

RESEARCH ARTICLE

Clinicopathologic Characteristics of Male Breast Cancer: A Report of 21 Cases in Radiotherapy Center of Hamedan, Iran

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Abstract

Background: Male breast cancer accounts for less than 1% of all cancer in men and only around 1% of all diagnosed breast cancer. Despite a significant raise in the last 25 years, it still remains a rare disease. **Materials and Methods:** We conducted a retrospective study from 2004-2011 with 21 male breast cancer patients. We aimed to analyze the epidemiologic data (age, personal and family history), tumor characteristics (size, histological type, location, TNM stage, receptors), surgery, adjuvant chemotherapy and radiation therapy, hormonal therapy and survival (relapse, follow up, death) who referred to our center with breast cancer. **Results:** The median age was 49.2±14.2 years (range 30-83 years). A family history of breast cancer was noted in four cases. The main clinical complaint was a retroareolar mass in 85.7% of patients (n=18). Histologically, 85.7% (n=18) were invasive ductal carcinoma and 4.7% (n=1) had ductal carcinoma *in situ* and 9.4% (n=2) had mixed histology including invasive medullary and ductal carcinoma. Hormonal therapy was delivered to 16 cases (76.1%) due to ER or PR positivity. During median follow up of 30 months (3-84 month), distant metastases were evident in 4 cases (19%). During the follow-up period, only one patient died due to metastatic disease. The mean time to recurrence detection was 30 months. **Conclusions:** The percentage of cases of male breast cancer is very low compared to breast cancer in females, explaining why very few investigations have been conducted in Iran. Limited coverage in the literature make gender-specific findings difficult so future research of this entity involving multi-institutional cooperation and longer follow up is essential to provide new insights about the biological and clinical factors of this rare cancer.

Keywords: Breast cancer - male gender - clinicopathological characteristics - Iran

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Introduction

Male breast cancer accounts for less than 1% of all cancer in men and around 1% of all diagnosed breast cancer. Despite a significant raise in the last 25 years, among male patients, it still remains a rare disease (Cutuli et al., 2010). Given its low incidence, few studies have assessed risk and prognosis. The literature about male breast cancer consists of retrospective studies and there are no randomized prospective data so the therapy is based on standards admitted from female breast cancer. Data obtained from retrospective analysis demonstrate that male breast cancer is not exactly the same disease as female breast cancer and notable differences have emerged (Bourthafour et al., 2011). Men tend to be diagnosed at an older age and higher estrogen receptor (ER) and progesterone receptor (PR) expression is notable in men. Male breast cancer exhibits more frequent lymph node involvement and more than 40% of individuals having stage 3 or 4 disease (Voney et al., 2009).

Invasive ductal carcinoma is a predominant pathologic

finding. Presentation is usually a painless mass and Klinefelter syndrome is the strongest risk factor for developing breast cancer in men (Gomez-Raposo and Zaubrana, 2010). Reports of male breast cancer cases in Iran are rare. In this study, we retrospectively evaluated the clinicopathological features, general characteristics, treatment in the strongest cancer institute in west of Iran.

Materials and Methods

We conducted a retrospective study from 2004-2011 with 21 male breast cancer patients. Inclusion criteria were male gender and histological confirmation of breast cancer and we excluded patients with insufficient follow up from this study. We analyzed epidemiologic data (age, personal and family history), tumor characteristics (size, histological type, location, TNM stage, receptors), surgery, adjuvant chemotherapy and radiation therapy, hormonal therapy and survival (relapse, follow up, death).

The American joint committee on cancer (AJCC, 6th edition) TNM classification system was used for staging

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of the tumors. Immunohistochemical analysis to determine estrogen (ER) and Progesterone receptor (PR), Her-2(neu) and P53 status established in the line with word health organization criteria.

All the patient were followed at 3-month intervals during the first and second years, 6-month intervals in the third to fifth year and yearly there after.

Results

Twenty one male patients at the mahdieh institute of oncology in Hamadan, Iran with a diagnosis of breast cancer between December 2004 and April 2011 were analyzed retrospectively. The median age was 49.24±14.15 years. (range 30-83 years). A family history of breast cancer was noted in four cases. The main clinical complaint was a retroareolar mass in 85.7% of patients (n=18). The mean time before visiting by a doctor was 18 months (range 2-48 month).

Table 1 shows the general characteristics of the patients. Table 2 shows the tumor characteristic including, tumor stage, LN status, LN involvement.

Histologically, 85.7% (n=18) of pathological records report invasive ductal carcinoma and 4.7% (n=1) had ductal carcinoma insitu and 9.4% (n=2) had mixed histology including invasive medullary and ductal carcinoma. ER, PR and HER-2 (neu) status were evaluated in all patients and P53 status reported in 10 patients.

Table 3 shows the immunohistochemical characteristics of the patients. The treatment consisted of modified radical mastectomy in 85.7% (18 cases)of patients, Lumpectomy in 14.29% (3 cases) and 95.2% (n=20) of patients received adjuvant radiotherapy following surgery and chemotherapy.

As noticed before, 3 cases were at stage 1 but according to breast conservative surgery, we prescribed radiotherapy to them. The median dose of radiation was 50 GY, to chest wall and regional lymph nodes if indicated.

Chemotherapy with TAC, AC→T or CEF regimens have been delivered to 18 cases (85.7%). Hormonal therapy was delivered to 16 cases (76.1%) due to ER or PR positivity situation. One patient received palliative chemotherapy due to bone metastases at presentation. During median follow up of 30 months (3-84 month); we found distant metastasis in 4 case (19%). The site of metastasis were in bone in 2 cases, Lung in 1 case and liver in 1 patient. During follow-up period, only one patient died due to metastatic disease. The mean time to recurrence detection was 30 months.

Table 1. General Characteristics

| | | |
|---------------------------------|-----------------|------------|
| Family history of Breast cancer | Yes | 4 (19%) |
| | No | 17 (81%) |
| Age (year) | <60 | 15 (4.04%) |
| | ≥60 | 6 (28.6%) |
| Opium consumption | Yes | 6 (28.6%) |
| | No | 5 |
| | Unknown | 10 |
| Location of tumor | Retro areolar | 18 (85.7%) |
| | Other quadrants | 3 |
| Axillary mass at presentation | Yes | 12 (43.9%) |
| | No | 9 (56.1%) |

Table 2. Tumor Characteristics

| | | |
|--------------------------------|---------|------------|
| Primary Tumor | T1 | 3 (14.2%) |
| | T2 | 12 (57.1%) |
| | T3 | 3 (14.2%) |
| | T4 | |
| Lymph node stage | Unknown | |
| | N0 | 5 (23.8%) |
| | N1 | 5 (23.8%) |
| | N2 | 3 (14.2%) |
| | N3 | 5 (23.8%) |
| Lymph node positive percentage | Unknown | 3 (14.2%) |
| | 0 | 5 (23.8%) |
| | 10-60% | 6 (28.5%) |
| | 60-90% | 5 (23.08%) |
| | 100% | 2 (9.5%) |
| TNM stage | Unknown | 3 (14.2%) |
| | I | 3 (14.2%) |
| | II | 5 (23.8%) |
| | III | 9 (42.85%) |
| | IV | 1 (4.7%) |
| | Unknown | 3 (14.2%) |

Table 3. Immunohistochemical Characteristics

| | | |
|---------|----------|-------------|
| ER | Positive | 14 (66.6%) |
| | Negative | 7 (33.3%) |
| PR | Positive | 12 (57.14%) |
| | Negative | 9 (43.9%) |
| Her (2) | 1+ | 11 (52.38%) |
| | 2+ | 5 (23.8%) |
| | 3+ | 5 (23.8%) |
| P53 | Positive | 4 (19%) |
| | Negative | 6 (28.5%) |
| | Unknown | 11 (52.4%) |

Discussion

According to very low incidence of male breast cancer, very few investigations have been conducted in Iran. In the past decade's according to Epidemiology and End results data (SEER), a rise in the incidence of male breast cancer from 1 to 1.2 per 100000 men have been reported from 1970 to 2004 (Speirv and Shaaba, 2008). The mean age at diagnosis is 60-67 years in different studies (Tawil et al., 2011), the mean age in our study is 49 years, this lower age correlate with lower age at diagnosis of breast cancer among Iranian woman with breast cancer.

Some of the main risk factors includes, genetic risk factor like BRCA-2 mutations, occupational risk factors include high temperature environments, gonadal dysfunction (Klienfelter syndrome) and Obesity. we could not define any occupational specify in this study unless the history of breast cancer in 4 patients family history (Cutuli et al., 2010; Bourthafour and Belbarake, 2011).

The most frequent histological diagnosis was invasive ductal carcinoma (IDC) in >85% as compared to (85-95%) rate of IDC in the literature (Dnami et al., 2011).

Positively of hormonal receptors is more frequent in men than woman (75-93%) (Davda et al., 2011; Tawil et al., 2011) and our data is comparable to other studies (76.1%, ER or PR positive). P53 expression has been detected in 0-54% of patient with male breast cancer by immunohistochemistry (Davda et al., 2011) and In our patient 4 (19%) were positive for P53.

Tamoxifen has proved increasing survival rates in women with hormone positive receptors and is the standard treatment in both males and female breast cancer. In our study the mean time for recurrence for ER negative patient was 12 month and 36 month for ER positive patients. The tolerance of treatment was acceptable in our patients and no specific important known side effects of tamoxifen like deep venous thrombosis or impotence occurred.

The overall 5- and 10 survival rate of male breast cancer patient are around 60% (50-80), 40% (50-60) in orderly (Xia et al., 2011; Tallón-Aguilar et al., 2011). In our study with mean follow up of 30 month, the mortality rate was only 4.7% (mean survival of 95.3%).

According to small sample size in the current study, multivariate analysis was not done to explore the independent effects of the prognostic factors.

In conclusion, the percentage of cases of male breast cancer is very low compared to breast cancer in female. Limited studies in the literature make gender-specific finding difficult so future research of this entity involving multi institutional studies and longer follow up is essential to provide new insights about the biological and clinical factors of this rare cancer.

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