To assess the prevalence of metabolic syndrome, elevated plasma total cholesterol, obesity or overweight in breast cancer patients with HER-2 overexpression/amplification compared with HER-2 negative breast cancer patients.

Dissertation for the degree of doctor of medicine and health sciences in the discipline of medical sciences

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Abstract

Previous studies have shown that components of the metabolic syndrome, obesity and hypercholesterolaemia are considered as risk incidence of breast cancer. The presence of these disorders is often associated with an unfavourable clinical course and a worse prognosis. The role of metabolic syndrome, obesity or hypercholesterolaemia as a risk factor for HER-2 positivity remained unknown.

The aim of this study was to investigate the prevalence of metabolic syndrome according to the NCEP-ATP III classification by ANA/NHBLI, obesity according to the BMI classification and hypercholesterolaemia, in patients with breast cancer, comparing HER-2 positive and HER-2 negative subtypes.

After receiving approval from the Bioethics Committee, 196 patients diagnosed with breast cancer, all subtypes, stage from I to III according to the TNM classification, were qualified for the prospective study. The study group was treated in the Oncology Subdepartment of the Department of Breast Surgery at the Polish Mother's Memorial Hospital in Lodz from 2018 to 2019. HER-2 receptor or gene status by immunohistochemistry and CISH was determined. On the basis of a questionnaire completed by the patients, physical examination and laboratory tests, the presence of metabolic syndrome, BMI and cholesterol levels were assessed.

The results of the study showed that the prevalence of metabolic syndrome and obesity there is not significantly difference between the group of patients with HER-2 positive versus HER-2 negative breast cancer.

The study found a statistically significant increased incidence of hypercholesterolaemia in the HER-2 positive type versus the HER-2 negative type of breast cancer. Taking into consideration cardiotoxicity of the anti-HER-2 drugs and the higher prevalence of atherosclerosis-related cardiovascular disease, this relationship finding is a clinical significance.