



SCREENING MAMMOGRAPHY; ANXIETY AND PAIN ASSOCIATED, AN EXPERIENCE AT BENAZIR BHUTTO HOSPITAL.

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ABSTRACT...Background: Worry about risk for breast cancer and pain are associated with mammography use. Both have been found to be a barrier to mammography use by women. **Objective:** To examine the anxiety and pain associated with mammography use in a sample of women stratified according to breast cancer risk. **Design:** This prospective observational study. **Setting:** Department of Obstetric and Gynecology, Benazir Bhutto Hospital. **Period:** August 2011 to June 2012. **Patients & Methods:** Women awaiting screening mammography in the reception area were asked to complete a questionnaire containing demographics for calculation of breast cancer risk and the Likert scale for anxiety before the procedure and VAS for assessment of pain after the procedure. **Results:** Our study included 100 women undergoing screening mammography with an average age of 53.9±8.8 years. 15% were classified "higher risk" by the Gail model. The average anxiety level was 4.03±1.3 on Likert scale and average pain during the procedure was 3.3±2.18 on VAS. Significant differences (p<0.05) were found between average and higher risk groups. **Conclusions:** The population of women in this sample appears to have a level of breast cancer worry and procedure related pain that is proportional with their risk for developing breast cancer.

Key words: Breast cancer, anxiety, pain, mammography

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INTRODUCTION

In the year 1999, new cases of breast cancer detected were 18700 and number of deaths recorded due to the breast cancer were 5400¹. Early detection can reduce deaths from breast cancer in those women who are at average risk¹. Screening mammography decreases mortality in women of 50-70 years of age. Recently advanced methods of diagnosis have improved breast cancer risk assessment, the American Cancer Society recommends yearly mammograms starting at age 40 and continuing for as long as a woman maintains good health². However, the turn up of women for screening mammography is very low. Many factors account for this including breast cancer anxiety³.

It is not uncommon for the patients to misunderstand their risk for cancer due to widely

available information on breast cancer risk assessment⁴. Women tend to overestimate their breast cancer risk^{5,6}, and this misjudgment of risk can cause anxiety, which can be significantly enhanced by going through mammography procedure⁷. Although a reasonable concern about breast cancer risk can encourage the women to become more involved in screening mammography⁸, however, pathological anxiety about breast cancer risk can result in reduced compliance with the screening mammography recommendations⁹. The American Cancer Society 2010 screening guidelines for breast cancer comments that the improved communication methods and strategies to diminish anxiety are priority for research^{10,11,12}.

Aim of study was to explore breast cancer related anxiety in women awaiting screening mammo-

graphy. This study sought to find out the prevalence and degree of pre procedural anxiety and procedure-related pain, and the relationship of anxiety and pain with demographic factors, and with known risk factors for developing breast cancer.

MATERIAL AND METHODS

This prospective, observational study was conducted over eleven months (August 2011–June 2012) at the Department of Obstetrics and Gynecology, Benazir Bhutto Hospital, Rawalpindi. A convenience sample of women was surveyed just before and after their scheduled mammography. Informed consent was obtained from all the participants. The study was approved by the Benazir Bhutto Hospital Ethical Committee. Mammograms are categorized into Screening mammogram (asymptomatic women) or diagnostic mammogram (work-up of a breast complaint or abnormal finding) or Surveillance mammogram (for women who have a history of breast cancer). Our study only included screening mammography patients whereas diagnostic and surveillance mammogram were excluded from the study.

Women scheduled for mammography were asked to complete a questionnaire in the waiting room containing demographic for calculation of breast cancer risk, the Likert type scale for anxiety and VAS for assessment of pain. Relevant medical history was provided by a questionnaire completed by the patients and radiographer. Anxiety before the procedure was assessed via Likert scale: “1” indicating “no worry”, “4” indicating “somewhat worried” and “7” indicating “extremely worried. Pain during the procedure was assessed via visual analogue scale: “0” indicating “no pain”, “5” indicating “somewhat” and “10” indicating “severe pain.” “Higher risk” women were defined as those with a prior history of breast cancer, or a Gail model¹³ predicted 5-year cancer incidence of >2% and >1.5 times risk for age. “Average risk” for breast cancer will be defined as a risk equal to that predicted for average woman of that age by the Gail model.

The Gail Model tool is based upon data from the Breast Cancer Detection Demonstration Project (BCDDP). It allows calculation of a woman's individual risk of developing breast cancer over the next five years and until age 90, based on the following data for the individual:

- Current age
- Age of menarche
- Age of first live birth
- Number of first degree relatives with breast cancer
- Number of previous breast biopsies
- Whether any breast biopsy has shown atypical hyperplasia
- Race

The tool was accessed online at www.cancer.gov/bcrisktool/.

A biostatistician analyzed data using SPSS 17. The anxiety and pain scores were presented as mean±standard deviations. The scores were compared between average and higher risk groups using the independent samples t test. Significance was determined at p value<0.05 with 2-tailed tests.

RESULTS

The age of the patients ranged from 35 to 70 years with an average age of the participants of 53.9±8.8 years. The average at menarche was 13.5±2.6 years. The average age at time of first live birth was 24.3±6.7 years. 85% women did not have a first degree relative with breast cancer, 13% had 1 and 2% had > 1 first degree relatives with breast cancer. 5% women had previous breast biopsy and one of them had shown atypical hyperplasia. 15 women (15%) were classified “higher risk” by Gail model or a prior history of breast cancer. 99% experienced some degree of anxiety and 88% experienced some degree of pain (only 1% had no anxiety and 12% experienced no pain).

The average anxiety level was found to be 4.03±1.3. Significant differences (p<0.05) were found between average and higher risk groups. Hence women awaiting screening or diagnostic mammography were somewhat worried about developing breast cancer and worry was

significantly higher in “higher risk” women (anxiety scores 3.6 ± 0.93 and 6.1 ± 1.12 between average and higher risk groups respectively, $P < 0.05$).

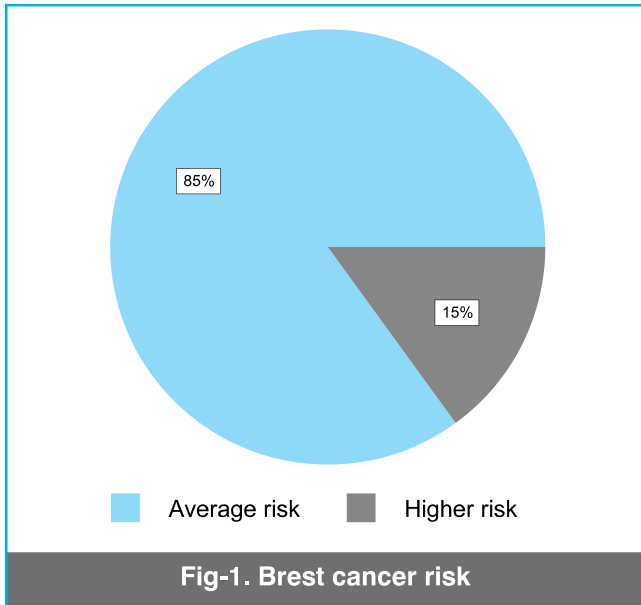


Fig-1. Brest cancer risk

The average pain during the procedure was found to be 3.3 ± 2.18 . Significant differences in pain scores ($p < 0.05$) were found between average and higher risk groups. Hence women undergoing mammography experiences mild pain and pain was significantly higher in “higher risk” women (pain scores 2.8 ± 2.0 and 5.8 ± 1.2 between average and higher risk groups respectively, $P < 0.05$).

The procedure related pain correlated significantly and positively with preprocedural anxiety; Pearson correlation coefficient= 0.422, $p = 0.00$. Hence women who were more anxious prior to the procedure experienced more pain during the procedure.

	Average risk group	Higher risk group	P-value
Anxiety	3.6 ± 0.93	6.1 ± 1.12	0.00
Pain	2.8 ± 2.0	5.8 ± 1.2	0.00

Table-I. Mammography related anxiety and pain and risk group

Table-II. The Gail Model for assessment of breast cancer risk

1. Does the woman have a medical history of any breast cancer or of ductal carcinoma in situ (DCIS) or lobular carcinoma in situ (LCIS)?
2. What is the woman's age?
3. What was the woman's age at the time of her first menstrual period?
4. What was the woman's age at the time of her first live birth of a child?
5. How many of the woman's first-degree relatives - mother, sisters, daughters - have had breast cancer?
6. Has the woman ever had a breast biopsy? (How many breast biopsies (positive or negative) has the woman had? Has the woman had at least one breast biopsy with atypical hyperplasia?)
7. What is the woman's race/ethnicity?

DISCUSSION

Despite the widespread availability of mammography, many women do not follow the accepted guidelines for mammography²³. Only a small proportion of women undergoing mammography come for screening purpose²³. According to the American Cancer Society, one third to one half of women do not follow screening guidelines²³. In a local study at Shaukat Khanum Memorial Cancer Hospital and Research Center, Lahore out of 87 patients, only 12 (13.8%) had attended the hospital for screening mammography¹⁵. This is mostly due to lack of awareness of these guidelines not only in the general population but also among the doctors¹⁵. Anxiety is also one contributory factor to this low turn up for screening mammography⁷. One of the most commonly reported reasons for this lack of adherence is the pain and anxiety associated with mammography⁷. Most women who choose not to rescreen cite pain during the procedure as the primary reason¹⁶.

Our study included women with an average age of 53.9 ± 8.8 years. 15% were classified “higher risk” by Gail model. The average anxiety level was 4.03 ± 1.3 on Likert scale and average pain during the procedure was 3.3 ± 2.18 on VAS. Significant

differences ($p < 0.05$) were found between average and higher risk groups. The population of women in this sample appears to have a level of breast cancer worry that is proportional with their risk factors for developing cancer. This reached statistical significance when taking into account the most commonly used risk predictor, the Gail model. Since women at higher risk for developing breast cancer harbor more anxiety, and thus should be targeted for efforts to reduce cancer worry.

Many international studies have shown similar results¹⁷. In a survey of 1085 women in New Zealand¹⁸, stress levels and pain during mammography were related to ethnicity, education level and family history¹⁸. In the study by Keemers-Gels 72.9% described mammography as mild to severely painful¹⁹. In our study preprocedural worry has been found to be a significant contributor adding to procedural pain²⁰.

We used simple likert scale for anxiety and VAS for pain because most of our patients were not highly educated enough to understand the complex scales. Most international studies have used well validated tools like State and Trait Anxiety Inventory (STAI)²¹ and World Health Organization Quality of Life assessment instrument (QoL) or the Hospital Anxiety and Depression Scale (HAD).

Our study has certain limitations. The effect of high levels of anxiety on the participation breast cancer screening has been mentioned in literature. However our article does not tell the number of patients who have developed high levels of anxiety that prevented them from participating in screening mammography.

This study may serve as the backdrop for upcoming research on the outcome of counseling regarding breast cancer risk and awareness of women's cancer risk, willingness to participate in breast cancer screening and in acquiescence with breast cancer screening guidelines.

Anxiety comes out as a hurdle in patients undergoing screening mammography¹⁷. Future

researches on how to reduce anxiety around screening needs to be done. The responses of preprocedural supplemental educational sessions and relaxation techniques training in plummeting mammography-related anxiety are contradictory^{22,23}. It is expected that patient compliance with screening recommendations may augment if procedure related worry can be reduced using a simple intervention which is noninvasive and inexpensive²³.

CONCLUSIONS

Majority of the women undergoing screening mammography experienced preprocedural anxiety and pain during the procedure. The population of women in this sample appears to have a level of breast cancer worry and procedure related pain that is proportional with their risk for developing breast cancer.

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