Epidemiological Study of the Characteristics of Patients with Lymphedema Following Breast Cancer Referred to the Hospitals of Tabriz University of Medical Sciences

Majid Montazer 1, Leila Soltani 2

1Majid Montazer: Associate Professor of Thoracic Surgery, Tuberculosis and Lung Disease Research Center, Tabriz University of Medical Sciences, Tabriz, Iran (ORCID: 0000-0001-7846-0128)

2 MS of Nursing, Tuberculosis and Lung Disease Research Center, Tabriz University of Medical Sciences, Tabriz, Iran (ORCID: 0000-0003-4159-6652)

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ABSTRACT

Lymphedema following breast cancer is a chronic and debilitating complication of cancer treatment and the purpose of this project is to epidemiologically evaluate the characteristics of patients with lymphedema in patients referred to the hospitals of Tabriz University of Medical Sciences following breast cancer. A descriptive epidemiological study of patients with lymphedema following treatment for breast cancer enables researchers at the center to make testable hypotheses about the etiology of lymphedema. This is a cross-sectional descriptive study that was performed with the participation of 149 patients during the years 2018 to 2020 in the hospitals of Tabriz University of Medical Sciences and in patients with lymphedema. Information including lymphedema volume, type of treatment, body mass index and demographic information were recorded in the data collection form and finally reported. 24% of the participants were single or widowed and the rest were married. 41% of participants had a body mass index below 30 and the rest had a body mass index above 30. Depending on the type of surgery, 71% of patients underwent Modified Radical Mastectomy and the rest had Conservative surgery for their treatment. 94% of patients received chemotherapy, 83% received radiation therapy and 71% received hormone therapy. In 75% of patients, more than 10 lymphatic groups were removed during surgery, and in the rest, less than 10 lymphatic groups were removed. 36.9% of patients had a history of lymphangitis attack. The results of this study showed that high body mass index, old age, removal of lymph masses more than 10 and receiving chemotherapy and radiotherapy drugs are risk factors for lymphedema.

Keywords: lymphedema, Epidemiology, following breast cancer, Surgery
Introduction

Breast cancer is the second leading cause of cancer death in women after lung cancer(1). One million and three hundred thousand women are diagnosed with this cancer in the world every year and it causes the death of 456 thousand women per year(2). Various treatments such as mastectomy, radiation therapy and chemotherapy are used to treat this cancer(3). These treatments and other risk factors such as obesity, hypertension, decreased activity, cause anatomical problems and as a result the functioning of the lymphatic system and put the person at risk(4). It puts edema in the lymph. Lymphatic system disorders cause primary and secondary lymphedema. Secondary lymphedema patients make up the majority of lymphedema patients(5). Lymphedema seeks treatment for breast cancer is a relatively common and chronic complication that is not completely and completely curable despite different treatments from simple physical therapy to complex surgical procedures; Therefore, it is better to prevent it as much as possible(6). Lymphedema following breast cancer is a chronic and debilitating complication of cancer treatment and the purpose of this project is to epidemiologically evaluate the characteristics of patients with lymphedema in patients referred to the hospitals of Tabriz University of Medical Sciences following breast cancer. A descriptive epidemiological study of patients with lymphedema following treatment for breast cancer enables researchers at the center to make testable hypotheses about the etiology of lymphedema.

Methods

This is a cross-sectional descriptive study that was conducted during the years 2018 to 2020 in the hospitals of Tabriz University of Medical Sciences; Patients were included in the study by available sampling method. Lymphedema following breast cancer is a chronic and debilitating complication of cancer treatment and the purpose of this project is to epidemiologically evaluate the characteristics of patients with lymphedema in patients referred to the hospitals of Tabriz University of Medical Sciences following breast cancer. A descriptive epidemiological study of patients with lymphedema following treatment for breast cancer enables researchers at the center to make testable hypotheses about the etiology of lymphedema. The researcher-related data collection form, including the age of patients based on the average age of menopause, is divided into two categories: less than 45 years and more than 45 years. The mass index was divided into
two groups of less than 30 and more than 30. Patients' education status was divided according to the questionnaire form including illiteracy, primary education, secondary education, medical graduates and non-medical graduates. Marital status was divided into single, married, divorced and widowed groups based on the questionnaire form. Division of lymph nodes removed during surgery was divided into 2 groups of lymph node excised less than 10 and more than 10. The type of breast cancer treatment was divided according to the questionnaire based on Modified Radical Mastectomy or Conservative surgery and Radiotherapy and Hormontherapy and chemotherapy. Comorbid conditions entered the researcher form. The onset of lymphangitis (cellulitis) was the last study in the form of data collection by the researcher. The present study is a cross-sectional study and the information collected in the data collection form was entered into SPSS software and statistical analysis was performed. The results were described descriptively in terms of frequency according to the type of study.

Results

In this study, 218 patients with lymphedema who referred to the hospitals of Tabriz University of Medical Sciences from 2018 to 2020 were performed. Epidemiology of patients by age; 21.5% were under 45 years old and the rest were over 45 years old. Based on their educational status, 6% of the patients were illiterate, 47% had primary education, 34% had secondary education and the rest had university education. Among university graduates, 10% were medical graduates and the rest were non-medical graduates. 24% of the participants were single or widowed and the rest were married. 41% of participants had a body mass index below 30 and the rest had a body mass index above 30. Based on daily activity; 18% had low physical activity, 72% had moderate physical activity and the rest had high physical activity. Depending on the type of surgery, 71% of patients underwent Modified Radical Mastectomy and the rest had Conservative surgery for their treatment. 94% of patients received chemotherapy, 83% received radiation therapy and 71% received hormone therapy. In 75% of patients, more than 10 lymphatic groups were removed during surgery, and in the rest, less than 10 lymphatic groups were removed. 36.9% of patients had a history of lymphangitis attack. The epidemiology of patients based on comorbid condition was such that 68.5% of patients had no other concomitant physical illness, the remaining 10% had diabetes, 14.9% had high blood pressure, and 6% had other illnesses (disorders). Kidney, liver disorders, congestive heart failure and stroke)
Discussion

Lymphedema is a common and chronic complication seeking treatment for breast cancer. Researchers have been trying for many years to accurately identify the incidence and risk factors in causing it by recognizing these factors to prevent its occurrence; Because despite the various treatments, this complication is only controllable and not completely curable, and a descriptive epidemiological study of patients with lymphedema following treatment for breast cancer enables the researcher to make testable hypotheses about the etiology of lymphedema(7-10). In most of the studies conducted in this field, more than 60% of the participants are over 45 years old, which is in line with the results of our study. In our study, most patients with lymphedema were over 45 years old. According to many studies, the chances of developing breast cancer increase with age, and as a result, complications of cancer treatment will occur at older ages(11,12). The effect of age as a risk factor in the incidence of lymphedema in the future in the clinics of Tabriz University of Medical Sciences. Several studies have also shown that the majority of patients with lymphedema have a non-university education; A similar issue has been observed in our study. It is necessary to study the effect of patients' education as a risk factor on future lymphedema(13-15). Several other studies, such as the present study, have shown that most patients with high body mass index develop lymphedema; It seems that high body mass index is an important factor in the development of lymphedema following breast cancer and surgery, which requires further studies in different populations, including the Iranian population(16,17). Low physical activity can also be a risk factor for lymphedema; This has been observed in most studies such as ours. On the other hand, receiving chemotherapy and radiotherapy drugs can increase the risk of lymphedema; In other words, chemotherapy and radiotherapy increase the risk of lymphedema; This issue has also been observed in our study. Chemotherapy and radiotherapy drugs appear to have effects on the immune system and body mechanisms that increase the risk of lymphedema; This issue needs further investigation(18-20). Comorbidities also play a role in lymphedema; With diabetes mellitus, the chances of infection and delayed healing of skin wounds increase, and this is more important for patients with lymphedema due to having a more inefficient and incapable lymphatic system in dealing with germs and various infections than healthy people. Elevated blood pressure also causes fluid to leak out of the arteries and worsens lymphedema. Therefore, controlling blood pressure and following a proper
diet (for example, consuming less salt) is doubly important for patients with lymphedema. Therefore, it is necessary to study the effect of blood sugar and blood pressure as a risk factor in the development of lymphedema in the future (20-23).

**Conclusion**

The results of this study showed that high body mass index, old age, removal of lymph masses more than 10 and receiving chemotherapy and radiotherapy drugs are risk factors for lymphedema. Failure to evaluate the size of the surgical incision, failure to evaluate the number of chemotherapy and radiotherapy sessions, and failure to evaluate the duration of cancer were some of the limitations of this study.

**References**


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