EVALUATION OF THE EFFECTIVENESS OF BIOMARKERS IN THE EARLY DETECTION OF ANGIOPOLYNEUROPATHY IN PATIENTS WITH TYPE 2 DIABETES MELLITUS.

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Relevance. Modern diagnostic methods, including neurophysiological studies, microcirculation assessment, ultrasound examination of peripheral vessels, and determination of endothelial dysfunction biomarkers, allow for the detection of early manifestations of angiopathy and neuropathy long before the onset of clinical symptoms.

The aim of the study was to evaluate the effectiveness of a comprehensive approach to the early detection and treatment of diabetic angiopolyneuropathy in patients with diabetes mellitus.

Materials and methods. The study included 140 patients (70 with diabetic angiopolyneuropathy, 70 with diabetes but angiopolyneuropathy not yet developed). Endothelial dysfunction biomarkers were studied: VEGF, NO, endothelin- 1. Patients at risk received preventive therapy: glycemic correction, antioxidant support, and improvement of endothelial function.

Results. A study of endothelial dysfunction markers revealed a significant increase in VEGF and endothelin-1 levels in patients with DANP ($p < 0.001$), while nitric oxide concentrations were reduced in both groups, especially in patients with severe neuropathic manifestations. Evaluation of the effectiveness of combination therapy demonstrated that after three months of treatment, patients with DANP experienced a 41% decrease in pain intensity, an average 22% improvement in nerve conduction velocity, and a 28% increase in microcirculation parameters, as well as a statistically significant decrease in total scores on the NDS and NSS scales ($p < 0.001$). Patients in the risk group demonstrated a pronounced preventive effect, consisting of a decrease in early markers of vascular dysfunction and a reduced risk of diabetic Angio polyneuropathy progression by 37%, which confirms the high efficacy of the chosen therapeutic approach.

Conclusion. A comparative analysis of the two groups revealed that patients with established angiopolyneuropathy experience severe sensory disturbances, a more significant reduction in nerve conduction velocity, and profound microcirculatory impairment, accompanied by elevated markers of endothelial dysfunction, reflecting the severity of progressive microvascular pathology. Thus, integrating early detection of subclinical forms of angiopolyneuropathy into clinical practice and the use of personalized multitargeted therapy represents the most effective strategy for the prevention and treatment of complications associated with diabetic peripheral nerve and

microvascular damage, ensuring more favorable clinical outcomes and improving patients' quality of life.

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