasm, our understanding of the biological mechanism underlying this association is incomplete. This may be due to the complex pathophysiology and the numerous common factors such as those shared between both diseases [
ADDIN ZOTERO_ITEM CSL_CITATION {"citationID":"as0ec9kbaf","properties":{"formattedCitation":"{\\rtf \\super 66 \\nosupersub{}}","plainCitation":"66"},"citationItems":[{"id":258,"uris":["http://zotero.org/users/2724931/items/WTEBWSE8"],"uri":["http://zotero.org/users/2724931/items/WTEBWSE8"],"itemData":{"id":258,"type":"article-journal","title":"How significant is the association between metabolic syndrome and prevalence of colorectal neoplasia?","container-title":"World Journal of Gastroenterology","page":"8103-8111","volume":"22","issue":"36","source":"PubMed Central","abstract":"The incidence and prevalence of metabolic syndrome (MS) and colorectal cancer (CRC) has been rising in developed countries. The association between these two diseases has been widely studied and reported. Less evidence is available about the relationship between MS and CRC precancerous lesions (adenomatous polyps, adenomas). The aim of this paper is to present an overview of our scientific understanding of that topic and its implication in clinical practice. One of the principal goals of current CRC secondary prevention efforts is to detect and remove the precancerous lesions in individuals with an average CRC risk to prevent the development of invasive cancer. MS is not currently considered a high-risk CRC factor and is therefore not included in the guidelines of organized screening programs. However, in light of growing scientific evidence, the approach to patients with MS should be changed. Metabolic risk factors for the development of adenomas and cancers are the same - obesity, impaired glucose tolerance, dyslipidemia, hypertension, cardiovascular diseases and diabetes mellitus type 2. Therefore, the key issue in the near future is the development of a simple scoring system, easy to use in clinical practice, which would identify individuals with high metabolic risk of colorectal neoplasia and would be used for individual CRC secondary prevention strategies. Currently, such scoring systems have been published based on Asian (Asia-Pacific Colorectal Screening Score; APCS) and Polish populations.","DOI":"10.3748/wjg.v22.i36.8103","ISSN":"1007-9327","note":"PMID: 27688652\nPMCID: PMC5037079","journalAbbreviation":"World J Gastroenterol","author":[{"family":"Suchanek","given":"Stepan"},{"family":"Grega","given":"Tomas"},{"family":"Ngo","given":"Ondrej"},{"family":"Vojtechova","given":"Gabriela"},{"family":"Majek","given":"Ondrej"},{"family":"Minarikova","given":"Petra"},{"family":"Brogyuk","given":"Nagyija"},{"family":"Bunganic","given":"Bohus"},{"family":"Seifert","given":"Bohumil"},{"family":"Dusek","given":"Ladislav"},{"family":"Zavoral","given":"Miroslav"}],"issued":{"date-parts":[["2016",9,28]]}}},"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
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Concerning incidence risk of CRC and
MetS
, our results agree with several studies. Although the incidence was low compared to our findings,
Jinjuvadia
et al. reported an increased risk of developing CRA, and CRC among
MetS
patients (RR = 1.37; 95% CI = 1.26, 1.49) and (RR = 1.30; 95% CI = 1.18, 1.43) respectively [
ADDIN ZOTERO_ITEM CSL_CITATION {"citationID":"a11953s7q0p","properties":{"formattedCitation":"{\\rtf \\super 67 \\nosupersub{}}","plainCitation":"67"},"citationItems":[{"id":167,"uris":["http://zotero.org/users/2724931/items/NE2556PD"],"uri":["http://zotero.org/users/2724931/items/NE2556PD"],"itemData":{"id":167,"type":"article-journal","title":"The Association between Metabolic Syndrome and Colorectal Neoplasm: Systemic review and Meta-analysis","container-title":"Journal of clinical gastroenterology","page":"33-44","volume":"47","issue":"1","source":"PubMed Central","abstract":"Background\nThere has been constant speculation about the association between metabolic syndrome (MetS) and colorectal neoplasia (CN); however, the published results are conflicting. The aims of this study are to systematic search, and assess literature to determine the available evidence on the association between these two conditions.\n\nMethods\nMeta-analysis was conducted based on relevant studies identified through a systematic literature review from PubMed, OvidSP and Cochrane database during January 1980 to July 2011. A combined analysis was performed, followed by a subgroup analyses stratified by the study design, type of colorectal lesions and gender. Publication bias was assessed using the Begg's and Egger's tests and visual inspection of funnel plot.\n\nResults\nEighteen studies were included in the final analysis. Overall, MetS was associated with 34% increase in the risk of CN (summary RR - 1.34, 95% CI 1.24–1.44). The association between MetS and CN was found to be statistically significant in separate analysis for both case-control studies (summary RR -1.58, 95% CI 1.44–1.79) and cohort studies (summary RR – 1.21, 95% CI 1.13–1.29). The association remained significant when analyses were restricted by type of colorectal lesions (colorectal cancer: RR – 1.30, 95% CI 1.18–1.43; colorectal adenoma: RR – 1.37, 95% CI 1.26–1.49). Further subgroup analysis by gender showed significant association between MetS and CN in both male and female population.\n\nConclusion\nOur meta-analysis showed significant association between presence of MetS and CN. These results may help in identifying high risk individuals at early stage that might benefit from targeted CRC screening intervention.","DOI":"10.1097/MCG.0b013e3182688c15","ISSN":"0192-0790","note":"PMID: 23090040\nPMCID: PMC3518571","shortTitle":"The Association between Metabolic Syndrome and Colorectal Neoplasm","journalAbbreviation":"J Clin Gastroenterol","author":[{"family":"Jinjuvadia","given":"Raxitkumar"},{"family":"Lohia","given":"Prateek"},{"family":"Jinjuvadia","given":"Chetna"},{"family":"Montoya","given":"Sergio"},

{"family":"Liangpunsakul","given":"Suthat"}],"issued":{"date-parts":[["2013",1]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
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].
Esposito et al. observed, in a meta-analysis of 17 studies, that
MetS
was linked with a higher incidence of CRC for women compared to men (RR = 1.41; 95% CI = 1.18, 1.70) for women and (RR = 1.33; 95% CI = 1.18, 1.50) for men [
ADDIN ZOTERO_ITEM CSL_CITATION {"citationID":"ahbmiaao3a","properties":{"formattedCitation":"{\\rtf \\super 68 \\nosupersub{}}","plainCitation":"68"},"citationItems":[{"id":57,"uris":["http://zotero.org/users/2724931/items/E5G7NVFR"],"uri":["http://zotero.org/users/2724931/items/E5G7NVFR"],"itemData":{"id":57,"type":"article-journal","title":"Colorectal cancer association with metabolic syndrome and its components: a systematic review with meta-analysis.","container-title":"Endocrine","page":"634-647","volume":"44","issue":"3","abstract":"We performed a systematic review and meta-analysis of the empirical evidence on the association of metabolic syndrome and its components with colorectal cancer incidence and mortality. A systematic literature search of multiple electronic databases was conducted and complemented by cross-referencing to identify studies published before 31 October 2012. Every included study was to report risk estimates with 95 % confidence intervals for the association between metabolic syndrome and colorectal cancer (incidence or mortality). Core items of identified studies were independently extracted by two reviewers, and results were summarized by standard methods of meta-analysis. We identified 17 studies, which reported on 49 data sets with 11,462 cancer cases. Metabolic syndrome was associated with an increased risk of colorectal cancer incidence and mortality in both men (RR: 1.33, 95 % CI 1.18-1.50, and 1.36, 1.25-1.48, respectively) and women (RR: 1.41, 1.18-1.70, and 1.16, 1.03-1.30, respectively). The risk estimates changed little depending on type of study (cohort vs non cohort), populations (US, Europe, Asia), cancer site (colon and rectum), or definition of the syndrome. The risk estimates for any single factor of the syndrome were significant for higher values of BMI/waist (RR: 1.19, 95 % CI 1.10-1.28), dysglycemia (RR: 1.29, 1.11-1.49), and higher blood pressure (RR: 1.09, 1.01-1.18). Dysglycemia and/or higher BMI/waist explained most of the risk associated with metabolic syndrome. Metabolic syndrome is associated with an increased risk of colorectal cancer incidence and mortality in both sexes. The risk conveyed by the full syndrome is not superior to the sum of its parts.","DOI":"10.1007/s12020-013-9939-5","ISSN":"1559-0100 1355-008X","note":"PMID: 23546613","journalAbbreviation":"Endocrine","language":"eng","author":[{"family":"Esposito","given":"Katherine"},{"family":"Chiodini","given":"Paolo"},{"family":"Capuano","given":"Annalisa"},{"family":"Bellastella","given":"Giuseppe"},{"family":"Maiorino","given":"Maria Ida"},{"family":"Rafaniello","given":"Concetta"},{"family":"Panagiotakos","given":"Demosthenes B."},{"family":"Giugliano","given":"Dario"}],"issued":{"date-parts":[["2013",12]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
68
] which is consistent with our results (RR = 1.47; 95% CI=1.32, 1.63) for women and (RR = 1.41; 95% CI = 1.25, 1.60) for men, though the difference in the magnitude of the risk estimate.
To the best of our knowledge, our meta-analysis could be the first investigating the association between
MetS
and CRA incidence.
There were some potential limitations in the current study such as the loss of some studies due to inclusion criteria, where non-English articles were excluded. Nevertheless, we found only one Chinese case-control study (included 135 CRC cases and 120 controls) that met the inclusion criteria [
ADDIN ZOTERO_ITEM CSL_CITATION {"citationID":"a2g9cctfrqr","properties":{"formattedCitation":"{\\rtf \\super 69 \\nosupersub{}}","plainCitation":"69"},"citationItems":[{"id":95,"uris":["http://zotero.org/users/2724931/items/AVP32JE6"],"uri":["http://zotero.org/users/2724931/items/AVP32JE6"],"itemData":{"id":95,"type":"article-journal","title":"[Metabolic disturbance and insulin resistance in patients with colorectal cancer].","container-title":"Zhonghua wei chang wai ke za zhi = Chinese journal of gastrointestinal surgery","page":"261-263","volume":"14","issue":"4","abstract":"OBJECTIVE: To investigate whether insulin resistance exists in patients with colorectal cancer and its clinical significance. METHODS: A total of 135 patients with colorectal cancer were included as the study group, and 120 healthy subjects were included as the control group. Height, weight, and blood pressure were recorded. Fasting plasma glucose, triglycerides, high-density lipoprotein cholesterol (HDL-C), and insulin were measured. Insulin resistance index(lnHOMA-IR) was calculated. RESULTS: The lnHOMA-IR was 0.84+/-0.38 in the study group and 0.42+/-0.08 in the control group(P<0.05). The incidence of metabolic syndrome was 34.1%(46/135) in the study group and 22.5%(27/120) in the control group(P<0.05). Insulin resistance index did not differ between the groups according to metabolic syndrome (0.98+/-0.41 vs. 0.74+/-0.22, P>0.05). There were no significant associations between insulin resistance index and tumor differentiation, depth of invasion, lymph node metastasis, distant metastasis, and TNM staging(P>0.05). CONCLUSION: Insulin resistance exists in colorectal cancer patients, and it is possibly associated with metabolic syndrome and the tumor.","ISSN":"1671-0274 1671-0274","note":"PMID: 21538267","journalAbbreviation":"Zhonghua Wei Chang Wai Ke Za Zhi","language":"chi","author":[{"family":"Wu","given":"Qing-mei"},{"family":"Wu","given":"Qiu-yun"},{"family":"Zhang","given":"Ai-qun"}],"issued":{"date-parts":[["2011",4]]}}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}
69
]. There were 46 and 27
MetS
patients in the case and control groups respectively. Some analyses showed evidence of heterogeneity. However, subgroup analysis demonstrated sources of heterogeneity. Furthermore, heterogeneity could be attributable to using different definitions of
MetS
and including cohorts and non-cohorts in the analyses.
conclusion
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In conclusion, our meta-analysis showed that
MetS
is associated not only with colorectal cancer but with earlier precancerous conditions such as colorectal adenomas and advanced adenomas too. Those conditions are the primary targets for screening programs aiming for an early detection and prevention of this malignancy. Patients with
MetS
should be included in such programs. Besides, subjects with
MetS
should consider lifestyle modifications like weight loss, physical activity, and diet [

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], along with management of its individual components. The implication of some pharmacological treatments with CRC development should be taking into consideration [

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