Surgical treatment decisions for older patients; the influence of tumour characteristics, patient health and choice.

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Incidence increases with age


Relative survival decreases with age

Comparison of the 5 year relative survival for female breast cancer patients by country

The Kings Fund report (2011)

• ‘How to Improve Cancer Survival’ - England
• Access to treatment one of the most plausible drivers for improved survival
• Age bias in access to treatment investigated as a priority

The Equality Act (2010)

• Service providers will need to show good reason ‘objective justification’ for differences in treatment by age (Oct 2012)

Cancer Reform Strategy

Improving Outcomes: A Strategy for Cancer

Equality Act (2010)

Treatment based on individual need & fitness

Acceptable reasons

- Tumour characteristics
- Health
- Choice

Less
• Triple assessment
• Surgery
• Radiotherapy post lumpectomy

More
• Hormone therapy alone

"The only acceptable criteria for not giving (older cancer patients) a clinically appropriate and cost effective treatment should be poor patient health or a patient themselves making a choice not to receive further treatment." DH (2007) 6.32 p89

"The NHS needs to ... improve intervention rates for older people who could benefit, ensuring age alone is never a barrier to the most appropriate treatment." DH (2011) 6.3 p55
Previous studies

- Tumour characteristics and general health
- Women aged 65 and older
- Treated in breast clinics in Greater Manchester

Study 1: Large retrospective cohort (n = 305)
  - Focusing on tumour characteristics (1999)

Study 2: Small prospective cohort (n = 76)
  - Also adjusted for health measures (2002-3)

Study I – Results: Primary surgery

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Odds Ratio</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>65 - 69</td>
<td>1.00</td>
<td>-</td>
</tr>
<tr>
<td>70 - 74</td>
<td>4.73</td>
<td>-</td>
</tr>
<tr>
<td>75 - 79</td>
<td>4.46</td>
<td>0.94 – 21.19</td>
</tr>
<tr>
<td>80+</td>
<td>43.03</td>
<td>9.68 – 191.25</td>
</tr>
</tbody>
</table>

1. Adjusted for pre-treatment tumour stage, hospital type and deprivation

Study II Results – Primary surgery

Management of elderly breast cancer patients: The role of patient choice & health in treatment decisions

Aims

- Extent of Problem
  Investigate extent to which age predicts standard treatment accounting for patient choice, general health as well as tumour characteristics

- Solution
  Identify health measures which predict post surgical complications and functional health status

  Develop these measures into treatment decision making tools which will inform patient choice

Methods - current

Two prospective cohort studies

- Female patients aged 65+ (n = 450) & 70+ (n= 550)
- Different aspects of surgical management
- Diagnosed with early stage (1–3a) invasive breast cancer
- 23 Trusts in England (65+ = 10, 70+ = 13)
- Over three year period 2010-2012
- Pre treatment interviews, post surgical survey and case note reviews

  - Diagnostic & surgical procedures
  - Tumour
  - Co-morbidity - Charlson
  - Health - range including functional health status and HRQoL
  - Patient ‘choice’
    (Control Preferences Scale & nested qualitative study)
Measuring ‘choice’

- Essential question
  ‘Did the patient choose non standard management?’
- Offered choice but defer to doctor
- Who made treatment decision?

The CONTROL PREFERENCES (PERCEPTION) SCALE

<table>
<thead>
<tr>
<th>Physician Perception Scale</th>
<th>Patient Perception Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ACTIVE/COLLABORATIVE</strong></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td></td>
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<tr>
<td>The patient made the final decision about which treatment she would receive.</td>
<td>I made the final decision about which treatment I would receive.</td>
</tr>
<tr>
<td>B</td>
<td></td>
</tr>
<tr>
<td>The patient made the final decision about which treatment she would receive after seriously considering my opinion.</td>
<td>I made the final selection of my treatment after seriously considering my doctor’s opinion.</td>
</tr>
<tr>
<td>C</td>
<td></td>
</tr>
<tr>
<td>I shared responsibility with the patient for making the final decision about treatment she would receive.</td>
<td>My doctor and I shared responsibility for deciding which treatment was best for me.</td>
</tr>
<tr>
<td><strong>PASSIVE</strong></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td></td>
</tr>
<tr>
<td>I made the final decision about which treatment the patient would receive after seriously considering the patient’s opinion.</td>
<td>My doctor made the final decision about which treatment would be used but seriously considered my opinion.</td>
</tr>
<tr>
<td>E</td>
<td></td>
</tr>
<tr>
<td>I made the final decision about which treatment the patient would receive.</td>
<td>My doctor made all the decisions regarding my treatment.</td>
</tr>
</tbody>
</table>

Measuring ‘health’

- Range of measures selected on basis of
  - Validity, reliability, sensitivity, acceptability & availability of normative data
  - Comorbidity - Charlson Index
  - Functional /health status e.g.
    - Activities of Daily Living/ Instrumental Activities of Daily Living
    - Performance Status
    - Short Form 12
  - Health Related Quality of Life - EORTC-C30 & BR23
  - Clinically recorded measures e.g.
    - American Society of Anaesthesiologists (ASA) score, BMI, smoking status.

Progress

- Total of 909 patients recruited
- Recruitment due to close at majority sites by the end of 2012
- 52% response rate
- Non surgical rate similar to previous studies of older women with early stage breast cancer in UK (17%)
- Three month follow up for each patient
- Results due Spring/ Summer 2013

Methods (future) RCT

- First phase in the development of a complex intervention
- From 2013-2015
- Intervention = care pathway that involves a pre treatment health assessment
- Includes measures that accurately predicted surgical complications
- Functional/ health status
- Help inform patient and surgeon of risk of surgery and help prepare for it
  - Low risk - confidence to have surgery
  - High risk - investigate ways to reduce risk e.g. tailored treatment pathway/ additional support

Summary

Older women are:

- More likely to be diagnosed with breast cancer
- Less likely to survive it
- Increasing proportion of older people in population = Growing public health problem
- Ensure older women have fair and equitable access to breast cancer services
- Ongoing studies:
  - Identify extent of ‘unacceptable’ care
  - Develop potential solutions - pre treatment assessment
References

STUDY I

STUDY II

Study I – Results: Primary surgery
Standard of Management: SURGERY (n = 305)
Non-standard surgery (vs. receiving surgery) for operable breast cancer

<table>
<thead>
<tr>
<th>Variables</th>
<th>P value</th>
<th>Odds Ratio</th>
<th>95% CI for Odds Ratio</th>
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</thead>
<tbody>
<tr>
<td>Pre treatment stage (UICC)</td>
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<td></td>
<td></td>
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<tr>
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<td>0.027</td>
<td>11.00</td>
<td>2.00 60.40</td>
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<td>2</td>
<td>0.001</td>
<td>3.38</td>
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<td>3a</td>
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<td>1.20</td>
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<tr>
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<tr>
<td>Townsend Index (Quintiles)</td>
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<tr>
<td>1-2</td>
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<td>0.94</td>
<td>0.94 1.00</td>
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<tr>
<td>3</td>
<td>0.001</td>
<td>45.85</td>
<td>4.00 458.00</td>
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<tr>
<td>Age group (years)</td>
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</tr>
<tr>
<td>65-69 (reference)</td>
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<tr>
<td>70-74</td>
<td>0.030</td>
<td>1.48</td>
<td>1.11 1.94</td>
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<td>75-79</td>
<td>0.004</td>
<td>1.48</td>
<td>1.03 2.13</td>
</tr>
<tr>
<td>80+</td>
<td>0.001</td>
<td>45.85</td>
<td>4.00 458.00</td>
</tr>
</tbody>
</table>

1. Adjusted for pre-treatment tumour stage (1, 2 or 3a), hospital type and deprivation.

Study II Results - Multivariate
Standard of Management: SURGERY (n = 76)
Non-standard surgery (vs. receiving surgery) for operable breast cancer

<table>
<thead>
<tr>
<th>Variables</th>
<th>P value</th>
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<th>95% CI for Odds Ratio</th>
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<tbody>
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<td>Co-morbidity (Charlson Index)</td>
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<td>Hospital Type</td>
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<tr>
<td>University</td>
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<tr>
<td>District</td>
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<td>43.79</td>
<td>9.97 219.62</td>
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<td>Deprivation (Townsend Index)</td>
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<tr>
<td>1-2</td>
<td>0.001</td>
<td>43.79</td>
<td>9.97 219.62</td>
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<tr>
<td>3-5</td>
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<td>43.79</td>
<td>9.97 219.62</td>
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<tr>
<td>Pre-treatment stage</td>
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<tr>
<td>2</td>
<td>0.007</td>
<td>43.79</td>
<td>9.97 219.62</td>
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<tr>
<td>Age group (years)</td>
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</tr>
<tr>
<td>65-79</td>
<td>1.00</td>
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<tr>
<td>80+</td>
<td>0.001</td>
<td>45.85</td>
<td>4.00 458.00</td>
</tr>
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</table>

Study I – Results: Axillary node surgery

<table>
<thead>
<tr>
<th>Age Group</th>
<th>65-69</th>
<th>70-74</th>
<th>75-79</th>
<th>80+</th>
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<tbody>
<tr>
<td>Odds Ratio</td>
<td>1.00</td>
<td>1.48</td>
<td>1.48</td>
<td>1.48</td>
</tr>
<tr>
<td>95% CI</td>
<td>1.00</td>
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<td>1.11</td>
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<tr>
<td>within age group</td>
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</tr>
</tbody>
</table>

Percent (n) of patients not receiving axillary node surgery for operable breast cancer by age group (n = 236)

Study I – Results: Primary surgery

Percent of female patients not having surgery for breast cancer (all stages)

Study II
Sample Size
• Prediction of complications at 30 days
• Estimated at 12%
• Sample size based on logistic regression predicting outcome of no complications (vs. complications)
• Up to 10 explanatory variables
• Need 10 cases for each explanatory variable for both categories of the dependent variable

Exploratory variables may include
- Age group
- Co-morbidity (Charlson Index)
- Type of surgery (BCS vs. Mastectomy)
- UAD (U+LM+DC)
- EORTC QLQ C30 Global domain
- ASA American Society of Anaesthesiologist’s Scale
- Performance Status
- BMI
- Smoking status
- Social class (occupation)

Approx. 17% not having surgery (830/1000) (Lavelle et al, 2007 BJS)