Screening mammography recall rates: Is there in fact variability between immediate “same-day” interpretations vs. standard batch read interpretations?

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Objective

• Determine whether screening mammography recall rate varies as a function of women who undergo same-day screening mammography versus standard batch read interpretations

• Attention to:
  • positive predictive value of recall (positive predictive value level 1 (PPV1))
  • cancer detection rates
Materials and Methods:

- IRB approved, HIPAA compliant study
- Retrospective review was performed of mammography audit data of consecutive screening mammograms between June 1, 2014 and May 31, 2015
- Examinations read by 5 radiologists with expertise in breast imaging
Materials and Methods:

• Studies divided into 2 groups:
  • Studies given Same Day interpretation (maximum 30 minute turnaround time)
  • Studies read as standard batch read interpretations (interpreted within 1-2 business days)
Materials and Methods:

• Recall rates were calculated from routine mammography audit data

• Logistic regression using GEE method was performed to compare the PPV1 and cancer detection rate for each group

• Dense vs non-dense breast tissue was tabulated for each group
Results

• Review identified screening mammograms from 8488 women
  • 37% (3156/8488) had same day interpretation
  • 63% (5332/8488) had standard batch read interpretation

• Recall rate
  • 8% for same day interpretation
  • 10% for standard batch read interpretation
  • Odds ratio same day recall vs batch read is 0.86 (95% CI: 0.73-1.0, p = 0.0526)
Results

• PPV1
  • 7.2% (19/263) for same day interpretation
  • 4.5% (23/511) for batch read interpretation
  • p = 0.1164

• Cancer detection rate (CDR)
  • 1.6 cases per 1000 examinations higher for same day interpretation compared to batch read interpretation (p = 0.3140)
Table 1: Results

<table>
<thead>
<tr>
<th></th>
<th>Batch Read (N=5332)</th>
<th>Same day (N=3156)</th>
<th>Total (N=8488)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Recall</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>511 (9.6%)</td>
<td>263 (8.3%)</td>
<td>774 (9.1%)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>4819 (90.4%)</td>
<td>2893 (91.7%)</td>
<td>7712 (90.9%)</td>
<td></td>
</tr>
<tr>
<td><strong>Malignant</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>23 (0.5%)</td>
<td>19 (0.6%)</td>
<td>45 (0.5%)</td>
<td>0.3140</td>
</tr>
<tr>
<td>No</td>
<td>5307 (99.5%)</td>
<td>3136 (99.4%)</td>
<td>8443 (99.5%)</td>
<td></td>
</tr>
<tr>
<td><strong>Dense Breasts</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>2319 (43.4%)</td>
<td>1380 (43.7%)</td>
<td>3699 (43.5%)</td>
<td>0.7190</td>
</tr>
<tr>
<td>No</td>
<td>3013 (56.6%)</td>
<td>1776 (56.3%)</td>
<td>4789 (56.5%)</td>
<td></td>
</tr>
</tbody>
</table>

Note: p-value is from logistic regression with GEE method to account for within patient correlation.
Conclusions

• Review of screening mammography data at our institution suggest that no statistically significant difference in recall rate, PPV1 or cancer detection rate is expected as a function of whether a screening mammogram is given a same day (within 30 minute turnaround interpretation) versus a standard batch read interpretation.
Conclusions

• Recall rates for screening mammography with same day interpretation trended downward but were not statistically significantly different compared to standard batch read interpretation
• Women with dense breast tissue were no more likely to request a same day interpretation
Conclusions

• Review includes data from a single academic breast imaging center
• Over 75% of screening mammograms at our institution are performed with tomosynthesis
• However, rates of tomosynthesis vs standard 2D mammography were not compared between groups and this variable could impact study results
Thank you

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