

**CLINICAL SIGNIFICANCE OF INSULIN RESISTANCE AND SERUM IL-6 IN
METABOLIC SYNDROME ASSOCIATED PREMENOPAUSAL BREAST CANCER**

Mirzayeva Matluba

Department of Normal and Pathological Physiology, Tashkent Medical Academy,

Tashkent, Uzbekistan.

matluba.mirzayeva@mail.ru

Background. Insulin resistance (IR) and obesity are elements of metabolic syndrome (MS), and both may be risk factors for breast cancer (BC). In recent years, MS incidence has been increasing among the world population. Additionally, MS is high among BC patients. MS elements can cause cancer and can be used as biomarkers. The relationship between metabolic syndrome (MS) and breast cancer (BC) is important in terms of influencing morbidity and mortality. Metabolic syndrome is a complex of metabolic, hormonal, and clinical changes, with its pathogenesis linked to immune-inflammatory processes. Metabolic syndrome is characterized by abdominal obesity, hypertension, hyperglycemia, decreased serum high-density lipoprotein (HDL-C) levels, and increased serum triglycerides (TG). The presence of at least three of these five components, according to the NCEP and ATP III criteria, indicates the presence of MS. We evaluate the possible role of circulating cytokines IL-6, IR, and CA-15.3 in MS-associated premenopausal BC.

Aim: to evaluate clinical significance as a biomarker of IL-6 and Insulin in BC patients with MS.

Method. We conducted 74 patients with MS elements, locally advanced stage BC and 75 healthy controls to compare levels of biomarkers. Four groups were formed according to body mass index (BMI). First group consists of BMI < 30 OR obese patients with BC, the second group, BMI > 30 , BC patients, third and fourth group obese and nonobese controls – without BC. We have evaluated all of metabolic criteria according to NCEP and ATP III. IL-6 (Elisa, USA) and Insulin and CA-15.3 (OOO Xema, Russia) were determined in the serum using the immunoassay method. IR was calculated by the Homeostasis model assessment (HOMA) method. The pathomorphological and immunohistochemical characteristics of the tumor were studied from case-history. The tumor's localization, size, degree of differentiation, damaged lymph nodes, status of ER, PR, HER2/neu receptors, and level of epithelial proliferative activity of the tumor cell (Ki-67%) were evaluated.

Statistical analysis was performed Data Tab online packet. All indicators' average value and standard deviation (mean \pm standard deviation) were analyzed. A p-value of less than 0.05 and a significance level of 95% were considered reliable.

Result. All of the patients were divided into two groups according to manifestation metabolic syndrome. The first group consists of 41 patients who have ≥ 3 MS positive elements. The second group includes 33 patients who have less than three MS elements. The median age of patients was $40,1 \pm 5,46$ and $38,61 \pm 4,71$, respectively, in the first and second groups. The third group consists of 38 healthy women. The fourth group includes 37 healthy women who have less than three MS elements. The median age of patients was $42,1 \pm 4,6$ and $32,61 \pm 4,1$, respectively, in the first and second groups. In BC, patients with MS, HOMA/IR value, and IL-6 level were found to be higher compared to other groups. However, CA.15.3 levels were found to be in the normal range of a big part of patients with MS. IL-6 level correlated with IR, BMI, tumor size, Ki-67%, and lymph node status. Moreover, IL-6 level higher infiltrative BC tumor

histological type than ductal invasive or rare type. It was indicate that chronic inflammation can effect tumorigenesis.

Conclusion. These results suggested a possible contribution of circulating IL-6 and hyperinsulinemia to the development of BC. It will be efficient to use IL-6 and serum insulin as biomarkers rather than CA15.3 for detecting and monitoring BC in MS women.