Evolving Role of Mastectomy in Breast Cancer Treatment

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BCT vs Mastectomy

• Numerous prospective, randomized trials with long-term results have demonstrated no statistical difference in overall survival between mastectomy and BCT
• In 1990, the NIH released a consensus that BCT is the preferred treatment for women with newly diagnosed early-stage breast cancer

Indications for Mastectomy

- Mastectomy needed (69%)
  - Multi-centric tumors (15%)
  - Failed attempt at BCT (9%)
  - Inflammatory breast cancer
  - Poor tumor-to-breast size ratio (19%)
  - Diffuse suspicious calcifications (17%)
  - Radiation therapy contra-indicated (5%)
- Mastectomy chosen (31%)
  - Patient preference

Lee, CL. Breast J ’09

Are Mastectomy Rates on the Rise?

- Since the NIH consensus statement, mastectomy rates steadily decreased in the 1990s
- However, there has been a recent reported trend of increasing mastectomy rates

California Trends

• Previous studies have shown that disadvantaged and minority women with early-stage breast cancer are more likely to choose mastectomy than non-Hispanic white women.

• Mastectomy rates in CA were recently examined based on SEER data and the CA cancer registry.

• Among non-Hispanic white women, a shift was seen toward mastectomy in younger women, DCIS, and highest SES since 2000.

What has changed?

Contributing factors for mastectomy preference:
- Desire to avoid XRT
- Increased awareness of and testing for BRCA 1&2
- Fear of recurrence
- Lack of patient understanding regarding complex choices
- Improvements in cosmetic technique and reconstruction
- Desire to avoid future screening
- Increasing use of MRI in screening and management

Impact of MRI on Mastectomy Rates

• Application of MRI is rapidly expanding for the screening and management of breast cancer.

• These potential indications have surpassed the concrete data supporting its outcome benefit.

• Concern that the increasing use of MRI may be contributing to the rise in mastectomy rates.
COMICE Trial

- Women planning for BCT were prospectively randomized to MRI or no MRI prior to surgery
  - Increase in mastectomy rate
    - MRI 7.1% vs no MRI 1.2%
  - No difference in re-operation rates
    - MRI 16% vs no MRI 19% p=0.77
  - No difference in cost
    - MRI $8877 vs no MRI $8402 p=0.075
  - No difference in quality of life measures p=0.075

Mayo Rochester Experience

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
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<tbody>
<tr>
<td>Overall mastectomy rate (%)</td>
<td>31</td>
<td>37</td>
<td>45</td>
<td>43</td>
</tr>
<tr>
<td>MRI use</td>
<td>10</td>
<td>12</td>
<td>19</td>
<td>23</td>
</tr>
<tr>
<td>Mastectomy with MRI</td>
<td>53</td>
<td>54</td>
<td>57</td>
<td>52</td>
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<tr>
<td>Mastectomy without MRI</td>
<td>29</td>
<td>35</td>
<td>42</td>
<td>41</td>
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- 5,405 women included with stage 0-2 breast cancer
- Although simultaneous increases in MRI and mastectomy were noted, causality cannot be concluded from this study

Impact of MRI on Mastectomy Rates

- The increase in MRI use alone does not explain the increase in mastectomy rates, although it may be a contributing factor
- Increased mastectomy rates in women with pre-operative MRI may be confounded by MRI indication (stage and histology associated with higher mastectomy rates)
- Anxiety regarding false positives may prompt some mastectomies for peace of mind

Contralateral Prophylactic Mastectomy (CPM)

- A recent review of the SEER cancer registry from 1998-2003 demonstrates an increase in CPM rates for all stages
  - Young patient age, non-Hispanic white race, lobular histology and previous cancer diagnosis
- There is considerable geographic variation in CPM rates, however CPM rates increased for all registries
Trends in the proportion of all mastectomy patients who underwent contralateral prophylactic mastectomy (CPM-M) by cancer stage at diagnosis

![Graph showing trends in CPM-M by cancer stage]

**CPM**

- Increase in CPM rate occurred simultaneously with
  - An increase in BCT rate
    - 56% in 1998 to 59.7% in 2003
  - A decrease in unilateral mastectomy rate
    - 42% in 1998 to 35.9% in 2003
- Patients are increasingly choosing between minimal surgery (BCT) and more aggressive surgery (bilateral mastectomy)

**Are our patients informed?**

- Some studies suggest that patient preference may be influenced by the surgeon/family or that patients choosing mastectomy are uninformed
- On the contrary, higher mastectomy rates have been associated with greater patient involvement in the decision-making process

**Not all well-informed women prefer BCT**

- A prospective cohort study of women eligible for BCT completed 3 surveys assessing their knowledge and values during the surgical planning period
  - 35% of women preferred mastectomy when well-informed and had full understanding of options
    - Patient characteristics: Young age, married, and higher stage of disease
    - Patient values: Peace of mind and avoid radiation
- The systematic use of a decision aid reduces decisional conflict and helps women make informed, value-based decisions
Cosmetic Improvements

- Improvements in cosmetic results may also be a contributing factor to increasing mastectomy rates as some women are able to achieve an externally normal appearing breast.

Conclusions

- The reason for increasing mastectomy and bilateral mastectomy is multi-factorial, and largely driven by patient preference.
- BCT and mastectomy rates should not be used as a quality measure.
- Clinicians should enable patients to make informed, value-based decisions and respect the patient’s preference without bias.