

THE DYNAMICS OF CHANGES IN ENDOTHELIAL FUNCTION IN PATIENTS WITH IMPLANTATION OF SINGLE-CHAMBER PACEMAKER

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Endothelial function (EF) plays an important role in maintaining adequate blood flow in vital organs such as the brain, myocardium, liver. The deterioration of endothelial function observed in patients with various disorders of AV conduction. Main treatment is to install a permanent pacemaker (PP) in these conduction disturbances. Implantation single chamber PP (66,3%) is the main distribution at present in Russia. Setting PP leads to ventricular dyssynchrony influencing the magnitude of cardiac output (CO) (1, 2). It is known that endothelial function is provided adequate shear stress, with a decrease of SV, the extent of recent changes, and is likely to reduce the EF.

AIMS. To estimate the initial state of endothelial function and its change with the installation of single-chamber pacemaker after 2 months.

MATERIALS AND METHODS. The study included 20 patients with an average age of 70.1 ± 12.9 years, with the presence of AV blockade II–III degree, which implanted a single chamber PP. Exclusion criteria from the study were: large-focal myocardial damage, atrial fibrillation, cardiomyopathy, congenital and acquired heart defects. The brachial artery (BA) was studied by ultrasonic duplex scanning on the unit 690 Toshiba–Aplio XG (Japan). Patients were mangalica test with assessment of endothelium-dependent vasodilation (dilatation) according to the classical method before surgery and 2 months after implantation PP.

THE RESULTS OBTAINED. Assessment of the internal diameter of the BA revealed that the source he was 3.74 ± 0.65 mm, after implantation of PP after 2 months, the diameter decreased to 3.53 ± 0.8 mm. The decrease in the sectional area of the BA were also noted. It was $0,14 \pm 0,05$ cm² source , and was $0.1 \pm 0,04$ cm² after 2 months , indicating a decline of 28.57%. Perhaps these changes in the internal diameter of the vessel, the cross sectional area testified about the decrease in cardiac left ventricular ejection, which was accompanied by a reflex contraction of the lumen of the vessel. Maximum velocity (V_{\max}) was estimated,

which source made up 66.78 ± 20.74 cm/sec, and increased to $73,96 \pm 14,53$ cm/s after 2 months. This was due to the reduction of diameter and cross-sectional area of the BA.

Parameter endothelium dependent vasodilation was decreased as observed during the tests. So, setting the initial dilatation was $6.67 \pm 4,54\%$ of patients, within 2 months of the specified parameter has decreased to $5.57 \pm 2.19\%$, signifying a deterioration of EF, associated probably with ventricular dyssynchrony.

CONCLUSIONS. The deterioration of endothelial function observed in patients with implantation of single-chamber PP, which is manifested by decrease in endothelium dependent vasodilatation. This decrease is probably connected with the change in CO, a decrease in shear stress, thereby reducing the diameter, cross-sectional area BA, which leads to an increase of maximum flow velocity.

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