ORIGINAL ARTICLE

Evaluation of Risk Factors for Carcinoma Breast in Pakistani Women

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ABSTRACT

Objective: To evaluate the risk factors for breast cancer in women attending OPD Breast Clinic, Sir Ganga Ram Hospital, Lahore and compare the local with the western risk factors.

Method: A cross-sectional study was conducted at OPD Breast Clinic from January 2008 to June 2013. A total of 200 females were included. Diagnosis of breast cancer was based on histopathological findings. Age at presentation, stage and type of carcinoma breast, age at menarche, age at menopause, marital status, age at first full term pregnancy, parity, breast feeding history (12 months at least), use of oral contraceptives (regular uptake for at least one year), family history of breast cancer and other cancers (first degree relatives), smoking (20 pack years), were evaluated as risk factors for breast cancer. Demographic data and information related to risk factor were collected employing a short structured proforma.

Results: The mean age of diagnosis was 45 years. Presentation at advanced stage was most common (61%) and Invasive Ductal CA was the most common type (95%). 99% of the patients were married, 93% parous, and 96% patients had age <30 years at first full term pregnancy. 78% had a history of breast feeding for 12 months. Early menarche (≤12 years) and late menopause (≥50 years) were seen 20% and 3.6% of patients respectively. Only 10% of patients had used oral contraceptive pills. 90% were non smokers, and 35% were obese with BMI>30. Family history of breast cancer was +ve in 12% of patients and 13% of patients had first degree relatives affected from other types of cancer.

Conclusion: In Pakistan, the females presents with breast cancer at a younger age (<50 years) and with an advanced disease (mostly Stage III). Female population here manifests low levels of traditional risk factors because they usually exhibit high fertility levels, early age at first pregnancy, multiple births, and extended breast-feeding as observed in patients attending Breast Clinic, SGRH. So the cause can be genetic susceptibility in females or environmental factors which are yet to be looked into.

Keywords: Breast cancer, risk factors

INTRODUCTION

Breast cancer is most frequently diagnosed cancer in females throughout the world with one million new cases each year and among females it is the second leading cause of death. All women regardless of their racial or ethnic origin or heritage are at risk of developing breast cancer[1]. More than 1.2 million people are diagnosed with breast cancer worldwide every year according to a World Health Organization [WHO] figures.[2,3]

In Pakistan, Carcinoma breast continues to be the commonest malignancy in pre and postmenopausal women. The annual incidence has been reported to 90,000 cases per year i.e one in every nine Pakistani women is likely to suffer from breast cancer with the presentation at younger age group and an advanced stage being more common.[4] The annual rate of age standardized breast cancer in Pakistan is 50/100,000 [5,6] which is the highest amongst other Asian countries like India, Japan, China and Philippines although the prevalence of the risk factors is similar.[7,8] In India, with similar cultural and socioeconomic background, the incidence is 19/100,000 population.[7]

The present study was performed on 200 patients affected with breast cancer who presented to Out Patient Breast clinic, Sir Ganga Ram Hospital, Lahore with the objective of determining the probable local risk factors and comparing them with the standardized western risk factors.

MATERIALS AND METHODS

This cross-sectional study was conducted at Outpatient Breast Clinic, Sir Ganga Ram Hospital, Lahore from January 2008 to June 2013. Two hundred females were included in the study. Diagnosis of breast cancer was based on histopathological findings. Subjects suffering from major illness like hypertension, diabetes mellitus,

ischaemic cardiopathy and other cancer were excluded.

A specifically designed short structured questionnaire was used to collect data regarding risk factors for breast cancer from each subject. Informed consent was taken from the subjects. Age (less than or greater than 50 years), tumour size (greater or less than 5 cm) synonymous with disease stage, marital status (married or un-married), age at first full term pregnancy (less than or greater than 30 years), breast feeding history (12 months at least), smoking (20 pack years), parity (parous or nulliparous), use of oral contraceptives (regular uptake for at least one year), and age at menopause (less than or greater than 50 years) were observed. Menopause was defined as twelve consecutive months of amenorrhoea without obvious cause. Family history of breast cancer and other cancers in first degree relatives was also enquired. BMI was calculated by using the formula (Weight in kg/Heigt in meter^2). Obesity was defined as BMI $>$ 30.

Collected data was analyzed using Statistical Package for Social Sciences [SPSS] version 10.0.

RESULTS

200 patients with carcinoma breast were included in the study. The mean age of diagnosis was 45 years. Advanced disease stage was most common (122 i.e 61% of patients having tumour $>$ 5 cm) and Invasive ductal carcinoma was the most common type in this study with a total of 156 patients (95%) followed by Invasive lobular carcinoma in 8 patients (5%). 198 (99%) patients were married and 2 (1%) were unmarried. 14(7%) patients were nulliparous; rest of the patients (93%) were parous with younger age at first full term pregnancy (96% patients having age $<$30 years ; mean age 20 years). 157 (78%) patients had breast-fed their child for 12 consecutive months. Early menarche i.e ≤ 12 years of age was seen in 40 (20%) patients and late menopause i.e ≥ 50 years was seen in 7 (3.6%) patients only. 20 (10%) patients had used oral contraceptive pills regularly for 1 year. 70 (35%) patients were found to be obese with BMI $>$30 and 130 (65%) patients with BMI $<$30. Family history of breast cancer was +ve in 25 (12%) patients and 24 (13%) patients had first degree relatives affected from different type of cancers. 90% of the patients were non smokers.

Risk evaluation of Breast Cancer Patients

Sr.No.	Variables		Cases	Percentage
1.	Age at Diagnosis	$<$50 years	150	75%
		$>$50 years	50	25%
2.	Tumour size	$<$ 5 cm	78	39%
		$>$ 5 cm	122	61%
3.	Type of CA breast	Ductal CA	190	95%
		Lobular CA	10	5%
4.	Age of menarche	$<$12 years	40	20%

		>12 years	160	80%
5.	Age of menopause	<50 years	193	96.4%
		>50 years	7	3.6%
6.	Marital status	Married	198	99%
		Unmarried	2	1%
7.	Parity	Nulliparous	14	7%
		Parous	186	93%
8.	Age at first full term pregnancy	<30 years	193	96.4%
		>30 years	7	3.6%
9.	Breast feeding	Yes	157	78%
		No	43	22%
10.	Use of Oral Contraceptive pills	Yes	20	10%
		No	180	90%
11.	Family history of Breast Cancer	Positive	25	12%
		Negative	175	88%
12.	Family history of other cancers	Positive	24	13%
		Negative	174	87%
13.	BMI	< 30	130	65%
		> 30	70	35%
14.	History of smoking	Yes	180	90%
		No	20	10%

Table 1: Age At Diagnosis

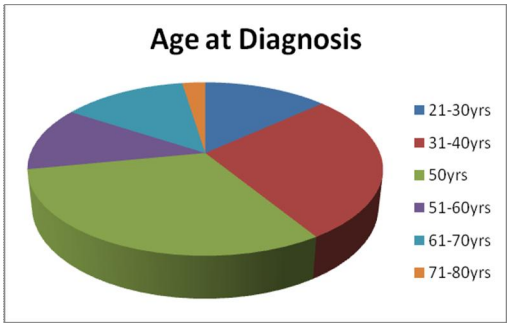


Table 2: Tumour Type and Tumour Size

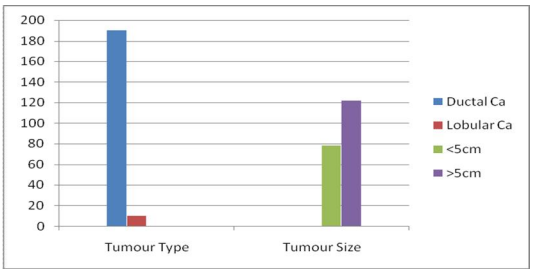


Table 3: Reproductive History

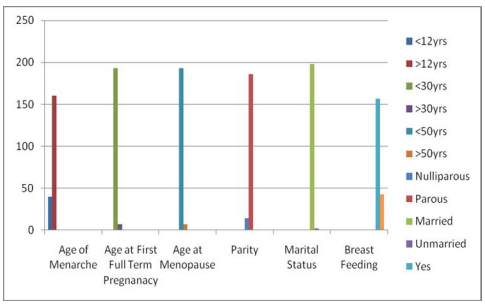


Table 4: Family History Of Breast And Other Cancers

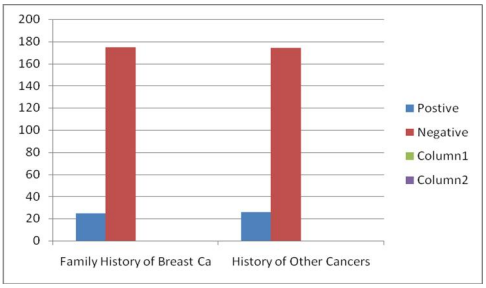
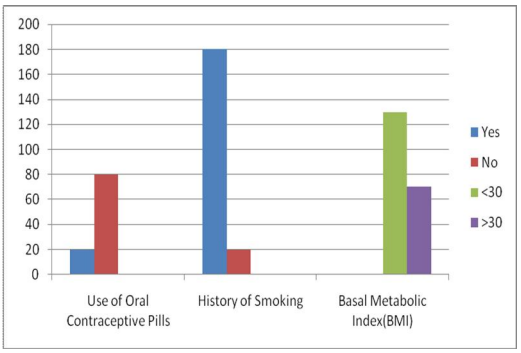


Table 5: Other Risk Factors



DISCUSSION

This study was conducted to assess the risk factors for breast cancer and its various aspects in the local setting. The results of the present study were similar to most of the other local studies but found quite different from those of Western statistics where patients awareness and breast screening programs has made possible, detection and management of the disease at an early stage.

In our study, the most common age group was 41-50 years and the mean age of diagnosis was found to be 45, against the mean age of diagnosis of 54 in Western countries where as in another local study done by Siddiqui et al. 2003, the mean age at diagnosis was found to be 49.[1] This is similar to other local studies done in various other regions of Pakistan. Siddiqui M[9] and Siddiqui K[10] have also found the disease to be commonest in the middle age group (40–59 years). We do not have a specific reason for this, but it has been hypothesized that a comparatively high proportion of pre-menopausal breast cancer in our region is attributable to much higher number of young population, and protective effect of high age at menarche and low age at first full term pregnancy on development of breast cancer in later life. Similar results have been noted in other Asian subgroups, i.e, Iranian and Vietnamese.[11]

Tumour size has been classed as a category I prognostic marker in the College of American Pathologists Consensus Statement 1999.[12] A larger tumour size is associated with usually advanced stage of presentation. In our study, 61% of patients presented with tumour size >5 cm and 39% patients with tumour size <5 cm. The cause of late presentation was found out to be illetracy and lack of awareness among female population in Pakistan.

In the present study the most common histopathological type found was invasive ductal carcinoma. The same histopathological type has also been found commonest by others including Siddiqui M[7] and Aftab.[13]

Western studies have shown that a woman's risk of developing breast cancer is related to her exposure to endogenous estrogen and progesterone. Factors that increase the duration of exposure to these hormones i.e early menarche, late menopause, later age at first pregnancy, and nulliparity have been associated with an increase in breast cancer risk. Pregnancy and breastfeeding both reduce a woman's lifetime number of menstrual cycles, and thus her exposure to endogenous hormones.[14] Reverse has been found true in our population. In our study we see that 80% of patients had late onset menarche, 96 % had first full term pregnancy before 30 years of age, 93% were parous and 78% of patients had breastfed their child for full 1 year. These figures show that reproductive factors are not playing much role in development of breast cancer in our society.

5% of breast cancer cases are familial due to mutation in BRCA1 or BRCA 2 genes. The life time risk of developing breast cancer is 60%, ovarian cancer is 40% and there is also an increased risk for other cancer types, such as pancreatic, prostate, colorectal and gastric cancers. The risk doubles if a woman has a first degree relative (mother, sister, or daughter) with breast cancer.[14,15,16] This risk further increases if relative was affected before the age of 50 years.[14,15,16] In the present study, 12% of the patients had a positive family history of breast cancer, whereas in one local study, 47.3% of patients have been noted to have positive family history. The family history of other types of cancer was found positive in only 13 % of cases in our study.

Conflicting evidence exist regarding role of oral contraceptives as risk factor for breast cancer. There is a small increase in relative risk of developing breast cancer in women on contraceptives for 10 years after stopping them.[17] In our study, no significant association between oral contraceptive and breast cancer was noted. 90% of our patients had either not used oral contraceptives ever or took it irregularly for a little period.

Different studies suggest that high body mass index is associated with a two fold increase in the risk of breast cancer in postmenopausal

women.[5,18] In the present study, however, only 35% of patients were found obese. Similarly, smoking as a risk factor could not be established in our study since 90% of patients were non smoker.

In summary, carcinoma of the breast tends to be different in coloured and white races. Key factors that affect breast carcinoma development are the roles of genetics and environment. Other factors can be the change in immune status and host resistance, and the biologic status determinants of breast carcinoma.

CONCLUSION

In Pakistan, the majority of the females present with pre-menopausal breast cancer mostly at an advanced stage. The incidence is highest amongst other Asian countries which is quite alarming and should be considered a serious health problem. An interesting fact is that the female population here does not manifests the classical risk factors which are thought to be responsible for breast cancer development in West. So the cause may lie in the genetic susceptibility of Pakistani females towards developing breast cancer or the difference in dietry, racial or environmental factors. This may provide a partial explanation but has yet to be sorted out. Further complicating the picture, there are cultural and socioeconomic deprivations that affect the presentation, management and thus the prognosis of the disease.

The probability that Pakistani women are unknowingly predisposed towards developing breast cancer due either due to genetic or environmental factors suggests the importance of creating a culture in which early detection and thus early management is prioritized.

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