## Streszczenie w języku angielskim

Peripheral arterial disease (PAD) is a significant increasing clinical problem affecting up to 60% of people over 70 years of age. Common cardiovascular risk factors such as age, gender, smoking, diabetes, hypertension, hypercholesterolemia contribute to the development and progression of PAD. PAD is associated with significantly increased risk of cardiovascular morbidity and mortality. Considering the aging of the population and global increases in diabetes, atherosclerosis of the lower limb arteries will be a major public health challenge in the future. Therefore, there is a need to search for specific biomarkers that will have both diagnostic and prognostic value in this group of patients. One of them may be the insulin-like growth factor binding protein 7 - IGFBP-7.

IGFBP-7 is a part of the insulin-like growth factor system and can interact with insulin-like growth factor 1 (IGF-1) as well as insulin, which may indicate the involvement of IGFBP-7 in the development of insulin resistance, diabetes and consequently cardiovascular disease.

The role of IGFBP-7 in the development of lower limb arteriosclerosis has not yet been investigated.

The aim of this study was to evaluate the importance of IGFBP-7 as a potential marker of PAD occurrence, to assess the correlation of IGFBP-7 concentration with classical cardiovascular risk factors in this group of patients and to evaluate the usefulness of IGFBP-7 as a prognostic marker after lower limb arteries revascularization.

The study was conducted in a group of 145 patients diagnosed with PAD, qualified for invasive treatment. The control group consisted of 67 patients, representing the general local population. In addition, the study group was compared with patients with ischemic heart disease (IHD), which consisted of 88 subjects after myocardial infarction or coronary angioplasty.

Patients with PAD had significantly higher IGFBP-7 levels than control group (1,80 ± 1,62 ng/mL vs. 1,41 ± 0,45 ng/mL, p = 0,04). There were no significant differences between patients with PAD and patients with IHD (1,80 ± 1,62 ng/mL vs. 1,76 ± 1,04 ng/mL, p = 0,78). Patients with multilevel peripheral artery disease showed significantly higher IGFBP-7 levels than patients with aortoiliac PAD (median 1,42 ng/mL (0,71 – 2,63) vs. 1,18 ng/mL (IQR 0,48 – 2,23), p = 0,035). Patients who had an endpoint during follow-up (myocardial infarction, stroke or death) had significantly higher IGFBP-7 levels than the others, with a median of 2,66 ng/mL (IQR 1,80 – 4,93) vs. 1.36 ng/mL (IQR 0,65 – 2,34), p = 0,004, but these data should be treated with caution due to the small group size.

Conclusions: IGFBP-7 protein appears to be a good marker of atherosclerotic lesions, regardless of their location. Its role as a prognostic marker of cardiovascular events or death in patients with PAD should be further investigated.

IGFBP-7 in stable ischemic heart disease

The role of IGFBP-7 in stable ischaemic heart disease is also unclear.

The aim of the study was to determine the association between IGFBP-7 concentrations and concentrations of troponin T (TnT), N-terminal pro-B-type natriuretic peptide (NT-proBNP) and serum parameters of kidney function in patients with stable ischaemic heart disease (IHD).

The study group consisted of 88 patients diagnosed with IHD, approximately one year after myocardial infarction or percutaneous coronary intervention. The control group consisted of 66 subjects without IHD history, chosen based on age and gender from the local population.

The IGFBP-7 value was significantly higher in the group with IHD (1,76 ± 1 ng/mL vs. 1,43 ± 0,44 ng/mL, p = 0,019). In addition, TnT and NTproBNP concentrations were significantly higher in patients with IHD. In both groups there was a significant correlation

between IGFBP-7 and serum parameters of kidney function (creatinine concentration: control group r = 0,45 p < 0,001, IHD group r = 0,86 p < 0,0001; urea concentration: control group r = 0,51 p < 0,0001, IHD group r = 0,71 p < 0,00001). No correlation was found between IGFBP-7 and microalbuminuria or urinary albumin/creatinine ratio. In addition, a significant correlation was found between IGFBP-7 levels and markers of heart injury/overload – TnT and NT-BNP (r = 0,76 p < 0,001 and r = 0,72 p < 0,001). Multivariate analysis in the combined population of both study groups showed that IGFBP7 levels were independently associated with urea, creatinine and TnT concentrations.

Conclusions: Patients with IHD have significantly higher IGFBP-7 concentrations than the population group. Elevated IGFBP7 concentrations are associated with markers of renal function and markers of myocardial damage/overload – TnT.