Why is co-morbidity important for cancer patients?

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Co-morbidity in cancer

• Definition:-

Co-morbidity is a disease or illness affecting a cancer patient in addition to but not as a result of their index (current) cancer.
Why is co-morbidity important for cancer patients?

• Clinical decision making
• Risk adjusted outcomes analyses
• Highlighted in the CRS
  – Important but variably collected
What influences cancer decision making?

- Tumour factors
- Individual factors
  - Patient preferences
  - Performance status
  - Frailty
  - Fitness
  - [Age]
  - CO-MORBIDITY
- To predict outcome
Unacceptable variation in abdominoperineal excision rates for rectal cancer: time to intervene?

E Morris,¹,² P Quirke,² J D Thomas,¹,² L Fairley,⁴ B Cottier,³ D Forman¹,⁴

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Main elements

• Selection for treatment
• Peri-treatment mortality and toxicity
• Impact on overall (population-based) survival / prognosis
• Late effects:
  – Predicting them
  – Identifying them
• Is it feasible to expect a single scale to answer all these questions?

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When to record?

- **Prospective Recording**
  - Presence or absence?
  - Moderate or severe?
  - Type of co-morbidity present?
  - ACE-27
  - Other scale e.g. ASA?

- **Derive retrospectively**
  - HES – favours admitted care
  - Accuracy/completeness of coding
  - Less timely

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Adult Co-morbidity Evaluation-27

prospectively recorded by MDT
ACE-27

- Chart-based comorbidity index for patients with cancer
- Developed through modification of the Kaplan-Feinstein Comorbidity Index (KFI)
  
  \textit{Kaplan-Feinstein Comorbidity Index (KFI)}

- Modifications were made through discussions with clinical experts and a review of the literature

- Validated in study of 19,268 cancer patients treated at Barnes-Jewish Hospital, USA

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## Adult Comorbidity Evaluation - 27

<table>
<thead>
<tr>
<th>Cogent comorbid ailment</th>
<th>Grade 3 Severe Decompensation</th>
<th>Grade 2 Moderate Decompensation</th>
<th>Grade 1 Mild Decompensation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cardiovascular System</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Myocardial Infarct</td>
<td>- MI ≤ 6 months</td>
<td>- MI &gt; 6 months ago</td>
<td>- Old MI by ECG only, age undetermined</td>
</tr>
<tr>
<td>Angina / Coronary Artery Disease</td>
<td>- Unstable angina</td>
<td>- Chronic exertional angina</td>
<td>- ECG or stress test evidence or catheterization evidence of coronary disease without symptoms</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Recent (≤ 6 months) Coronary Artery Bypass Graft (CABG) or Percutaneous Transluminal Coronary Angioplasty (PTCA)</td>
<td>- Angina pectoris not requiring hospitalization</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Recent (≤ 6 months) coronary stent</td>
<td>- CABG or PTCA (&gt;6 mos.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Coronary stent (&gt;6 mos.)</td>
</tr>
<tr>
<td>Congestive Heart Failure (CHF)</td>
<td>- Hospitalized for CHF within past 6 months</td>
<td>- Hospitalized for CHF &gt;6 months prior</td>
<td>- CHF with dyspnea which has responded to treatment</td>
</tr>
<tr>
<td></td>
<td>- Ejection fraction &lt; 20%</td>
<td>- CHF with dyspnea which limits activities</td>
<td>- Exertional dyspnea</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Paroxysmal Nocturnal Dyspnea (PND)</td>
</tr>
<tr>
<td>Arrhythmias</td>
<td>- Ventricular arrhythmia ≤ 6 months</td>
<td>- Ventricular arrhythmia &gt; 6 months ago</td>
<td>- Sick Sinus Syndrome</td>
</tr>
<tr>
<td>Hypertension</td>
<td>- DBP ≥130 mm Hg</td>
<td>- DBP 115-129 mm Hg</td>
<td>- DBP 90-114 mm Hg</td>
</tr>
<tr>
<td></td>
<td>- Severe malignant papilledema or other eye changes</td>
<td>- Secondary cardiovascular symptoms: vertigo, epistaxis, headaches</td>
<td>- DBP &lt;90 mm Hg while taking antihypertensive medications</td>
</tr>
<tr>
<td></td>
<td>- Encephalopathy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Venous Disease</td>
<td>- Recent PE (≤ 6 mos.)</td>
<td>- DVT controlled with Coumadin or heparin</td>
<td>- Old DVT no longer treated with Coumadin or Heparin</td>
</tr>
<tr>
<td></td>
<td>- Use of venous filter for PE’s</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peripheral Arterial Disease</td>
<td>- Bypass or amputation for gangrene or arterial insufficiency &lt; 6 months ago</td>
<td>- Bypass or amputation for gangrene or arterial insufficiency &gt; 6 months</td>
<td>- Intermittent claudication</td>
</tr>
<tr>
<td></td>
<td>- Untreated thoracic or abdominal aneurysm (≥ 6 cm)</td>
<td>- Chronic insufficiency</td>
<td>- Untreated thoracic or abdominal aneurysm (&lt; 6 cm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- s/p abdominal or thoracic aortic aneurysm repair</td>
</tr>
</tbody>
</table>

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http://cancercomorbidity.wustl.edu/ElectronicACE27.aspx

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Prognostic Impact of Comorbidity

Log Rank $\chi^2 = 379.24$, $p < 0.0001$
Charlson Score

derived retrospectively by analysts based on information in notes coded by clinical coders
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Complications

• Score is very dependent on date of cancer diagnosis
  – Differences in registration processes between registries
• Cancer diagnosis is often first in-patient episode
  – Only including episodes prior to diagnosis may miss co-morbidity codes
• Coding of Cancers differ in Registry/HES Meaning cancers can be counted twice
  – e.g. an individuals colorectal tumour could be coded as C18 in registry and C19 in HES, this could lead to
• Suspected cancer diagnosis coded in HES
  – 100% over-reporting of cancer diagnosis in HES
• Cancers and Metastatic Cancer make up main proportion of scores
  – Should any cancer information be used in the calculation of the score for cancer purposes.
  – Would it be better to use definitive data on multiple tumours/mets

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Colorectal survival by Charlson Score

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Conclusions

• NCDR has Charlson score available at individual tumour level
• Analysis needs to be undertaken to assess the best approach to calculating co-morbidity from data we have available
• Work with DH/CfH on national co-morbidity project
  – SSCRGs to define pertinent conditions

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Workshop Action Plan

- Recommend collection of ACE-27 co-morbidity score is mandated for all adult cancer patients
- Ensure that appropriate training is delivered
- Research different collection methodologies e.g. patient questionnaires
- Identify where supplementary indices or information may be required
- Continue to retrospectively calculate co-morbidity scores from HES
- Consider establishing a Co-morbidity ‘CRG’

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Thank you

www.ncin.org.uk