

A Differential Study of Breast Cancer Patients in Punjab, Pakistan

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Objective: To determine the comparative pattern of distribution of four stages of breast cancer in 2 different hospitals in Lahore.

Methods: For all the variables under study test-statistic t has been used for stagewise comparisons between the Institute of Nuclear Medicine and Oncology (INMOL) and Shaukat Khanum Memorial Cancer Hospital (SKMCH) whereas the four stages of the disease were compared by using test-statistic F .

Results: The study is based on 1171 patients (672 from INMOL and 499 from SKMCH). This paper is an attempt to find out the pattern for the spread of breast cancer among its four stages and its comparative study between the two hospitals, at stage level. It unveils the important fact of late presentation of breast cancer (25% of INMOL and 36% at SKMCH) compared in 10% or less in international literature (18). No impact of the variables under study was observed ($P > 0.05$) on the stage of the disease.

Conclusion: Most of the cases (71% in INMOL and 63% (SKMCH) present at stage III and IV of breast cancer therefore it is necessary that attention should be made to increase the awareness about the need and benefits of early detection of breast cancer (JPMA 53:478;2003).

Introduction

Cancer is the second leading cause of death in U.S.^{1,2} The age-adjusted cancer death rates are increasing in the U.S. population. Cancer is categorized into four stages (stage I, stage II, stage III, stage IV). Stage I indicates the early disease and stage IV the most advanced stage of the disease.

Among major cancers, cancer of breast is the most common cancer in women in United States and probably all over the world.³ Cancer of the breast is the most feared cancer among women due to its frequency and psychological impacts.⁴ Breast cancer is the second most common cause of death³ and it is the third most frequent cancer of world, after lung and stomach, but it is by far, the most common cancer in women, in whom it is responsible for the 21% of new cancer cases worldwide.⁵ This corresponds to a lifetime risk for a woman of about 6.2% in developed countries (on average) and 2.2% in developing countries.⁵ There has been an increase in the incidence of breast cancer in developing countries.^{6,7} Five year survival of breast cancer at stage IV (10%) is very poor. However if detected at an early stage, it can be treated and the probability of survival (up to 5 years) is 85%.⁸ Survival varies depending upon age at diagnosis and is better for younger women (except for women less than thirty years age at diagnosis). Survival by stage at diagnosis is the most important prognostic variable. For the SEER registries in the USA, five-year survival for the localized cases is 96.8%, while for cases with metastasis it is only 20.6%.⁹ Even in developing countries the differences by stage at diagnosis is very marked.¹⁰

In Pakistan, the most frequently diagnosed cancer among females is cancer of breast (nearly one in five female patients).¹¹ Age pattern of the incidence of breast cancer in Pakistan is similar to that quoted in other studies.¹²⁻¹⁶ The level of cumulative incidence of breast cancer seemed to be substantially lower in Pakistan compared to that in many other countries.¹² The estimated probability was one to two percent that an average Pakistani woman would be treated for breast cancer by the time she reached her 65th birthday.¹² The epidemiology of Breast Cancer in Pakistan is difficult to describe mainly due to a lack of tumor registry system in Pakistan.

Patients and Methods

A questionnaire with variables related to breast cancer was designed with the consensus of oncologists for the study. The demographic, social, menstrual and reproductive history were included in the questionnaire. Two leading hospitals dealing with cancer related diseases were selected for the study; INMOL and SKMCH. Six hundred and eighty one female patients were interviewed at INMOL in the presence of oncologists during a period of two years (January 1997 to December 1998). Information was compiled on the pre-designed questionnaire. Additional information was also obtained from the relatives of the patients if some clarification or confirmation was required.

Five hundred and eighteen female patients attending breast clinic at SKMCH were interviewed at their first visit. The period ranged from July 1996 to December 1998. The information was recorded on the interview schedule, under the supervision of expert medical officers and with the assistance of the hospital staff. Additional information was obtained from the relatives of the patients, if needed. These cases were further scrutinized to confirm cancer of the breast. Finally 16 cases that were coded as "Not CA Breast" i.e., they were not diagnosed as cases of the breast cancer, by medical oncology department, were excluded and the study was based on 502 biopsy-proven breast cancer cases.

Patients attending INMOL had received the base line treatment in some other hospital and they were referred to INMOL for chemotherapy / radiotherapy. The tests leading to stage of their cancer were already in process. Therefore the stage records were available for 470 patients out of 681. Contrary to that, the patients visiting SKMCH for the first time had to undergo all the tests and hence the reports of the tests were still awaited. Therefore the information regarding the stage of the disease could be made available for 179 patients only for this hospital.

Results

Statistical analysis was done by using SPSS package 11. Table 1 presents stage wise distribution of the breast cancer data at INMOL and SKMCH. For this study, the maximum number of cases is falling in the age group 40-50; 28.6% cases at INMOL and 30.1% cases at SKMCH.

Mean age at presentation was 47.5 ± 11.02 years and 45.4 ± 12.21 years at INMOL and SKMCH respectively (Table 2). The patients at INMOL were older in age than the patients at SKMCH. However, no impact of age at diagnosis was observed on the stage of the disease at both the hospitals ($P > 0.05$).

Age at first full term pregnancy is an important variable in the study of breast cancer. The greatest number of cases has reported their first full term pregnancy at age 18 years at INMOL and 21 years at SKMCH. The average age at 1st full term pregnancy is 22.1 ± 4.63 years at INMOL and 22.6 ± 4.66 years at SKMCH. The comparison between these ages for the two institutions for stage I to IV separately showed no significant difference for any stage of the disease at INMOL ($P > 0.05$) and at SKMCH ($P > 0.05$) (Table 3).

Age at menopause is mentioned as an important risk factor of breast cancer in literature. Many studies are being carried out by menopausal status of breast cancer patients. For our data, most of the post menopausal cases, 36.4% at INMOL and 35.4% at SKMCH have reported their age at menopause in the age group 45-50. The mean age at menopause is 45.6 ± 5.4 years at INMOL and 44.9 ± 6.52 years at SKMCH (Table 4). The between institution comparisons carried out for each stage produced no significant difference for the average age at menopause ($P > 0.05$). There was no impact of age at menopause, at the stage of the disease both for INMOL and SKMCH ($P > 0.05$).

Among the hormonal factors, age at menarche has been discussed frequently in the studies of breast cancer risk. In our study the average age at menarche was 13.69 ± 1.24 years at INMOL and 13.58 ± 1.36 years at SKMCH. The maximum number of cases (35.2%) at INMOL and (33.8%) at SKMCH reported 13 years age at menarche. Comparison of average age at menarche between the two hospitals at each stage found the difference insignificant ($P > 0.05$) (Table 4). The average age at menarche does not vary from stage to stage ($P > 0.05$) within each hospital.

In this study, height of most of the cases (84%) at INMOL was in the range 140-150cm and (60%) at SKMCH in the range 150-160cm. Mean height of breast cancer patients was 153.1 ± 6.88 cm at INMOL and 154.9 ± 8.22 cm at SKMCH. There was no impact of height at the stage of the disease at either of the two hospitals ($P > 0.05$). However, the mean height of breast cancer patients with stage II and III at SKMCH was greater than such patients at INMOL ($p < 0.05$). Overall, the breast cancer patients at SKMCH were taller than the breast cancer patients at INMOL ($p < 0.01$) (Table 6).

Among the breast cancer patients, the most frequently reported weight group was 60-70 kg. The average weight of the breast cancer patients at INMOL was 63.14 ± 14.7 kg and at SKMCH 62.6 ± 13.5 kg. No significant difference was observed between mean weights of the cases at the two hospitals for any stage of the disease ($p > 0.05$) (Table 7). The preliminary analysis of the data for INMOL and SKMCH shows that weight of the breast cancer patients has no impact on the stage of breast cancer ($p > 0.05$).

Obesity is associated with advanced stage of breast cancer diagnosis and a poorer prognosis. For this study, 42.3% of the cases in INMOL and 45.9% at SKMCH reported BMI in the normal range (below 25). Only 29.0% and 22.7% of cases were obese ($BMI \geq 30$) at INMOL and SKMCH respectively.

The results for the two hospitals do not significantly differ for stage I, III and IV (Table 8). The reason for the significant difference between the mean BMI for stage II was unknown. However, the lower BMI for the patients at stage IV for both the hospitals may be attributed to the loss of weight due to disease. Therefore height and weight of the patients were also discussed separately. No impact of BMI was observed on the stage of the disease for the patients at INMOL ($p > 0.05$) but the same was highly significant for the cases at SKMCH ($p < 0.01$).

Discussion

In this study factors like age at menarche, age at menopause and body weight do not appear to be significant when compared to published data from Western countries. An important point to note in this data is the late (stage III and IV) presentation of our breast cancer women. As advanced stage (stage IV) is considered incurable and without treatment the survival is limited (2.7 years or less)^{17,18}, every effort should be made to diagnose breast cancer at an early stage. Our data is in sharp contrast to the international literature, where only 10% or fewer women (compared to 25% at INMOL and 36% at SKMCH) will have a metastatic stage (i.e. stage IV) of breast cancer at presentation.¹⁸

A high proportion of breast cancer patients, 71% of the cases at INMOL and 63% at SKMCH have reported at stage III and IV. Such late presentation of the disease is an important aspect of this study. It points to the alarming situation due to the rising trend of breast cancer incidence in Pakistan. The public awareness of this disease may help in early detection of breast cancer, decreasing the mortality and ultimately increasing the probability of survival. If breast cancer is detected at an early stage, it is curable and may be treated better. Therefore women must be made well acquainted with the symptoms of the problems of breast cancer. Special programs like seminars, lectures and screening programs, may be arranged to educate the women in this regard.

Breast screening programs like mammogram may also be very effective in early detection of the disease but this imaging technique is very expensive and, therefore, is not affordable for the most part of the population. Breast self-examination (BSE), is the simplest mode to check one-self monthly. Trained physicians and nurses at Health Centers can teach the women, how to perform this vital and easy breast self-examination once a month.

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