Outcomes of diagnostic breast imaging in young women (less than 50 years old)

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BACKGROUND

- In Canada, screening mammography in women at average risk of breast cancer is recommended after the age of 50.
- Younger women tend to have more aggressive tumor types with greater rates of metastatic disease at the time of presentation.
- Prevalence of false negative imaging is unknown in this population
- The purpose of this study is to describe the outcomes of diagnostic breast imaging in young women undergoing investigations for abnormal clinical breast findings
- To determine the frequency of delayed breast cancer diagnosis (more than 6 months after initial diagnostic mammography).

METHODS

- Retrospective analysis conducted in women at average risk of breast cancer between the age of 30 and 50 years with symptomatic clinical presentations.
- Diagnostic mammograms and breast ultrasounds (US) performed at the Cancer Centre of Southeastern Ontario (Kingston, Canada) from 2018 to 2019.
- Data collected: clinical breast concerns, type of breast imaging, BI-RADS category, type and timing of subsequent investigation (imaging & biopsy), breast cancer diagnosis.
- Primary outcome measure: Delayed diagnosis of breast cancer defined as > 6 months from initial diagnostic mammogram.
- Secondary outcome measure: Further work up, total number of breast cancer diagnoses and stage.

RESULTS: Table 1

Baseline Investigations (N = 171)	N (%)
Imaging	
Mammogram alone	3 (1.8 %)
Ultrasound alone	20 (11.7%)
Mammogram and US	148 (86.5%)
BIRADS category	
BIRADS 0	10 (5.8%)
BIRADS 1& 2	90 (52.6%)
BIRADS 3	41 (24.0%)
BIRADS 4	24 (14.0%)
BIRADS 5	6 (3.5%)

Table 2:

Follow up Investigations (N=81)	N (%)
BIRADS 0 (N=10)	
Mammogram	1 (10%)
Mammogram and US	3 (30%)
MRI	6 (60%)
BIRADS score	
BIRADS 0	1 (10%)
BIRADS 1	5 (50%)
BIRADS 2	0 (0%)
BIRADS 3	2 (20%)
BIRADS 4	2 (20%)
BIRADS 3 (N=41)	
US	32 (78%)
Mammogram and US	6 (14.6%)
None	3 (7.3%)
BIRADS score	
BIRADS 0	1 (2.4%)
BIRADS 1	4 (9.8%)
BIRADS 2	5 (12.2%)
BIRADS 3	28 (68.3%)

Table 2: Contd.

Follow up Investigations	N (%)
BIRADS 4 or 5 (N=32)	
Biopsy	
Yes	32 (100%)
Biopsy results	
Malignant	10 (31.2%)
Non-malignant	22 (68.5%)

Table 3:

Breast Cancer Diagnosis (N = 10)	N (%)
Mean age 43 yrs (range 35-50 yrs)	
Diagnostic mammogram & US	10 (100%)
Stage distribution	
0	1 (10%)
1	7 (70%)
2	2 (20%)
Treatments	
Surgery	10 (100%)
Chemo	5 (50%)
Endocrine Therapy	7 (70%)
Radiation	7 (70%)

Table 4: Time to Diagnosis

Time analysis (N=10)	Time
Mean time between first and follow-up imaging	4.9 weeks SD = 5.9
Mean time between follow up imaging and biopsy	4.9 weeks SD = 6.4
Mean time from first imaging to breast cancer diagnosis	2 weeks SD =7.3

Summary of results:

- A total of 400 patients charts were analyzed, 171 charts were eligible for analysis.
- The most common clinical presentations included palpable breast mass and breast pain.
- 93.6 % of patients, this was their first breast imaging.
- More than half patients had benign findings and 15 % needed upfront biopsy.
- Majority underwent recommended follow up investigations.
- A breast cancer diagnosis was found in only 6% patients, all of which were early stage.
- The mean time from initial investigation to breast cancer diagnosis was 2 days and there were no delayed diagnosis (defined as > 6months from initial imaging to biopsy).

Conclusion:

Most patients presenting with breast symptoms had benign findings on initial breast mammogram and US. They all had appropriate diagnostic investigations with no delayed breast cancer diagnosis. Therefore, our study concludes that diagnostic mammograms and US are appropriate diagnostic investigations for clinical breast concerns in women between 30-50 years.

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