

## STRESZCZENIE W JĘZYKU ANGIELSKIM

**INTRODUCTION:** The prevalence of clinical depression is approximately 6%, while subclinical depression is more frequent. According to published data, clinical depression is a risk factor of developing type 2 diabetes, but the impact of subclinical depressive symptoms is unclear. Additionally, natriuretic peptides can be associated with metabolic disturbances, but also with depressive symptoms' severity, although the published data involve mainly people with cardiovascular diseases (CVD).

**AIMS:** The assessment of the prevalence of metabolic disorders in women with and without depressive symptoms and the relationship between metabolic parameters and depressive symptoms' severity.

**PATIENTS AND METHODS:** Women from Białystok PLUS population study were included in the study. All study participants underwent the assessment of depressive symptoms' severity by Beck Depression Inventory (BDI). According to data from the literature, scores above 20 points were considered clinical depression, 10-20 points – subclinical depressive symptoms. In all study participants, anthropometric and blood pressure measurements were conducted. The laboratory measurements were carried out on fasting blood samples.

The first study group included 68 women aged 20-65 years, with BDI score 10-20. The first control group comprised 182 women with the results in BDI < 10 points. Oral glucose tolerance test (OGTT) with measurements of glucose and insulin concentrations was performed. Additionally, homeostatic model assessment for insulin resistance (HOMA-IR) and triglyceride/high-density lipoprotein cholesterol ratio (TG/HDL-C) were calculated, and the activity of alanine aminotransferase (ALT) and gamma glutamyltranspeptidase (GGTP) was assessed. Body composition was evaluated by dual-energy X-ray absorptiometry (DXA).

The second study group included 98 women aged 20-60 years, with BDI score  $\geq$  10 or depression in medical history. The second control group consisted of 249 women with BDI < 10 points. The main exclusion criterion was CVD in medical history. OGTT with measurements of glucose and insulin levels was performed. The concentrations of N-terminal pro-brain natriuretic peptide (NT-proBNP) and sex hormone binding globulin (SHBG) were measured.

**RESULTS:** Diabetes and prediabetes occurred more frequently in the women with subclinical depressive symptoms compared to the control group. The participants with BDI score 10-20 points had higher visceral fat mass, HOMA-IR and ALT activity than women with BDI below 10 points. In a subgroup analysis of postmenopausal women, the individuals with subclinical depressive symptoms had higher visceral fat mass, GGTP and ALT activity, HOMA-IR and

TG/HDL-C ratio compared to the control group. In the women with subclinical depressive symptoms, the severity of somatic-vegetative symptoms reported in BDI correlated positively with visceral adipose tissue mass, HOMA-IR and GGTP activity.

Metabolic syndrome was more frequent in the group of women with depressive symptoms compared to women without depressive symptoms. In women with BDI  $\geq$  10 points or depression in medical history, NT-proBNP concentration was lower than in the control group and correlated positively with SHBG and negatively with insulin concentration at 60 min of OGTT and diastolic blood pressure.

**CONCLUSIONS:** Metabolic disturbances occur more frequently in women with depressive symptoms compared to women without depressive symptoms, and selected metabolic parameters are connected with depressive symptoms' severity.