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DUPLEX SCANNING DIAGNOSIS OF BRACHIOCEPHALIC ARTERIES PATHOLOGY IN CHILDREN

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Relevance. Currently, ultrasound techniques make it possible to minimally invasively detect the signs of atherosclerosis, vasculitis, angiopathy, developmental deformities, including brachiocephalic arteries (BCA) pathology, and also to determine blood flow quantitative indicators. Duplex scanning is a highly sensitive and specific method of vascular imaging allowing the specialists to assess blood flow parameters using color and spectral Doppler modes.

Aim: to evaluate the indications and results of BCA Duplex ultrasound scanning in children, correlate them with clinical symptoms and identify the reasons that have caused a variety of complaints.

Materials and methods. We analyzed hospital records of 50 patients aged 10-16 years who were examined and treated in pediatric cardiological (27 patients) and nephrological (23 patients) departments of the 2nd Minsk City Pediatric Hospital. Along with standard diagnosis they underwent BCA Duplex scanning to identify the main reasons of multiple complaints.

Results and discussion. The main indications for scanning were complaints of dizziness, headaches, noise in the head, impaired coordination of movements and speech, arterial hypertension. The following data were analyzed: the course of the common and internal carotid arteries and their diameters, thickening of the intima-media complex, the diameters and course of the vertebral arteries, the peculiarities of blood flow within the subclavian arteries and the patency of the neck veins. In 2 patients (4%) complaining of dizziness, increased fatigue, noise in the head, impaired coordination of movements and speech, an S-shaped course of the internal carotid arteries was revealed on both sides. No changes in the blood flow within the subclavian arteries and no obstruction of the neck veins were observed. The intima-media complex was thickened in 5 patients with cardiac pathology (10%) and high blood pressure. However, in 10 (20%) patients who complained of dizziness, increased fatigue, poor mental stress tolerance no BCA abnormalities were discovered.

Conclusions. In the course of studying it has been established that BCA Duplex scanning is a highly sensitive research method that may be applied to detect preclinical signs of structural changes in all parts of the brachiocephalic arteries. However, we have figured out that in childhood, brachiocephalic arteries pathology is not detected very often (7 out of 50 cases (14%)), while in adult patients with arterial hypertension such kind of pathology is detected in more than 50% of cases. In our opinion it is associated with less severe changes and the duration of existing pathology in pediatric patients.