

Assessment of carotid artery distensibility using ultrasound examination is now an accepted diagnostic method. We examined four groups of patients with cardiovascular diseases.

In the first group of 126 asymptomatic type 2 diabetics without a history of ischemic heart disease (IHD), carotid artery distensibility was predictive of a positive finding in myocardial SPECT imaging (0.27 ± 0.1 mm/100 mm Hg vs. 0.33 ± 0.08 mm/100 mm Hg; $p = 0.011$).

In the second group of 234 patients with IHD or stroke (cerebrovascular accident – CVA), we demonstrated, depending on the presence of diabetes, poorer distensibility values both in patients with IHD (0.16 ± 0.05 mm/100 mm Hg vs. 0.20 ± 0.06 mm/100 mm Hg; $p < 0.05$) and stroke (0.14 ± 0.04 mm/100 mm Hg vs. 0.17 ± 0.05 mm/100 mm Hg; $p < 0.05$). Furthermore, in patients with stroke, a significant difference in distensibility was found based on heart rhythm: patients with atrial fibrillation showed more favorable results (0.19 ± 0.05 mm/100 mm Hg vs. 0.10 ± 0.04 mm/100 mm Hg; $p < 0.05$).

In the third group of stroke patients, significantly poorer distensibility values were found in patients with metabolic syndrome (0.17 ± 0.08 mm/100 mm Hg vs. 0.20 ± 0.09 mm/100 mm Hg; $p < 0.05$), and it was shown that metabolic syndrome has a similarly negative impact on distensibility as type 2 diabetes.

In the fourth group of IHD patients prior to revascularization, both diabetes (0.21 ± 0.15 mm/100 mm Hg vs. 0.26 ± 0.11 mm/100 mm Hg; $p < 0.05$) and a history of stroke were associated with worsened distensibility values (0.20 ± 0.14 mm/100 mm Hg vs. 0.31 ± 0.11 mm/100 mm Hg; $p < 0.05$).

An interesting finding was a significant difference in carotid distensibility in patients indicated for valve replacement alone compared to those indicated for coronary revascularization (0.33 ± 0.12 mm/100 mm Hg vs. 0.23 ± 0.14 mm/100 mm Hg; $p < 0.05$).

Our results indicate that carotid artery distensibility is a promising diagnostic method capable of sensitively and early detecting vascular abnormalities across various cardiovascular diseases.