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Echocardiographic diagnosis and clinical significance of Eustachian valve hyperplasia

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Introduction. Eustachian valve (EV) is an embryological valve residue of the inferior vena cava. Currently, the persistence of an unusually elongated or hyperplastic EV is considered as a stigma of dysembryogenesis.

Purpose. Determine the frequency of detection and clinical significance of EV hyperplasia.

Methods. The analysis and clinical evaluation of 37577 transthoracic and transesophageal Doppler-echocardiographic examinations.

Results. EV hyperplasia was discovered in 97 cases out of 37577 studies, which accounted 0.25% of the total number of patients examined. EV hyperplasia was found to be significantly more common in people younger than 18 years (1.12%), while those which were over 18 years in age, the detection rate of EV hyperplasia was only 0.16% (p < 0.001). In those examined, isolated EV hyperplasia was detected in 28 patients, including 20 men and 8 women, with an average age of 16.1 ± 2.2 years. The isolated EV hyperplasia was essentially an echocardiographic finding and was not accompanied by any obvious clinical symptoms. Furthermore, EV hyperplasia was also detected in patients with congenital heart defects - 28 patients, including 13 men and 15 women, with an average age of 30.6 ± 3.5 years. In this category of patients, atrial septal defect prevailed (18 patients), with concomitantly atrial septum aneurysm (3), partial abnormal pulmonary vein drainage (1 patient). Less frequently observed were stenosis of the pulmonary artery (3), ventricular septal defect (2), complete ativoventricular canal (2), Ebstein's anomaly (1), aortic coartation (1), bicuspid aortic valve (1). In 17 patients (15 men and 2 women, mean age 20.0 ± 3.1 years), EV hyperplasia was combined with other small heart abnormalities in the context of connective tissue dysplasia syndrome - abnormalities of the chordal apparatus of the left ventricle (9 patients), mitral valve prolapse (3 patients), atrial septal aneurysm (2); in 3 cases, combined small anomalies of heart development occurred. EV hyperplasia was also discovered in 23 patients (12 men and 11 women, mean age 54.9 ± 4.1 years) with various pathologies of the cardiovascular system of ischemic and non-coronargenic origin - 9 patients with chronic ischemic heart disease, post-infarction cardiosclerosis (3), arterial hypertension (2), myocardiofibrosis (2), aortic valve prosthesis (2), infective endocarditis with aortic valve disease (1), mitral valve stenosis (1), aortic aneurysm (1), Kawasaki (1) and WPW syndrome (1).

Conclusion. EV hyperplasia is a rare usually asymptomatic congenital malformation of the heart, occurring predominantly in the young. The most frequent combination of EV hyperplasia is with an interatrial communication. This may indicate a postnatal delay in the closure of the foramen ovale associated with a persistent EV. Echocardiographic features of a hyperplastic EV require differential diagnosis with intra right atrial echo masses, blood clots, vegetations, embryological rudiments.