The Dynamics of the Deformation Properties of Segments of the Left Ventricle in Patients with Ischemic Heart Disease Using Velocity Vector Imaging Before and After Coronary Artery Bypass Grafting

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Abstract

The aim of this study was to assess the impact CHD and surgical revascularization on parameters of strain (S) and strain rate (SR) longitudinal, circular and radial fibers of the LV.

In 450 segments LV deformation (S and SR) longitudinal, circular and radial fibers was analyzed before and after surgical revascularization. The results demonstrated a decrease S and SR in 211 (46,8 %) segments of longitudinal, 232 (51,5 %) circular and 116 (25,7 %) of the radial fibers of the LV. The same 239 (53,2 %) segments of longitudinal, 218 (48,5 %) and circular 328 (72,8 %) segments of the radial fibers had normal and increased values of S and SR as well as with different options to change S or SR. After revascularization improved deformation properties of longitudinal and circular fibers of the left ventricle in the group with low values of S and SR. The increased number of segments with high or normal value of SR. Normal values of S and SR radial fibers observed in most segments (n = 254; 56,7 %). From the 5 patients at 6 months after revascularization showed improvement of strain properties of circular fibers, increasing the number of segments with normal S and SR of the longitudinal and radial fibers of the LV.

Key words: Coronary Heart Disease, Velocity Vector Imaging, Strain, Strain Rate.

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