Detection of sporadic pancreatic cancer (SPC) – Time for change

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Prague, September 26, 2017
Occurrence of pancreatic cancer

- in the Czech Rep in 2011: 2184 newly diagnosed
  1934 deaths

- in the USA in 2013: 42200 new cases
  38460 deaths

in 2020: 2nd most frequent cause of death
for malign tumor

Five years survival: 3-5 %

## Cancers in diabetes
(metaanalyses, over 100 thousands of cancers)

<table>
<thead>
<tr>
<th>Cancer</th>
<th>RR (95% interval)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pancreas</td>
<td>1.82 (1.71-1.94)</td>
</tr>
<tr>
<td>Breast</td>
<td>1.20 (1.12-1.28)</td>
</tr>
<tr>
<td>Endometrium</td>
<td>2.10 (1.93-3.24)</td>
</tr>
<tr>
<td>Liver</td>
<td>2.50 (1.93-3.24)</td>
</tr>
<tr>
<td>Colon</td>
<td>1.30 (1.20-1.40)</td>
</tr>
<tr>
<td>Urinary blad</td>
<td>1.24 (1.08-1.42)</td>
</tr>
<tr>
<td>Prostate</td>
<td>0.84 (0.76-0.93)</td>
</tr>
</tbody>
</table>

*Renehan, Smith, Kirkman, Lancet 2010, 2201-3*
Butler et al., 2011

Pancreatic intraepithelial neoplasia (PanIN1-3)

Development to the stage of cancer: 12-16 yrs
Diabetes mellitus and pancreatic cancer

✘

Pancreatic cancer and diabetes mellitus (T3c)
Pancreatic cancer + diabetes
2013-2015

94 patients with pancreatic cancer

76 – IFG / IGT / DM (81 %)

18 with normal tolerance (19 %)

43 in diagnosis of PC

15 < 24 m of DM

18 > 24 m of DM

56 %

76 % SPC within 24 months of duration DM

Škrha J et al., Pancreatology 2017
Pancreatic cancer and diabetes

DM / Prediabetes as the first symptom of SPC

94 patients with PC: 88 in the stage T3 a T4

94 %

Screening:

- CEA: 36 % positive
- CA 19-9: 63 % positive

Škrha J et al., Panreatology 2017
Are any other specific markers for diagnosis of pancreatic cancer?

a) biochemical (GIP, PP, GLP-1)

Hormone concentration

<table>
<thead>
<tr>
<th></th>
<th>GIP</th>
<th>PP</th>
<th>GLP-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>DM &lt; 24 m</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DM 3 &gt; 2 kg</td>
<td>12.3</td>
<td>33.1</td>
<td>15.8</td>
</tr>
<tr>
<td>DM 3 &lt; 2 kg</td>
<td>16.2</td>
<td>51.3</td>
<td>15.5</td>
</tr>
<tr>
<td>DM 2</td>
<td>12.5</td>
<td>39.8</td>
<td>75.8</td>
</tr>
<tr>
<td>Controls</td>
<td>6.3</td>
<td>28.8</td>
<td></td>
</tr>
</tbody>
</table>

Note: Concentration of the hormone in plasma (ng/l)

Škrha et al, Pancreatology 2016
GIP concentrations before and 3 months following operation (n=12)

Škrha et al., Pancreatology 2017
Are any other specific markers for diagnosis of pancreatic cancer?

b) molecular biologic - miRNA

Škrha P. et al., Pancreatology 2016
Pathogenesis of SPC

unclear – permanent source of discussions

ADRENOMEDULIN
produced by SPC cells

cause of the B-cell dysfunction

newly manifested diabetes (T3c)