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Original Investigation

Evaluation of Patients with Synchronous Bilateral Breast Cancer

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Abstract

Objective: Breast cancer is the most common cancer in women. The incidence of bilateral breast cancer is 2%–11%. Synchronous bilateral breast cancer is uncommon (1%–2%). Bilateral breast cancer has worse prognosis than unilateral cancer. The aim of the retrospective study was to evaluate the incidence and demographic features of synchronous bilateral breast cancer patients in our hospital.

Methods: We analyzed 266 breast cancer patients who were treated at our oncology department between January 2010 and December 2013. Five patients had synchronous bilateral breast cancer that was diagnosed at the same time.

Results: We determined that five (1.87%) patients had synchronous bilateral breast cancer in this study. Of the five patients, one was a man and four were women. Median age was 53 years (40–64). Two patients were in premenopausal status. One patient revealed a positive family history of first-degree relatives. All of the patients had estrogen receptor positivity and invasive ductal carcinoma histopathology. Neoadjuvant chemotherapy was given to four patients. Only one metastatic patient had palliative chemotherapy. All patients had modified radical mastectomies and postoperative radiation therapy for bilateral breast cancer.

Conclusion: Our clinical findings show a correlation with literature knowledge. Synchronous bilateral breast cancer is uncommon, and published data indicates worse prognosis. Hence, patients should be evaluated for the risk of contralateral breast cancer carefully at the same time of diagnosis.

Keywords: Synchronous, bilateral, breast cancer

Introduction

Breast cancer is the most common malignant tumor in women (13.4%). Although bilateral breast cancer (BBC) is rare, patients with breast cancer still carry a higher risk of developing secondary primary cancer in the contralateral breast (1). In literature, the incidence for BBC is between 1.4% and 11%; it is grouped as synchronous (1%-2%) and metachronous (5%-8%) according to the time of diagnosis (2). Although the definition of synchronous breast cancer differs in literature, it is the development of cancer in the contralateral breast within the first year following the first diagnosis of breast cancer (3).

Risk factors for BBC are vague. Although, it is clear that prognosis of BBC is worse compared with that of unilateral breast cancer, there are limited data on recurrence rate and disease-free survival (4).

The management of BBC patients is still unclear (5). The treatment approach accepted at present is to evaluate the cancer in both breasts as two individual as two seperate primer and to perform an appropriate intervention for both breasts. However, most of the time, patients undergo bilateral mastectomy instead of the breast protective approach.

In this study, patients diagnosed with synchronous BBC were evaluated in terms of their histological, clinical, and treatment features.

Methods

The clinical and histopathological data of 266 patients who were histologically diagnosed with BBC and treated at the Department of Medical Oncology in our hospital from January 2010 to December 2013 were retrospectively examined. Approval was received from the ethics committee of our hospital. All patients were diagnosed with BBC. Three patients with metachronous BBC were excluded.

Statistical analysis

The data obtained were analyzed using SPSS statistics 17.0 (SPSS 17.0, Inc; Chicago, IL, USA) software. Descriptive statistical methods (mean and standard deviation) were used for data evaluation.

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Results

A total of 266 patients diagnosed with BBC were evaluated. Five of them were synchronous BBC patients, and all of them were simultaneously diagnosed with cancer in both breasts.

Only one patient was male. The median age at diagnosis was 57 years (40-64 years). The mean follow-up time was 1 year. Two patients (40%) were in the premenopausal period and 2 (40%) were in the postmenopausal stage period at the time of diagnosis. Only 1 patient had a first degree relative with a family history of breast cancer.

All had histologically invasive ductal carcinoma. In 4 patients, estrogen receptors (ERs) and progesterone receptors (PRs) were positive. The only metastatic patient had a negative PR. In 2 patients with positive hormone receptors (HRs), Cerb-2 positivity was identified. The median for the nuclear staining ratio with ER and PR in the tumor cells was 70% and approximately 50%, respectively (Table 1).

Four patients received neoadjuvant chemotherapy; one patient diagnosed with metastasis received palliative chemotherapy. Regimes that included anthracycline and taxane (On the first day of each 3-weekly cycle (six in total), patients received TAC (docetaxel 75 mg/m2 IV for 1 h, adriamycin 50 mg/m^2 IV for 15 min and cyclophosphamide 500 mg/m2 IV for 1 h) with granulocyte-colony stimulating factor (G-CSF) support the day after chemotherapy administration. Another regime is on the first day of each 3-weekly cycle (four in total), patients received AC (adriamycin 60 mg/m^2 IV for 15 min and cyclophosphamide 600 mg/m^2 IV for 1 h) follow up weekly cycle (four in total) paclitaxel (80 mg/m^2 IV for 3 h). were given. Of the patients who received the neoadjuvant chemotherapy, full response in the right breast and partial response in the left breast were obtained in two of them; one patient each displayed full response in the bilateral breast and partial response in the bilateral breast. Antihormonal therapy was initiated for all 5 patients. Four patients underwent modified radical mastectomy, and then, 50 Gy/25 fraction radiotherapy to the bilateral chest wall and 46 Gy/23 fraction radiotherapy to the lymphatics were postoperatively given. After chemotherapy, an aromatase inhibitor and tamoxifen were administered to 2 and 3 patients, respectively. For the premenopausal patients, ovulation suppression was medically applied.

During the follow-up period of 3 patients after treatment, the metastatic patient displayed progression after 16 months and other non-metastatic patients developed bone metastasis after 12 months.

Discussion

Breast cancer has the second highest mortality rate after lung cancer (6). However, screening, diagnosis, and the development of treatment methods increase survival periods. Patients diagnosed with breast cancer have a greater risk of cancer development at the contralateral breast. Therefore, detailed monitoring is important for BBC.

In different publications, different periods have been defined for the development of synchronous BBC (7-9). The time of cancer development varies between 3, 6, and 12 months. In our study, 3 patients displayed metachronous BBC, and in all patients with synchronous BBC, the tumors were detected at the same time.

Although data for the development of BBC are controversial because of patient numbers and inadequate studies, accepted risk factors include familial history, young age and lobular histology, fibrocystic disease presence in the breast, and PR positivity (10, 11).

The mean age for BBC has been reported to be 55 years (12). In our study, the median age was calculated to be 57 years, which is consistent with that reported in literature.

It was found that the histopathological type of the primary tumor was closely related to the development of BBC. Although it is known that invasive lobular carcinoma increases the risk of BBC development, studies indicate that invasive ductal carcinoma also has a tendency of being bilateral (13). In all our patients, the pathology was considered to be invasive ductal carcinoma.

Hormone receptor (HR) status is considered to be among the risk factors of BBC. PR positivity is known to increase the risk. Although the relationship between ER positivity and BBC is unknown, ER positivity is a sign of good prognosis (14). In our study, except for the metastatic patient, other patients were ER and PR positive. In tumor cells, median nuclear staining was observed to be 70% (10%-90%) for ER and approximately 50% (1%-70%) for PR. The least amount of HR staining rate was observed in the metastatic patient.

As a treatment approach in literature, both breasts are accepted to be separate disease and necessary neoadjuvant/adjuvant and surgical intervention have been reported to be administered. No statistically significant difference was found with regard to the therapies applied for unilateral breast cancer and BBC (15). In our study, 4 patients received neoadjuvant chemotherapy. One patient received palliative treatment because of the metastasis observed during the diagnosis phase.

Antihormonal therapy was initiated for 5 patients after chemotherapy. Modified radical mastectomy and later, postoperative bilateral breast radiotherapy were administered to 4 patients.

In literature, 2425 cases of synchronous and metachronous BBC and unilateral breast cancer were compared in terms of their

Table 1. Demographic and histopathological features of patients

Patient	Age	Gender	Menopause	Histopathology	ER	PR	CERB2	Hormone therapy	Neoadjuvant therapy
L.K.	57	F	+	INVASIVE DUCTAL	+	+	-	+	-
N.A.	61	F	+	INVASIVE DUCTAL	+	+	-	+	+
N.Y.	40	F	-	INVASIVE DUCTAL	+	+	+	+	+
S.K.	64	M	0	INVASIVE DUCTAL	+	+	-	+	+
Z.A.	44	F	-	INVASIVE DUCTAL	+	+	+	+	+

PR: progesterone receptors; ER: estrogen receptors

5-year survival rate, and the rates were reported to be 87%, 79%, and 93%, respectively (16). Because the patients in our study are still alive and follow-up periods were short, survival analysis could not be conducted.

Conclusion

Due to the rare occurrence of synchronous BBC, no clear data on patients' demographic information, risk factors, pathological characteristics of tumor, and treatment approaches exist. Therefore, more data need to be reported. Considering the risk factors reported in literature, the possible development of secondary primer cancer in the contralateral breast can be detected during early stages by monitoring the patients.

Ethics Committee Approval: Ethics committee approval was received for this study.

Informed Consent: Written informed consent was not obtained from patients due to the retrospective nature of this study.

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