Pattern of Breast Cancer in a Tertiary Care Center

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ABSTRACT

Introduction: Breast Cancer is the second commonest cause of cancer death in women. Almost all women survive breast cancer if it is detected before it starts to spread. The aim of the study is to analyze the demographical profile, stage of presentation, histological type, and treatment modalities of breast cancer in a tertiary care setting.

Methods: Total 1141 cases of breast cancer had been followed retrospectively from 1999 to 2006 A.D. in a tertiary care center and their patterns were analyzed.

Results: The mean age of presentation of breast cancer was 47.30±11.57 years in female and 59.03±14.63 in male, 31 (2.1%) cases of breast cancer were male. There were 123 (10.78%) stage I, 281 (24.62%) stage II, 466 (40.84%) stage III, and 271 (23.75%) stage IV patients. Infiltrating ductal carcinoma was the commonest variety 610 (53.5%). Chemotherapy was the mainstay for treatment of breast cancer 341 (29.9%) followed by surgery 287 (25.2%).

Conclusions: Breast cancer trend is rising with more in late and advanced stages, mostly due to lack of awareness. Infiltrating ductal carcinoma is the commonest variety. Chemotherapy is the most commonly used modality of treatment. Male breast cancer present late and is not so uncommon.

Key Words: *breast cancer, chemotherapy, infiltrating ductal carcinoma, staging*

INTRODUCTION

Breast cancer is a common cause of cancer death in women and second most common cause of death after lung cancer excluding skin cancer in the United States.[1] An estimated 192,370 new cases of invasive breast cancer are expected to occur among women in the US during 2009; about 1,910 new cases are expected in men.[2] An estimated 40,610 breast cancer deaths (40,170 women, 440 men) are expected in 2009.[2] Approximately

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one out of eight women develop breast cancer in the US.[1] Almost all women survive breast cancer detected before it starts to spread.[1] Research statistics showing the burden of disease is lacking in Nepal, with one study suggesting that it is the second common cancer after cervical cancer.[3]

The aim of the study is to find out the pattern of breast cancer in terms of demographical profile, stage of presentation, histological type, and treatment modalities in a tertiary care center.

METHODS

A descriptive, retrospective study was conducted in BP Koirala Memorial Cancer Hospital (BPKMCH), Bharatpur from January 1999 to December 2006. Institutional approval was taken. The data were analyzed from the hospital medical records. All the cases showing complete profile of the patient viz. name, age, address, sex, cancer diagnosis and morphological site, stage of presentation according to Tumor, Node, Metastasis (TNM) classification, histological type and treatment modalities have been included in the study. Later, TNM staging has been converted according to The American Joint Committee on Cancer (AJCC) staging system for breast cancer. The statistical analysis was done by Microsoft excel 2007 and statistical package for social sciences (SPSS) version 13 for windows.

RESULTS

A total of 1141 cases of breast cancer have been documented over the period of six years in BPKMCH. The trend of breast cancer is increasing over the years from 1999 (Figure 1).
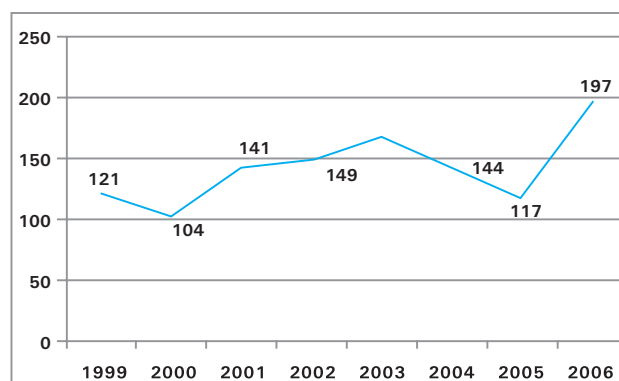

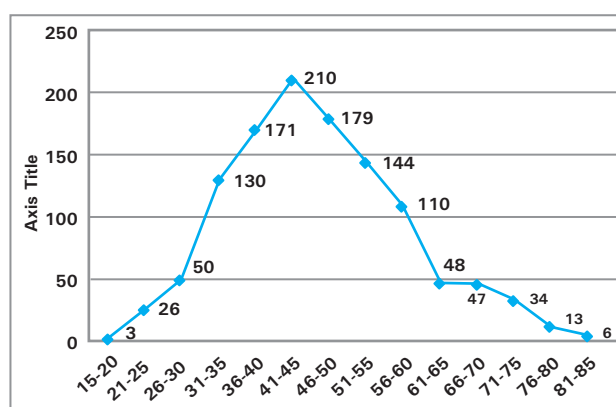**Figure 1.** Pattern of breast cancer over seven year

Figure 2. Age at presentation of breast cancer

Majority of the cases were in age group of 35 to 55 years (Figure 2).

Of the total 1141 cases, 31 (2.1%) cases of male breast cancer were found. The mean age of presentation of breast cancer in female is 47.3 ± 11.57 years with maximum age of 89 and minimum age of 16. The mean age of presentation of male breast cancer was 59.03 ± 14.63 with maximum age of 81 years and minimum age of 29 years.

Majority of the cases came from Narayani - 197(17.26%), Lumbini - 174(15.2%) and Gandaki Zone - 125 (10.9%). Among all, 120 (10.51%) cases came from the neighboring country India (Table 1).

Table 1. Place wise distribution of breast cancer

| District	Frequency (%)
Bagmati Zone	32 (2.8)
Bheri Zone	39 (3.4)
Dhawalagiri Zone	41 (3.5)
Gandaki Zone	125 (10.9)
Janakpur Zone	95 (8.3)
Karnali Zone	4 (0.3)
Koshi Zone	101 (8.8)
Lumbini Zone	174 (15.2)
Mahakali Zone	12 (1.05)
Mechi Zone	67 (5.87)
Narayani Zone	197 (17.26)
Rapti Zone	50 (4.3)
Sagarmatha Zone	73 (6.3)
Seti Zone	15 (1.31)
India	120 (10.51)
Total	1141 (100)

Total 610 (53.5%) of cases were infiltrating duct carcinoma, followed by carcinoma 469 (41.1%) of unknown variety. In cases of male, majority were carcinoma of unknown variety 15 (48.4%), followed by infiltrating ductal carcinoma 13 (41.9%) (Table 2).

Table 2. Morphological and Histological Type

Histological Type	Frequency (%) (Both Female and Male)	Frequency (%) (Male)
Adenocarcinoma,	9 (0.8)	1 (3.2)
Angiomyosarcoma	1 (0.1)	-
Basal cell carcinoma	1 (0.1)	-
Carcinoma in situ	1 (0.1)	-
Carcinoma	469 (41.1)	15 (48.4)
Duct carcinoma, desmoplastic type	2 (0.2)	-
Infiltrating duct and lobular carcinoma	1 (0.1)	-
Infiltrating duct carcinoma	610 (53.5)	13 (41.9)
Intraductal papillary-mucinous carcinoma, invasive	1 (0.1)	-
Liposarcoma	1 (0.1)	-
Lobular carcinoma	4 (0.4)	-
Medulary carcinoma with lymphoid stroma	1 (0.1)	-
Medullary carcinoma	9 (0.8)	-
Mucinous adenocarcinoma	2 (0.2)	-
Mucinous cystadenocarcinoma,	1 (0.1)	-
Myxoid liposarcoma	1 (0.1)	-
Neoplasm, malignant	6 (0.5)	-
Neuroendocrine carcinoma,	1 (0.1)	-
Non-small cell carcionoma	1 (0.1)	1 (3.2)
Papillary carcinoma,	1 (0.1)	-
Phyllodes tumor, malignant	5 (0.4)	-
Small cell carcinoma	(0.3)	-
Solid carcinoma	1 (0.1)	-
Squamous cell carcinoma	7 (0.6)	1 (3.2)
Tubular adenocarcinoma	2 (0.2)	-
Total	1141 (100)	31 (100)

Table 3. Stage of presentation of breast cancer.

Year/ Staging	Stage I and stage II	Stage III and stage IV (%)	Total
1999	58	63 (52.2)	121
2000	46	58 (55.7)	104
2001	45	96 (68)	141
2002	54	95 (64.13)	149
2003	52	116 (68.91)	168
2004	30	114 (79.16)	144
2005	38	79 (67.94)	117
2006	70	127 (64.49)	197
Total	393	748 (65.5)	1141
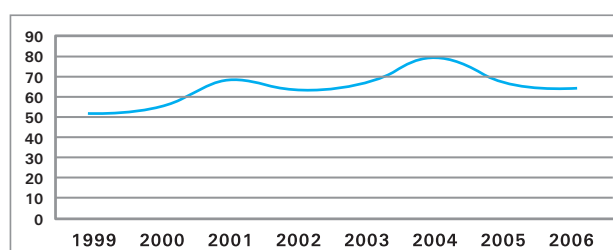
Figure 3. Proportion of late presentation (stage III and IV)

Converting the available TNM stages to various stages according to American joint committee of cancer classification, 2003, above data were obtained (Table 5). Majority of cases presented in advanced stages (Stage 2 and Stage 3). The trend of high percentage of cases presenting on advanced stages has been constantly maintained nearly at the same level from 1999 to 2006 (Figure 3). Of those the presentation of stage I was 123 (10.78%), 281 (24.62%) stage II, 466 (40.84%) stage III, and 271 (23.75%) stage IV (Table 4).

Table 4. Stage of presentation of breast cancer

Stage of presentation	Frequency (%)
1	123 (10.78)
2A	114 (9.99)
2B	167 (14.63)
3A	209 (18.31)
3B	199 (17.44)
3C	58 (5.08)
4	271 (23.75)

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Table 5. Treatment modalities

Treatment	Frequency (%) (Female and Male)	Frequency (%) (Male)
Chemotherapy	341 (29.9)	17 (54.8)
Hormone	1 (0.1)	-
Radiotherapy	22 (1.9)	1(3.2)
Radiotherapy plus Chemotherapy	41 (3.6)	-
Surgery	287 (25.2)	6 (19.4)
Surgery plus Chemotherapy	253 (22.2)	4 (12.9)
Surgery plus Radiotherapy	54 (4.7)	-
Surgery plus Radiotherap plus Chemotherapy	117 (10.3)	(9.7)
Symptomatic	25 (2.2)	-
Total	1141 (100)	31 (100.0)

Chemotherapy was the mainstay for treatment of various stages of breast cancer 341 (29.9%) followed by surgery 287 (25.2%). In males, the common modality of treatment is chemotherapy 17 (54.8%) followed by surgery 6 (19.4%) (Table 5).

DISCUSSION

The histologically diagnosed cases of breast cancer are in rising trend since 1999. However, after continuously increasing for more than two decades, female breast cancer incidence rates decreased by 2.2% per year from 1995-2005 in United States.[2] This might be due to reduction in use of Hormone Replacement therapy.[2] In general, the incidence is high (greater than 80 per 100,000) in developed regions of the world and low (less than 30 per 100,000), though increasing, in developing regions; the range of mortality rates is much less (approximately 6-23 per 100,000) because of the more favorable survival of breast cancer in (high-incidence) developed regions.[15] Breast cancer is the leading cause of cancer-related deaths in Asia, and in recent years is emerging as the commonest female malignancy in the developing Asian countries, overtaking cancer of the uterine cervix.[14] Despite an increasing trend, the incidence of breast cancer is lower, yet the cause-specific mortality is significantly higher in developing Asian countries compared with developed countries in Asia and the rest of the world.[14]

The mean age of presentation in our context was 47.30 years in female and 59.03 years in male. More than fifty percent of diagnosed cases presented in late stage of disease (stage III and IV) and the trend remained stable even for seven consecutive years. Similar reports of late

presentation has also been reported in other parts of South East Asia where resource settings are poor.[4-6] Patients are about one decade younger in developing countries than their counterparts in developed nations.[14] In the developing countries, the majority of breast cancer patients continue to be diagnosed at a relatively late stage, and locally advanced cancers constitute over 50% of all patients managed.[14] This finding is consistent with our study which shows more than half of the cases present at advanced stage (Table 3). This reflects the lack of awareness in general population about early detection of breast cancer using screening technique such as self-breast examination or mammography in our context.

Breast Self-Examination can be used as an important tool for primary prevention of breast cancer in Nepal, where sophisticated method like screening mammography for general public cannot be afforded.[7] Many breast cancer patients in Nepal do not attend health care services because of ignorance of health issues in general. In addition, social taboo plays an important role in prohibiting women from seeking medical advice, especially in rural Nepal.[8] A recent review of breast cancer cases revealed that patients were not aware of the disease for a mean duration of 8.3 months and other study reported it as 13.6 months before they present to clinical setups.[4,8] Breast cancer if detected on early stages (stage I) has five year survival rate of 100% and 81% if diagnosed at stage IIB.[9] The inadequacies of health care infrastructures and standards, sociocultural barriers, economic realities, illiteracy, and the differences in the clinical and pathological attributes of this disease in Asian women compared with the rest of the world together result in a different spectrum of the disease.[14] Better socioeconomic conditions, health awareness, and availability of breast cancer screening in developed Asian countries seem to be the major causes of a favorable clinical picture and outcomes in these countries.[14]

A surprisingly high incidence of male breast cancer has been reported (2.7%) compared to report incidences of about 1%.[10] Male breast cancers presented in more advanced stage. However a similar study done in India suggest, an incidence of 4.1% for male breast cancer which indicates that this disease is not as uncommon as presumed in this part of the world.[11] Breast cancer in men seems more frequently to be hormone receptor positive and the BRCA2 mutation confers a significant risk to men.[11]

Majority of cases came from nearby region viz. Narayani, Lumbini and Gandaki. Few cases were also seen from nearby country India as it is closer to the border. The far western zonal area represented very few cases. The factors might be accessibility of these nearby areas,

increasing level of awareness of people living here compared to people of far western regions.

Infiltrating ductal carcinoma has been found to be the most common variety in our context. Similar results have also been shown by research done at some tertiary institutions of the country and South Asian Countries and in the United States.[1,6,12]

Chemotherapy has been the most popular modality of treatment followed by surgery and combined surgery with chemotherapy. This can be attributed to the fact that majority of the cases has presented in advanced stages of the disease (stage III and stage IV) in which case chemotherapy or adjuvant chemotherapy is the mainstay of therapy.[13] A study done at tertiary care center in the country suggested the surgery as the most common modality, followed by chemotherapy, however due consideration has to be taken about the therapeutic modalities at different stages of the disease.[4]

Although, efforts have been made to get data which were complete and uniform over a long period of time, generalization of the result to a larger group of population is the limiting factor of the study. Moreover, the hospital records will only reflect the disease burden at some zonal areas of close proximity.

The detailed study has to be conducted at national level in all developmental regions and subsequently programs of screening and awareness to the general people be implemented to catch the disease early.

CONCLUSIONS

Breast cancer trend is rising with more in late and advanced stages, mostly due to lack of awareness. Infiltrating ductal carcinoma is the commonest variety. Chemotherapy is the most commonly used modality of treatment. Male breast cancer present late and is not so uncommon. There is a need for national level research to get the clear picture and public health education is a must.

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