Original Article

The Relationship Between Metabolic Syndrome and Breast Cancer in Women Referred to Radiotherapy and Chemotherapy Clinics of Tohid Hospital in Sanandaj

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Abstract

Introduction: Metabolic syndrome or insulin resistance syndrome is described as abdominal obesity, dyslipidemia, fasting blood sugar, and high blood pressure. This study aimed to investigate the relationship between metabolic syndrome and breast cancer.

Methods: This case-control study was performed on 222 women with cancer and non-cancer (breast cancer) (111 participants in each group) referred to Tohid and Besat Hospital in Sanandaj in 2014.

Results: The results showed that the prevalence of metabolic syndrome in people with and without breast cancer was 85 (76.6%) and 60 (54.1%), respectively, which was statistically significant.

Conclusion: The results showed that the criteria for defining metabolic syndrome increase cancer risk, especially breast cancer in women, and measures should be taken to reduce these risks in high-risk groups.

Keywords: Breast Cancer, Metabolic Syndrome, Women

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Introduction

Cancer is the second most common cause of death in developed countries and the third leading cause of death in developing countries. (1) Metabolic syndrome or insulin resistance syndrome is described as abdominal obesity, dyslipidemia, fasting blood sugar, and high blood pressure. (2) This study aimed to investigate the relationship between metabolic syndrome and breast cancer in women referred to the radiotherapy and chemotherapy clinic of Tohid Hospital in Sanandaj.

Materials & Methods

This case-control study was performed on 222 women with cancer, and non-cancer (breast cancer) (111 participants in each group) referred to Tohid and Besat Hospital in Sanandaj in 2014. After collecting information and entering it into SPSS software, the age variable using mean and standard deviation (SDs) and metabolic syndrome factors are reported in frequency and percentage between the two groups of people with and without breast cancer. Kolmogorov-Smirnov test was used to evaluate the normality of the quantitative age variable distribution. Using Chi-square test, Fisher exact test and independent t-test, metabolic syndrome factors and mean age are compared between case and control groups, respectively. Also, a logistic regression model and odds ratio were used to investigate the relationship between metabolic syndrome and breast cancer. It was calculated with 95% confidence.

Results

The results showed that the prevalence of metabolic syndrome in people with and without breast cancer was 85 (76.6%) and 60 (54.1%), respectively, which was

statistically significant. The prevalence of hyperlipidemia, high triglyceride, and hypertension was significantly different between the two with and without breast cancer. Also, metabolic syndrome was associated with 2.78 times more in the breast cancer group (OR, 2.782; 95% CI 1.582-5.063).

Discussion

metabolic syndrome is a long process caused by genetic and environmental factors from early life, and the pathophysiology of many diseases and atherosclerosis begins from it. This syndrome is associated with an increased risk of cardiovascular disease and type II diabetes and increased mortality from cardiovascular disease. In this study, 65.3% of the two groups had metabolic syndrome. Analytical results showed a statistically significant relationship between metabolic syndrome in the two groups, which was higher in women with breast cancer. (3-6)

One of the criteria for diagnosing metabolic syndrome is waist size. (7) In our study, the mean waist size was 12.66±111.77 in the case group and 12.37±98.53 in the control group, and this difference was statistically significant in the cancer group the mean was higher. Another criterion for diagnosing metabolic syndrome is systolic blood pressure, higher than 130 mm Hg. Our results showed no statistically significant relationship between the criteria of systolic blood pressure in the two groups, but the systolic blood pressure was higher in the case group. Fasting blood sugar above 100mg/ dL is a sign of the metabolic syndrome. In this study, 89 people in the two groups had blood sugar levels above 100mg/ dL, 45%

in the case group and 35.1% in the control group. The results showed no statistically significant relationship between the criteria of high blood sugar in the two groups. (8) The triglyceride is higher than or equal to 150 mg/dl. The amount of HDL cholesterol less than 50 mg/dl in women is a significant difference between the metabolic syndrome diagnosis criteria, significantly different in the studied groups.

Conclusion

It seems to preserve a fitted BMI, emphasizing self-care, and educating preventive strategies after surgery and during follow-up visits may have important roles in decreasing the lymphedema incidence and improving the patients' quality of life.

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