Original Article

Epidemiology of Breast Cancer - A Hospital Based Study

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Abstract

Background: Breast cancer is the second most common cause of cancer in adult female. Breast cancer is common in affluent societies having a western lifestyle. Breast cancer is the most common form of cancer and is the leading cause of cancer death among females in the US. There is a large geographical variation in the incidence of breast cancer with an exception for Japan; the incidence ranks highest in high-income countries.

Materials and Methods: This study entailed all the patients suffering from carcinoma of breast who sought treatment in Government Medical College, Jammu. These patients were studied prospectively and detailed clinical history of each case regarding age, sex, weight, occupation, menstrual status, marital status, parity, age at menarche, age at first childbirth, breast feeding, familial history, past history of breast disease, and other malignancies if any were noted.

Result: A total of 50 patients with carcinoma breast were studied prospectively, and the incidence was studied in age, sex, marital status, parity, age at menarche and menopause, and various other variables. Diagnostic tools and treatment options were also studied. Observations were recorded and compared with those of other workers.

Conclusion: Following conclusions were drawn from this study. Majority of the patients were females (96%). Maximum incidence was observed in 40-50 years age group (40%). Majority of patients belong to Hindu community (82%). 72% of patients were from rural areas. Married patients account for 98% of the total patients studied. 43 female patients (88%) attained menarche by the age of 14-15 years and all the patients had started menstruating by the age of 16 years.

Key words: Breast, Cancer, Menarche

INRODUCTION

Breast cancer is the second most common cause of cancer in adult female. Breast cancer is common in affluent societies having a western lifestyle. Breast cancer is the most common form of cancer and is the leading cause of cancer death among females in the US. There is a large geographical variation in the incidence of breast cancer with an exception for Japan; the incidence ranks highest in high-income countries. More than half of the incident cases in the world occur in Europe and North America.

The incidence of breast cancer increased since 1970 even in the countries reported low rates, such as Japan, Korea, India, and even Africa which lacks accurate population data.

The developed countries with a small proportion of world population account for almost 50% of breast cancer diagnosed worldwide. In 2008, breast cancer caused 458,503 deaths worldwide (13.7% of cancer deaths in women and 6.0% of cancer deaths among men and women together) "World Cancer Report.[1]" International Agency for Research on Cancer 2008. The lowest incidence of breast cancer is reported from far eastern and Southeast Asian countries. In developing countries of Asia, the health-care burden on account of breast cancer had been steadily mounting. It is expected that in the coming decade, these countries would account for the majority of new breast cancer patients diagnosed globally.

Over 1 lakh new cases of breast cancer cases are estimated to be diagnosed annually in India. The age standardization

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incidence rates range from 6.2 to 39.5 per 1 lakh Indian women. The age adjusted rate vary from region, ethnicity, religion, with a high incidence reported at 48.3 per 1 lakh women in Parsi community in Mumbai. The rise in the incidence of 0.5-2% per annum has been seen across all regions of India and in all age groups but more in younger age group <40 years. In India, breast cancer is the second most common cause of cancer-related deaths with 53,592 breast cancer deaths in 2008 Ferlay *et al.*,[2] GLOBOCAN 2000: Cancer Incidence, Mortality, and Prevalence Worldwide.

Aims and Objectives
A. To study the distribution of the disease.
B. To study the determinants of the disease
i. Evaluation of risk factors.
ii. Treatment modalities offered and evaluation of prognostic factors.

MATERIALS AND METHODS

This study entailed all the patients suffering from carcinoma of breast who sought treatment in Government Medical College, Jammu.

These patients were studied prospectively and detailed clinical history of each case regarding age, sex, weight, occupation, menstrual status, marital status, parity, age at menarche, age at first childbirth, breast feeding, familial history, past history of breast disease, and other malignancies if any were noted.

All the patients were classified in clinical stages by TNM. Patients were given modalities of treatment such as surgery, chemotherapy, radiotherapy, and hormonal replacement therapy after receptor status (ER, PR, and HER2) in biopsy/surgical specimen and were followed routinely.

Inclusion Criteria
The study included all the patients admitted in the department of surgery and radiotherapy as.
1. Diagnosed case of breast cancer (fine-needle aspiration cytology (FNAC) or biopsy proved).
2. Case of breast lump (suspected for carcinoma) on whom FNAC was performed in the hospital.

Exclusion Criteria
All the patients of breast lump who were found to be benign after FNAC/Biopsy were excluded from the study.

RESULTS

In this study, out of 50 patients, majority, i.e., 48 cases (96%) were females, and there were only 2 male patients.

The study showed that highest incidence was in the age group of 41-50 (40%). The youngest patient was female of 30 years and oldest was a female of 71 years.

In this study, 41 cases (82%) of breast cancer were Hindus whereas 5 cases (10%) were Muslims and 4 (8%) cases were Sikh.

36 cases (72%) were from the rural area while rest of 14 cases (28%) was from urban areas.

49, i.e., 98% of the patients were married while only 1 (2%) female was unmarried.

Out of 48 patients in this study 10 patients had their menarche at the age of 12-13 years and 33 (68%) had their menarche at the age of 14-15 years. Menstruation had started by the age of 16 years in all the female patients.

It was observed that out of total 50 cases, 20 (41.66%) were still menstruating while 28 (58.3%) patients had attained their menopause.

Age of marriage in the patients studied varied from 12 to 35 years and majority, i.e., 44 (93%) females were married by the age of 21 years.

Age at first child birth in female patients in this study varied from 15 to 30 years and the majority is 37 cases out of 46 married females (80%) had their first child by the age of 21 years.

In this study 46 out of 47 married females were parous and only 1 patient was nulliparous. Maximum incidence was found in women with 3-4 children.

Lump in the breast was the most common symptom in this study and all the 50 cases presented with a lump in breast.

All the married parous females who had breast fed their children had malignancy.

In this study, only 10 patients (20%) had pain in their breast at some stage of presentation.

Out of total 50 cases, only 3 patients (6%) had nipple discharge as one of the complaints and nature of discharge was blood stained.

It was observed that majority of patients (42 patients) had a duration of symptoms up to 6 months.

In this study, 58% of cases, i.e., 29 patients had disease in their left breast whereas 42%, i.e., 21 cases had disease in the right breast.

It was noted that the most common histopathology component of the lump was infiltrating ductal carcinoma. And in 96% of cases, i.e., 48 cases it was scirrhous type, whereas papillary carcinoma and medullary carcinoma was seen in 2% cases each.

In this study, 90% of patients received radiotherapy after surgical treatment.

Only 6 patients (12%) received neoadjuvant therapy.

Out of total 32 cases (64%) received adjuvant chemotherapy and 46 cases, i.e., 92% of the patients received adjuvant hormonal therapy.

Most of the patients (92%) had their follow-up in first 6 months whereas only 2 patients did not show up for follow-up.

DISCUSSION

Breast cancer is one of the most common human malignancy and it accounts for 20% of all cancers. It is the second most common cancer in adult females. More than half of the cases in the world occur in developed countries. In India, breast cancer is the second most frequent cancer in females (19.3%). According to the latest statistics, over 10 million people will die annually by 2020.

Carcinoma of female breast is one of the most topical and controversial subjects in modern oncology. Surgery, radiotherapy, chemotherapy, and hormonal therapy comprise the standard available treatments and new therapeutic strategies, and experimental approaches are awaiting further clinical trials.

In this study, the age of the patients varied from 20 to 75 years. Highest incidence occurs in the age group of 40-50 years (40%). This corresponds to the findings of Dr. Berthold (1906) who observed that a disease occurred between the age 20 and 75 years with by far the greatest number developing between 40 and 50 years. In the study conducted by Tiwari *et al.*[3] the mean age was 30-40 years.

Reddy and Reddy[4] in their study of breast cancer in South India also reported that a maximum number of patients were in age group of 30-50 years. Similar observation was reported by Paymaster[5] that average age was 45-59 years. Baruah[6] also reported a higher incidence of breast cancer between 35 and 45 years of age.

Breast almost has immunity to carcinoma before the age of puberty, and most of the tumour occurs in women above the age of 30 years. Chelonky[7] in a review of literature reported only 2% cases below the age of 30 years till 1943, and he attributed this low incidence to delayed diagnosis of early lesions. In this study, only 1 case, i.e., 2% was found below the age group of 30 years, meaning there by that incidence of breast cancer below this age is very low although the total number of cases studied in this study was small.

Out of total 50 patients of carcinoma breast, only 2 (4%) were males. However, Tyagi[8] in his study of 92 patients observed a much higher (6.4%) incidence of male breast cancer.

Cancer of male breast usually occurs at the older age as compared to females. In this study also for both male and female counterparts, 3-5th decade was the most common.

The study covering a total of 50 cases revealed that the majority, i.e., 82% of breast cancer cases happened to belong to Hindu community whereas remaining 18% of patients are divided between Muslim (10%) and Sikh (8%). A similar study reported by Paymaster in 1964 found that half of the cancer cases in Hindu women occur in the cervix and breast is barely affected in 14% cases. Reverse is the case of Parsi women where the breast cancer is prevalent in 50% cases and cervix in only 19% cases. The higher incidence of cancer cases in Hindu community can be attributed to their preponderance in community wise distribution in Jammu region.

The study also revealed that out of 50 patients, 49 were married. Dr. Berthold's study recorded that out of total cases 72% of women were married which is further sustained by Harnett's[9] series of 2129 cases of breast cancer, only 22.1% of female patient were unmarried while 77.8% were married. Treves and Holleb[10] study showed that only 18% of patients were single.

Out of 47 married females, only 1 patient was nulliparous.

CONCLUSION

A total of 50 patients with carcinoma breast were studied prospectively, and the incidence was studied in age, sex, marital status, parity, age at menarche and menopause, and various other variables. Diagnostic tools and treatment options were also studied. Observations were recorded and compared with those of other workers. Following conclusions were drawn from this study.
1. Majority of the patients were females (96%).
2. Maximum incidence was observed in 40-50 years age group (40%).
3. Majority of patients belong to Hindu community (82%).

4. 72% of patients were from rural areas.
5. Married patients account for 98% of the total patients studied.
6. 43 female patients (88%) attained menarche by the age of 14-15 years and all the patients had started menstruating by the age of 16 years.
7. 20 (41.66%) patients were in premenopausal age group while the rest (58.3%) was postmenopausal.
8. 44 (93.6%) had been married by the age of 21 years.
9. Most of the married females were parous (97.8%).
10. 88% of patients had given birth to the first child by the age of 21 years.
11. All the patients presented with a lump in the breast.
12. Pain was present as a symptom in only 10 (20%) patients.
13. Nipple discharge was seen in 6% of patients.
14. Duration of symptoms ranged from 1 month to 1 year, and average duration was up to 6 months in 42 (84%) patients.
15. Left breast was the seat of malignancy in 29(58%) of cases.
16. In 37 patients (74%), the lesion was seen in the upper and outer quadrant of the involved breast.
17. Nipple involvement was seen in 6 (12%) patients.
18. The growth was fixed to the skin in 15 (30%) of patients, while pectoralis major muscle fixation was present in 7 (14%) of cases.
19. Ipsilateral axillary lymph nodes were involved in 34 (68%) patients with no patients having contralateral; lymph node involvement.
20. FNAC confirmed the diagnosis in 44 (88%) patients and only 6 (12%) patients required excisional biopsy for confirmation of diagnosis.
21. 28 (56%) cases were in clinical Stage II and 60% belonged to Stage I-II. Only 2 patients have evidence of metastasis at the time of presentation (4%).
22. Surgery was the mainstay of treatment of patients in this study with modified radical mastectomy done for the majority of patients 38 (88%). Only 1 patient in Stage IV refused any surgical treatment.
23. On histopathological examination of breast specimen, scirrhous carcinoma was the most common component (94%) whereas papillary carcinoma was seen in 2% and medullary in 2% of cases.
24. 45 patients (95%) received radiotherapy after undergoing surgical treatment.
25. As adjuvant therapy 64% patients (mostly premenopausal) received chemotherapy and almost 92% received tamoxifen therapy.
26. 46 patients had their follow-up to 6 months.

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