ORIGINAL RESEARCH PAPER

General Surgery

ASSESSMENT OF BREAST CANCER INCIDENCE IN PATIENTS WITH MASTALGIA AND ROUTINE SCREENING

KEY WORDS:

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INTRODUCTION

About 70% of the women experiences breast pain once in their life time[1]. Mastalgia is described as tension, discomfort, and ache in breast[1]. The prevalence of cancer in patients manifesting with breast pain is reported to be 0.3-2% [2]. As breast cancer awareness increases, the concern that breast pain may indicate malignancy contributes to the tendency of breast pain to be the most common breast symptom and leads to a woman consulting a breast surgeon[3]. Breast pain is categorized broadly in to two types; cyclical and non-cyclical breast pain. Cyclical mastalgia is a unilateral or bilateral pattern of pain or tenderness, frequently associated with swelling that reduces with the menstrual cycle. Noncyclic mastalgia tends to be unilateral and is more local than cyclical breast pain. The location of the pain can usually be localized. Typically, most women who had non cyclic mastalgia are in the fourth or fifth decade of life at the time of diagnosis.

In younger women (below 40 years of age), breast cancer is more difficult to diagnose because breast tissue is usually more dense that of older woman. Furthermore, breast cancer in young women may be aggressive and less likely to respond to treatment. The American Cancer Society (ACS) suggests performing a monthly breast self-examination for all women over 20 years of age. In addition to monthly breast self-examination, an annual clinical breast examination is recommended for all women from the age of 20 years.

The aim of this study is to investigate the results and findings of female patients who applied to our outpatient department with mastalgia and routine screening to determine if there is increased incidence of breast cancer in patients with mastalgia.

MATERIAL AND METHODS

The study was conducted on the patients visited with the complaint of mastalgia in the Outpatient department of General Surgery at Indira Gandhi Institute of Medical Sciences, Patna from August 2019 to March 2020.

300 womens who visited our opd were divided into 2 groups:-

(1). The Asymptomatic group or control group:-which included womens experiencing routine breast screening (n = 100); and the

(2). Mastalgia group:-which included women with the complaint of breast pain (n =200).

Exclusion criteria: were breast cancer history, palpable breast mass, nipple withdrawal and/or breast nipple discharge, structural disorder, pregnancy or breastfeeding, trauma to the chest skin, presence of abscesses, suspected entities, previous thoracic surgery, family history, or hormone replacement treatment.

Our diagnosis algorithm of patients with mastalgia complaints was as follows:-

All ultrasonography and mammography examination were done in department of radiology at IGIMS. Women aged ≥ 40 years who had experienced mammography in the previous six months were assessed with ultrasonography and prior mammograms.

STASTICAL ANALYSIS

Statistical examination was carried out using *SPSS software* (Version 20.0, SPSS Inc., Chicago, IL, USA). If continuous variables were normal, they were described as the mean ± standard deviation ($p > 0.05$ in Kolmogorov-Smirnov test or Shapira-Wilk ($n < 30$)), and if the continuous variables were not normal, they were described as the median. The continuous variables were compared by the use of *Student t test* depending on parametric values; respectively. The categorical variables between the groups were analyzed by using the Chi-square test or Fisher's Exact Test. The level for statistical importance was predetermined at $p < 0.05$.

RESULTS

300 women were included in the research in accordance to the exclusion criteria: The control group of 100 women's had a mean age of 44.2 ± 11.9 (range 14-86) whereas mastalgia group' comprised 200 women's with a mean age of 43.4 ± 11.7 (range 13-77). There was no statistically significant difference in age between control with breast pain groups ($p = 0.195$) . In mastalgia group 15% had cyclical pain whereas rest 85% had noncyclical mastalgia.

Of the patients in Group 1, 58% were premenopausal and 42% postmenopausal while in group 2, 62% were premenopausal and 48% postmenopausal. There was no statistical significance between two groups ($p = 0.190$).

Mammography was performed in 45% of the control group and 39% of the mastalgia group, and ultrasonography was performed in 90% of patients with the control group and 93% in the mastalgia group.

There was an important correlation between the two groups concerning BIRADS classification in mammography. BI-RADS category was higher in mastalgia group. BI-RADS 1 was 47% in the control group and 37% in the mastalgia group, while 39% in the BI-RADS 2 control group and 53% in the mastalgia group. BI-RADS 3 was 3% and 7%, respectively ($p = 0.0001$). Regarding breast density, there was an association between two groups. Breast parenchyma density was observed more densely in the breast pain group ($p = 0.0001$). Usg findings of 50% of the patients in group 1 and 45% in group 2 were normal respectively. Lesions were detected in 49% in control group and 55% in mastalgia group ($p = 0.049$). The most common benign lesions in both groups were fibrocystic, fibroadenoma and ductal ectasia. There was no important correlation between the two groups regarding lesion distribution.

In both groups, 1% were found to have breast cancer. Two of the ten patients who were diagnosed with cancer were detected by US as the first image and by mammography with US in the other eight patients.

According to mammography findings; BIRADS4 in 2 patients and BIRADS5 in 1 patient were present in the control group while BIRADS4 in 4 patients and BIRADS5 in 1 patient were

found in the mastalgia group. In patients with cancer, type 3 densities were observed in 2 womens in the control group and four womens in the mastalgia group. Type 2 densities were detected in 1 patient in both groups.

All patients were diagnosed with cancer by performing a trucut biopsy. Pathologic findings revealed that; in the control group, invasive ductal carcinoma was found in 1 patient. In the mastalgia group, invasive ductal carcinoma was observed in 1 patient and lobular carcinoma *in-situ* in other.

All patients who had breast cancer were non-cyclic in mastalgia group.

DISCUSSION

Mastalgia is one of the most frequent breast symptoms in surgery out patients. Even though studies support the view that no strong relations exist between breast pain and breast cancer, the uneasiness and fear of breast cancer caused by pain are persistent. Several studies suggest that cyclic breast pain may be an independent and beneficial clinical sign of raised breast cancer risk particularly in premenopausal women[3]. Nevertheless, other researchers have shown a protecting effect of breast cancer risk, leading patients to early medical attention and have not presented a general rise in breast cancer risk. In our study, breast cancer rate in patients with mastalgia (n = 200) was 1%. 1 patients was postmenopausal, and another was premenopausal. Mastalgia type was non-cyclic in all cases. In routine screening group breast cancer rate was also same i.e. 1% and all of the patients with breast cancer in this group were postmenopausal.

Breast imaging for any type of breast pain can help determine if there is an underlying and curable cause. It is not performed simply to rule out breast cancer. Even if it is negative, screening is beneficial to relieve the women's anxiety and to provide guidance on possible treatment options with relevant physicians. Reassurance has been attributed as the main reason for imaging of these patients. Howard, et al.[4] showed that the initiation of an imaging assessment of breast pain in a negative clinical examination did not lead to an increase in cancer detection compared to non-breast pain.

Breast pain is one of the indications for diagnostic mammography listed in the ACR Application Manual for Scanning and Diagnostic Mammography Performance[9].

In our study mammography was performed in 40 % and Ultrasonography was done in 93% of the patients who complained of mastalgia. Usg in young women is preferred to mammography. Loving, et al.[5] showed 100% sensitivity with 100% negative predictive value in breast Usg with focal mammary manifestations and symptoms in women under 30 years of age. In a retrospective study by Leung, et al.[6] , 99 patients who presented with focal breast pain without associated palpable mass had 110 targeted Usg examinations (65% of patients had mammography).No cancers were detected at the site. The authors concluded that imaging is primarily beneficial for patient assurance in patients with focal breast pain targeting ultrasonography. However, their patient populations, mostly young patients with no family history of breast cancer, were low risk.

In a retrospective research of Tumyan, et al.[4], diagnostic mammography and usg evaluation were performed in 86 consecutive patients with a complaint of focal breast pain without palpable mass. Four cancers were detected (4.6%): 2 in areas of pain (2.3%) and two incidentally, unrelated to the area of pain. Both cancers in the region of pain were seen both in mammography and in usg.

Duijm, et al [5] prospective follow-up study of 987 patients (1992-1996, two-year follow-up), assessed breast screening (range; age 10-86) in women with only mastalgia (diffuse or focal). The control group was 987 asymptomatic women who applied for a screening mammogram. Of the women's in the mastalgia group, 0.8% had breast cancer, whereas 0.7% of the control group who were asymptomatic had breast cancer. In our research, the incidence of cancer in both the mastalgia and control group was 1% respectively.

Limitation of our study was retrospective in nature. Prospective, multicentric, and follow up studies are needed.

CONCLUSION

When we compare patients with mastalgia symptom and routine control, there is no difference in the incidence of breast cancer. Breast cancer risk was not increased in women presenting with breast pain.

Most patients with breast pain are exposed to imaging methods to exclude the cancer suspicion. However, breast imaging for any type of breast pain can help to determine if there is an underlying and curable cause.

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