Proširenи sažetak / Extended abstract

Speckle tracking exercise stress echocardiography

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We used 2D strain measurement to quantify segmental systolic function during exercise stress echocardiography in 12 pts with AP and positive/borderline ECG stress test (*Group 1*) and in 14 pts without AP and with negative ECG stress test (*Group 2*). 2D-strain was obtained in parasternal short axis view and in the three apical views at rest and immediate post peak stress. Peak systolic strain rate (SR) and end-systolic strain (e) were measured off-line. Segmental quantification was compared with wall motion analysis in at least two adjacent segments. We used 16 myocardial segments model. The ROI was tracked manually at the end-systolic frame of the 2D images in a mid-myocardial position. SR criteria for myocardial ischemia were: delta SR <50% and SR at post peak stress <-2/s (apical septum), <-1,8/s (basal inferolateral segment), and <-1,7/s (mid inferior segment). Data are expressed as mean ±SD and as percentage of segments.

Pts with bad gray scale image, LBBB, severely depressed LV function and significant valvular heart disease were excluded.

Results: 2D SR could be adequately measured in 92% segments at rest and in 64% segments at post peak stress. Average 2D longitudinal and circumferential systolic strain parameters were significantly lower /p< 0.01/ in group 1 pts. Delta SR <50% was found in 10 pts of the Group 1 and in 3 pts of the Group 2. SR at post peak stress in segmental analysis was positive in 9 Group 1 pts and in 3 Group 2 pts (negative ischemic cascade). WMSI at rest and post peak stress was 1.12 ±0.5 and 1.1 ±0.4 in Group 1 and 1.2 ±0,7 and 1.4 ±0,6 in Group 2.

Conclusion: Speckle-derived strain could be, especially at rest, despite some limitations (image quality influence, lower frame rate), applicable supplement to exercise stress echocardiography in detecting myocardial ischemia in practice.

KEYWORDS: speckle tracking, exercise stress echo, ischemia.

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