Abstract: P918

Myocardial strain analysis by 2D speckle tracking for detection of obstructive coronary artery disease

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Background: Echocardiography plays a key role in diagnosis of suspected cardiac disease. However, conventional resting echocardiography has a limited role in the diagnostic armamentarium for obstructive coronary artery disease in stable patients without regional wall motion abnormalities. 2D-strain echocardiography evolved as a promising tool for detection of subtle myocardial dysfunction. The aim of this study was to assess if 2D strain imaging by speckle tracking can provide additional information on the diagnosis of obstructive coronary artery disease in patients with normal left ventricular function and stable angina pectoris.

Methods: We included patients without a history of coronary artery disease, scheduled for coronary angiography due to suspected angina pectoris. Echocardiography was performed prior to coronary angiography and global longitudinal strain (GLS), regional strain and postsystolic shortening index (PSI) were obtained, accomplished by 2D speckle tracking Imaging. We compared strain patterns and strain values of patients with coronary artery disease (CAD group), confirmed by coronary angiography and patients without coronary artery disease. (non CAD group).

Results: 23 patients with a mean age of 67,5 years were included. 13 patients had coronary artery disease (CAD group), whereas 10 had no obstructive coronary arteries (non CAD group). All patients were in sinus rhythm. Mean left ventricular ejection fraction was 58,8 ± 3,6 % in patients of CAD group and 59,0 ± 2,1 % in the non CAD goup. In 12 of 13 (92,3%) patients with obstructive coronary stenosis postsystolic shortening was detected. In contrast, just in 1 of 10 (10%) patients without coronary artery disease postsystolic shortening was observed. Mean GLS in the CAD and non CAD group was -18,6 ± 2,3 % and -20,5 ± 2,7 % (p=0,115) respectively. Mean PSI of 7,6 ± 6,6 % in the non CAD group was significantly lower than mean PSI of 20,8 ± 10,9 % (p=0,012) in the CAD group.

Conclusion: Analysis of strain patterns including detection of postsystolic shortening and measurement of postsystolic shortening index, assessed by 2D strain imaging may extend the accuracy of non-invasive detection of coronary artery disease in stable patients without wall motion abnormalities.