Impact of differences in treatment strategy on relative survival of elderly patients with operable, hormone receptor positive breast cancer

Mandy Kiderlen, MD
SIOG
Manchester
Saturday, 27th October 2012

Breast cancer in elderly
- 40% of all new cases among women > 65 years
- Minimally included in trials
- Strong selection bias
- In short: no EBM

Wildiers et al. SIOG recommendations Lancet 2007;

Learned from international observations

% no surgery

5-year Relative Survival

Compared to expected survival for the EU

Kiderlen M et al., BCRT 2012

Aim
1. To compare locoregional and endocrine treatment approach of elderly breast cancer patients between NL and IRL
2. To assess impact of treatment differences on estimated cancer-specific survival

Comparing The Netherlands and Ireland
Leiden, The Netherlands Cork, Ireland

Methods
- Instrumental variable
  - Pseudo-randomization
  - No confounding by indication
- Comparing treatment strategy
  - Guideline-recommended locoregional therapy
    - Surgery (breast and axillary)
    - Radiotherapy
    - Endocrine therapy
- Comparing relative survival
  - Observed/Expected survival
Methods

• Inclusion:
  • All consecutive female breast cancer patients diagnosed between 2005-2009
  • Age ≥ 75 years
  • Estrogen and/or progesterone receptors positive
  • Operable (non-metastasized) breast cancer (stage I to III)

Results – patient characteristics

Table 1

<table>
<thead>
<tr>
<th></th>
<th>The Netherlands</th>
<th>Ireland</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age (years)</td>
<td>82.2</td>
<td>81.6</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Median age (years)</td>
<td>82.0</td>
<td>80.7</td>
<td></td>
</tr>
<tr>
<td>N%</td>
<td>N%</td>
<td>p</td>
<td></td>
</tr>
<tr>
<td>Age 75-80</td>
<td>2894</td>
<td>33.4</td>
<td>532</td>
</tr>
<tr>
<td>80-85</td>
<td>3055</td>
<td>35.3</td>
<td>415</td>
</tr>
<tr>
<td>85-90</td>
<td>1936</td>
<td>22.4</td>
<td>195</td>
</tr>
<tr>
<td>90+</td>
<td>770</td>
<td>8.9</td>
<td>70</td>
</tr>
<tr>
<td>Stage* I</td>
<td>2755</td>
<td>31.8</td>
<td>345</td>
</tr>
<tr>
<td>II</td>
<td>4517</td>
<td>52.2</td>
<td>646</td>
</tr>
<tr>
<td>III</td>
<td>1383</td>
<td>16.0</td>
<td>221</td>
</tr>
<tr>
<td>Grade 1</td>
<td>1638</td>
<td>18.9</td>
<td>133</td>
</tr>
<tr>
<td>2</td>
<td>3410</td>
<td>39.4</td>
<td>726</td>
</tr>
<tr>
<td>3</td>
<td>1415</td>
<td>16.3</td>
<td>243</td>
</tr>
<tr>
<td>missing</td>
<td>2192</td>
<td>25.3</td>
<td>100</td>
</tr>
<tr>
<td>Morphology</td>
<td>Ductal</td>
<td>5547</td>
<td>64.1</td>
</tr>
<tr>
<td>Lobular</td>
<td>1313</td>
<td>15.2</td>
<td>204</td>
</tr>
<tr>
<td>Other/unknown</td>
<td>1795</td>
<td>20.7</td>
<td>202</td>
</tr>
<tr>
<td>Total</td>
<td>8655</td>
<td>100</td>
<td>1215</td>
</tr>
</tbody>
</table>

* cT is used when pT was missing, cN is used when pN was missing. cNX is considered as N0, MX is considered as M0.

Results – locoregional treatment

- Non guideline recommended locoregional treatment
- Guideline recommended locoregional treatment

Multivariate OR
- OR's for IRL vs. NL.
- Adjusted for age, tumor grade and morphology

Results – endocrine therapy

- ET-
- ET+

Multivariate OR
- OR's for IRL vs. NL.
- Adjusted for age, tumor grade and morphology

Results – local + endocrine therapy

- Other
- Guideline recommended locoregional treatment + endocrine therapy

Multivariate OR
- OR's for IRL vs. NL.
- Adjusted for age, tumor grade and morphology

Results – 5 year Relative Survival

Univariate RER:
- N/A
- 1.25 (0.57-2.74) p=0.578
- 1.34 (0.79-2.29) p=0.282
Conclusion

- Large differences in treatment approach
  - Stage-specific

- No differences in relative survival!

Discussion

- Possible explanations:
  - In elderly: no effect of type of treatment on outcome?
  - Specific treatment effects?
    - Surgery
    - Radiotherapy
    - Endocrine therapy

- Possible explanations:
  - In elderly: no effect of type of treatment on outcome?
  - Specific treatment effects?
    - Surgery
    - Radiotherapy
    - Endocrine therapy

- In NL, differences in treatment and survival between different socio-economic status (SES)*
  - Treatment and survival also associated with SES in IRL**

- Screening program
  - Ends at age 75 in NL, in IRL up to age 65
  - Explanation for higher staged patients in IRL?

- The role of chemotherapy
  - Small amounts, subject for future research.

Future

- Focus on patient characteristics (i.e. comorbidity and medication)
- Large comparative cohort studies in elderly
  - Use of country as instrumental variable instead of randomized treatment trials

Acknowledgements

- National Cancer Registry of Ireland, Cork, Ireland
  - Paul Walsh, PhD

- LUMC, dept. of Surgical Oncology
  - Esther Bastiaannet, PhD
  - Gerrit-Jan Liefers, MD, PhD
  - Professor C.J.H. van de Velde, MD, PhD

- LUMC Dept. of Gerontology & Geriatrics
  - Ton de Craen, PhD

- LUMC, Dept. of Epidemiology
  - Olaf M. Dekkers, MD, PhD

- The Netherlands Cancer Registry (KNL)