Risk factor of liver metastases in breast cancer

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Abstract

Objective: The liver is the second most common site of distant metastases from breast cancer. We investigated the risk factor liver metastasis in patients with breast cancer.

Methods: We studied Age, Menopausal status, Histologic Type, Tumor size, Number of cancerous axillary lymph nodes, in two groups with liver metastases with logistic regression to identify independent liver metastasis risk factors in breast cancer patients.

Results: Age, menopausal status, number of cancerous axillary lymph nodes and tumor size are the independent risk factors liver metastases in patients with breast cancer.

Conclusion: The increase number of cancerous axillary lymph nodes and tumor size may be diagnostic markers for liver metastases from breast cancer.

Introduction

Breast cancer is the most frequent malignancy and most common cause of cancer-related death in women worldwide. Despite advances in the treatment of early breast cancer, approximately 20% - 30% of patients will relapse with distant metastases. Metastatic breast cancer is a heterogeneous disease with a variety of clinical presentations ranging from a single metastatic lesion to diffuse and multiple organ involvement. The risk of recurrence and the distinct patterns of metastatic spread are not only influenced by stage at initial presentation, but are also associated with the molecular subtype of the primary tumour.

Liver metastases from breast cancer may present asymptomatically in a metastatic screen, or may present with upper abdominal fullness, ascites, a mass, jaundice or weight loss and detected much later and bring about worse prognoses [1-4]. A final diagnosis of early LM from BC is difficult. Thus, it is helpful to find a way to early diagnosis LM in patients with BC. It may lead to timely intervention and may prevent pathologic liver fracture. The purpose of the present study is evaluating risk factor liver metastasis in patients with breast cancer.

Materials and Methods

Demographic and clinical data, including Age, Menopausal status, Histologic Type, Number of cancerous axillary lymph nodes, Tumor size, were extracted from the patients' medical records. Then, associating above factors with LM in BC patients was investigated. Statistical analyzes, including mean (± standard deviations) for continuous variables and percentages for categorical variables were calculated using SPSS 19.0 software (Chicago, USA). Initially, patients with BC were divided into 2 groups: with LM and without it. To detecting the differences between two groups, Mann-Whitney U test and Chi-Square test were used. We applied logistic regression to identify independent prognostic factors. Statistical significance was set as a p - value less than 0.05.

Results

This study included 600 patients with BC and a total of 28.8% of them had LM. Clinical features of patients (Tables 1,2). The results showed that the age of patients with LM (45.55 (± 10.77)) was significantly higher than the age of patients without LM (48.37 (± 11.98)) (p - value = 0.019). Moreover, there was a remarkable difference in the incidence of LM between different tumor sizes (p - value < 0.001).

Discussion

BC has an understandable tendency to distance metastasis like the lymph nodes, liver, bones, and lungs [5-12]. LM sometimes shows the presence of distended cancer with weak prognosis, though it is restricted to one organ [3]. Early identification of LMs in BC patients maybe result in timely intervention and presumably stop pathologic liver problems.
Mann-Whitney test and logistic regression showed that age and menopausal status are prognostic factors for LM, as 1-year increase in age the risk of LM was increased. Also menopausal women are 1.827 times more likely to have LMs than premenopausal women. It is implied that elders, and postmenopausal patients are more likely to have a higher risk of LMs. There was no significant difference between ductal types in the groups with and without LMs. The number of axillary nodes of metastases and tumor size appear an important prognostic factors for LMs in BC. The generalizability of these results is subject to several limitations [13-20].

First, the study was conducted by relying on only one database of an organization, although the criteria were designed to cover minimizing selection bias. Second, the study was retrospective and some clinical data were missing, which may affect the results of the analysis. Also, we just collected information from patients with BC at the time of diagnosis and the study did not include any data, such as patient survival information from patients with BC at the time of diagnosis and follow-up treatment data. Therefore, a multi-center, prospective study is suggested to be conducted to assess the results of this study [20-25].

**Conclusion**

Age, menopausal status, number of axillary lymph node metastases, tumor size. It can be beneficial in early diagnosis of LMs from BC and prevention and treatment of the disease.

**References**


