Update on Breast Cancer Screening Guidelines

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Which cancer do we want to find?

Patient A, yearly screening at age 52

Patient B, first screening at age 55
60 year old female with palpable lump in 2010.

Last mammogram in 2004
Breast Cancer

- Most common cancer to occur in women.
- Second most common cause of cancer death in women.
- Estimated 192,500 diagnosed with invasive disease and 62,300 with in situ disease in 2009
- Estimated 40,000 deaths in 2009
Statistics

- 1 out of 8 American women who live to be 85 years of age will develop breast cancer.
- The greatest risk factor is gender and the second is age.
- Between 2000-2004, 95 percent of new cases and 97 percent of breast cancer deaths occurred in women aged 40 and older.
Risk Factors

- Gender
- Age
- Family history of breast cancer (first degree relative)
- Inherited genes (most common BRCA1 and BRCA2)
- Early menarche/Late menopause
- First child after age 30
- Hormone replacement therapy
- Alcohol use
- Being overweight
- Lack of exercise
- Dense breasts
- Radiation exposure
- Personal history of breast cancer
- History of atypical breast disease
USPSTF November 2009

- Against routine screening age 40-49
- Recommend biennial screening age 50-74
- No recommendations over age 74
- Recommends against teaching breast self-exam
- Insufficient evidence to assess clinical breast exam

Reasons against screening in 40-49

- Psychological harms
- Unnecessary imaging tests and biopsies
- Inconvenience due to false positives
- Overdiagnosis
USPSTF 2009

- Meta-analysis for women aged 39-49 shows a 15% reduction in mortality
- Meta-analysis of mammography screening trials shows mortality benefits for women aged 39-69

Radiologist Response to USPSTF

- Task force (TF) did not include a breast specialist
- TF agreed that screening is saving lives, but decided it would make the decision for women in their 40’s
- No data to support that screening parameters change at age 50
- Randomized, controlled trials demonstrate a significant mortality reduction for ages 40-74
- Mortality rates are down 30% in US and 40% in Sweden
- 40% of lives lost due to breast cancer are due to cancers diagnosed while women are in their 40’s

YES,
REGULAR MAMMOGRAMS
AND EARLY DETECTION
WOULD HAVE SAVED
YOUR LIFE...

BUT AREN'T
YOU GLAD YOU
WERE SPARED
ALL THAT ANXIETY?
Statistics

- 1 out of 5 breast cancers occur in ages 40-49
- 3/4 of women diagnosed with breast cancer have no family history of the disease and are not considered high risk.
- Even for women 50+, skipping a mammogram every other year would miss up to 30% of cancers.
Norwegian Study

- Analyzed 40,075 women with breast cancer
- Ages 50-69 – biennial screening
- Compared incidence-based rates of death from breast cancer in four groups:
  2 groups of women 1996-2005 (with and without screening)
  2 groups of women 1986-2005 (with and without screening)

Norwegian Study Results

<table>
<thead>
<tr>
<th></th>
<th>Rate of death per 100,000 person years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screening 1996-2005</td>
<td>18.1</td>
</tr>
<tr>
<td>Screening 1986-1995</td>
<td>25.3</td>
</tr>
<tr>
<td>Non screening 1996-2005</td>
<td>21.2</td>
</tr>
<tr>
<td>Non screening 1986-1995</td>
<td>26.1</td>
</tr>
</tbody>
</table>
Norwegian Study Conclusions

- Rate of death from breast cancer was reduced by introduction of a breast cancer screening program
- Screening accounted for 1/3 of total reduction
- Screening associated with an absolute reduction of 10 percentage points
Radiologist Response

- No direct evidence that decrease in deaths are due to therapy.
- Assumption was made that it was due to multidisciplinary breast care.
- Contradicts studies from the Netherlands and Sweden that have shown that screening accounts for over 60% decrease in deaths.
- Short follow-up period of 2.2 years.
- Norway screens every 2 years and if it was every year, more lives would be saved.
Swedish Mammography Screening Study

- Study period 1986-2005
- 600,000 women
- Compared mortality in ages 40-49 invited and not invited to screen
- Average follow-up 16 years
- Outcome measure was Refined Mortality - breast cancer deaths among women who had a breast cancer diagnosis at ages 40-49

Hellquist BN. Effectiveness of Population-Based Service Screening With Mammography for Women Ages 40-49 Years. *Cancer*, 2010
Results and Conclusions

- 607 breast cancer deaths 4.8 million person-yrs study
- 846 breast cancer deaths 6.3 million person-yrs control
- RR 0.94, 95% confidence interval
- Statistically significant lower breast cancer mortality in counties with screening
Conclusions

- Greater reduction in 45-49 than 40-44 years
- Reduction estimated at 26-29%
- To save one life, need to screen 1,250 women every other year from age 40-49
Radiologist Response

- Confirms that the use of age 50 as a threshold for screening is scientifically unfounded.
ACRIN 6666 Study

- Multi-center trial enrolling 2,809 HIGH RISK women
- 88% dense breasts
- Screening mammography and physician-performed ultrasound for 3 years
- Randomized order of exam and separate radiologists interpretation
### ACRIN 6666 Results----One Year

<table>
<thead>
<tr>
<th></th>
<th>Mammo</th>
<th>Mammo and Ultrasound</th>
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<tbody>
<tr>
<td># cancers</td>
<td>20</td>
<td>31</td>
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<tr>
<td>Detection rate Per 1,000</td>
<td>7.6</td>
<td>11.8</td>
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<tr>
<td>% cancers detected</td>
<td>50</td>
<td>78</td>
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</table>
ACRIN 6666----Results Three Years

- 111 cancers found

<table>
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<tr>
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<tbody>
<tr>
<td>Mammo</td>
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<tr>
<td>Sono</td>
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<td>Mammo &amp; Sono</td>
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<td>23</td>
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<tr>
<td>Undetected</td>
<td>20</td>
<td>18</td>
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</table>
ACRIN 6666 Results----Three Years

- Median size cancer 11.5 mm
- 67% node negative
- Combined 82% detection
- Mammography alone 53% detection
ACRIN 6666 Conclusions

- 29% more cancers were found
- Increased false positives
- Need RCT to study efficacy
ACS Breast MRI Screening Guidelines

- Recommend Annual MRI Screening
  
  BRCA mutation
  First-degree relative of BRCA carrier, but untested
  Lifetime risk 20-25%
  Radiation to chest between ages 10 and 30
  Li-Fraumeni syndrome and first-degree relatives

ACS Breast MRI Screening Guidelines

- Insufficient Evidence to Recommend for or against
  - Lifetime risk 15-20%
  - LCIS or ALH
  - ADH
  - Heterogeneously or extremely dense mammogram
  - Personal history of breast cancer, including DCIS
## Published Breast MRI Screening Results

<table>
<thead>
<tr>
<th></th>
<th>Canada</th>
<th>UK</th>
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<th>US</th>
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<tbody>
<tr>
<td># women</td>
<td>236</td>
<td>649</td>
<td>529</td>
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<tr>
<td>age range</td>
<td>25-65</td>
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<tr>
<td># cancers</td>
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<td>SI MRI</td>
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<tr>
<td>SP Mammo</td>
<td>&gt;99</td>
<td>93</td>
<td>97</td>
<td>98</td>
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</table>
In order to detect breast cancer early, we must ensure all women can access these important screenings. The Affordable Care Act, which I was proud to sign into law earlier this year, requires all new health insurance policies to cover recommended preventive services without any additional cost, including annual mammography screenings for women over age 40. The Affordable Care Act will also ensure that people who have been diagnosed with breast cancer cannot be excluded from coverage for a pre-existing condition or charged higher premiums.
SBI and ACR recommendations - Mammo

- Annual screening from age 40 for average risk
- Annual screening from age 30 for BRCA carriers or >20% lifetime risk
- Annual screening by age 30 or 10 years earlier than age of diagnosis of 1st degree relative (whichever is later)
- Annual screening 8 years after radiation to chest during ages 10-30, but not before age 25
- Screening should stop when life expectancy is <5-7 years or when abnormal results would not be acted upon because of age or comorbid conditions
SBI and ACR recommendations- Sono

- High risk women for whom MRI may be appropriate but who cannot have an MRI
- Women with dense breast tissue as an adjunct to mammography
SBI and ACR recommendations- MRI

- BRCA
- Untested, first-degree relative with proven BRCA
- >20% lifetime risk
- History of chest radiation
- Newly diagnosed breast cancer: Single screening MRI of contralateral breast
- May be considered in women at 15-20% lifetime risk on basis of personal history of breast or ovarian cancer or biopsy proven LCIS or ADH
Thank you