

Ruolo diagnostico del test da sforzo con l'analisi dell'isteresi ST/HR nei pazienti con stenosi aortica severa asintomatica

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Abstract

Background

Although recommended by current guidelines, the exercise ECG stress test (ExET) is underused for the diagnostic workup of asymptomatic patients with severe aortic stenosis (AS), due to safety concerns and poor accuracy of the method for coronary artery disease (CAD) detection. We hypothesized that the ST-segment/heart rate (ST/HR) hysteresis increases the diagnostic performance of ExET for CAD detection in asymptomatic patients with severe AS.

Methods We prospectively analysed patients with severe asymptomatic AS referred to 5 cardiology centers in Italy, Belgium and France. Patients underwent invasive coronary angiography (ICA) within a month from the ExET. Coupled ST-T segment depression values and HR measurements for ST/HR hysteresis calculations were processed by an ad-hoc home-made software. Receiver-operating characteristic (ROC) analysis was performed to test the discriminative capacity of ST/HR hysteresis and maximum ST depression (ST-max) at ExET in detecting CAD.

Results Among the 30 included patients (mean age 77 ± 8 years, 77% males), CAD was detected in 14 cases (47%). At ROC analysis, the ST/HR hysteresis achieved a better diagnostic performance (AUC 0.82; 95% CI 0.72 – 0.94, $P < 0.01$ vs neutral AUC) than the ST-max criterion (AUC 0.58; 95% CI 0.42 – 0.71, $P = \text{NS}$ vs neutral AUC). Pairwise comparison demonstrated a significant difference between the two AUCs (0.24, 95% CI 0.02 to 0.41, $P < 0.05$), with better performance of the ST-HR hysteresis.

Conclusion The ST/HR hysteresis improves the diagnostic performance of ExET for CAD detection in asymptomatic patients with severe AS.