TOP 10

The importance of strain and stiffness index in the assessment of the function and structure of the left atrium

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Introduction: Assessment of left atrial size and function is a routine part of any echocardiographic examination. These parameters reflect volume and/or pressure load, pathology of the left ventricle, arrhythmias, storage diseases, and congenital heart defects[1]. The presented research aims to evaluate the significance of the atrial stiffness index (ASI) and left atrial strain (LAS) in assessing the function and structure of the left atrium.

Patients and Methods: The analysis was performed using statistical methods applied on the observations of 57 male individuals split into three groups: G1 (22 healthy individuals), G2 (25 patients with arterial hypertension), and G3 (10 patients with heart failure with reduced ejection fraction). All subjects were in sinus rhythm and without a significant degree of calcification of the mitral annulus. Patients underwent classical echocardiographic examination along with 2D speckle tracking analysis.Variable observations related to group pairs (G1-G2, G1-G3, G2-G3) were statistically analyzed using t-test for differences of means and F-test for analysis of variance.

Results: Statistically significant difference ($p<0.05$) between means was found for all group pairs for ASI and reservoir LAS, while latter showed $p<0.05$ for difference between variance as well. Median ASI value was 0.28 (interquartile range (IQR) 0.2-0.31), 0.44 (IQR 0.35-0.7), and 1.66 (IQR 0.91-2.77) for G1, G2 and G3 respectively, measured in mmHg/ml. Median reservoir LAS value (average of two and four chamber views) was 29.75% (IQR 27.87-33.73), 24.13% (IQR 20.32-27.57), and 14.39% (IQR 9.12-18.24) for G1, G2 and G3 respectively.

Conclusion: ASI and reservoir LAS showed significant difference in patient subgroups. Taking that into account, it is reasonable to include them in everyday echocardiographic practice for diagnosis both clinical and subclinical cardiac dysfunction.

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LITERATURE

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