

## The Frequency of Thyroid Diseases in Women with Breast Cancer

Mehmet Ali Eryılmaz, [Cevdet Duran\\*](#), Hande Köksal, Halis Elmas\*\*

The Department of General Surgery, Konya Health Application and Research Center, University of Health Sciences, Konya, Turkey

\*The Department of Internal Medicine, The Division of Endocrinology and Metabolism, The Medical School of Usak University, Uşak, Turkey

\*\*The Department of Internal Medicine, Konya Health Application and Research Center, University of Health Sciences, Konya, Turkey

### Abstract

**Introduction:** Breast cancer and thyroid disorders are both important health problems that are common in women. The relationship between both diseases is not fully known. In this study, the frequency of thyroid diseases was investigated in patients with breast cancer.

**Materials and Methods:** Eighty women with breast cancer and age-matched 63 women without cancer, as the control group, were included into the study. Thyroid stimulating hormone (TSH), free T4, Anti-TPO, Anti-Tg, glucose and insulin levels were measured and all cases underwent thyroid ultrasonography (USG). Patients who had undergone thyroid surgery and who used drugs that affect glucose metabolism were excluded.

**Results:** The results are given in Table 1 and Table 2. Waist and hip circumferences, glucose, insulin and HOMA-IR levels were higher in patients with breast cancer. Waist hip

ratio, body mass index (BMI), TSH, free T4, anti-TPO and anti-thyroglobulin levels and thyroid volumes were similar in both groups. Rates of autoantibody positivity, the presence of nodules and thyroiditis in USG were similar in both groups. The frequency of hypothyroidism was similar in both groups. Thyrotoxicosis was not detected in the breast cancer group, whereas in the control group, thyrotoxicosis was detected in 4(6.3%) patients ( $p= 0.022$ ).

**Discussion:** Thyrotoxicosis was found to be less frequent in patients with breast cancer, although nodular goiter, autoimmune thyroid disease, and hypothyroidism frequencies were similar. We believe that prospective studies involving more cases should be appropriate to remove the suspicion of the relationship between breast cancer and thyroid diseases.

**Keywords:** Breast cancer, nodular goiter, thyroiditis

Table 1. Some clinical and laboratory characteristics of the cases.

	Patient Group (n:80)	Control group (n:63)	p values
Age (year)	49 (25-65)	48 (18-65)	0.104
Height (cm)	160.9±0.67	160.9±0.76	0.934
Weight (Kg)	72.5 (50-116)	72 (46-105)	0.855
Body Mass Index (kg/m <sup>2</sup> )	28.8±0.6	28.3±0.6	0.536
Waist circumference (cm)	90.7±1.4	83.7±1.7	0.001
Hip Circumference (cm)	104.8±1.4	97.9±1.9	0.003
Waist/Hip Ratio	0.87±0.01	0.86±0.01	0.285
Systolic Blood Pressure (mmHg)	120 (90-180)	120 (85-160)	0.473
Diastolic Blood Pressure (mmHg)	72.5 (50-100)	74 (60-95)	0.683
Glucose (mg/dL)	97.5 (73-161)	91.0 (71-191)	0.008
Insulin (μIU/mL)	12.3 (2-82)	8.7 (2-38)	0.018
HOMA-IR	2.9 (0.4-22.8)	1.9 (0.4-9.7)	0.007
Thyroid stimulating hormone (μU/mL)	1.8 (0-6)	1.7 (0.2-11.2)	0.649
Free T4 (ng/dL)	1.2 (0.7-2.9)	1.2 (0.8-1.9)	0.812
Anti TPO (IU/mL)	10 (10-1000)	10 (10-579)	0.110
Anti-thyroglobulin (IU/mL)	20 (20-3000)	20 (10-3000)	0.223
Thyroid volume(cm <sup>3</sup> )	13.4 (3.6-28)	14.2 (2.7-27.3)	0.669

HOMA-IR: Homeostasis model assessment-insulin resistance. TPO: Thyroid peroxidase.

Table 2. Some clinical features of the cases.

	Patient Group (n:80)	Control group (n:63)	p values
Number of cases with nodules (%)	55 (68.8)	38 (60.3)	0.294
Number of cases with antibody positive (%)	12 (15)	11 (17.5)	0.691
Number of cases with thyroiditis in USG (%)	44 (55)	32 (50.8)	0.617
Number of cases with hypothyroidism (%)	1 (1.3)	4 (6.3)	0.099
Number of cases with thyrotoxicosis (%)	0 (0)	4 (6.3)	0.022

USG: Ultrasonography.