ABSTRACTS OF THE 19TH CONGRESS OF ECHOCARDIOGRAPHY

Poster session: Stress echography/Transesophageal echography

Transvalvular impedance modification during exercise echocardiography
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Purpose.— To analyse the relationship between changes in the transvalvular impedance signal (TVI) and echocardiographic markers of cardiac hemodynamics, during physical stress.

Methods.— A semi-supine self-limited exercise echocardiography was performed in eight consecutive patients (mean age: 72±8 years, three males) implanted for standard indications with a dual-chamber pacemaker equipped with the TVI sensor (Sorphos 155). Left ventricular (LV) volumes were measured using the biplane Simpson method. Pulsed-wave Doppler and Tissue Doppler Imaging were used to quantify mitral E wave and mitral annulus Ea wave respectively. At rest and exercise, E/Ea ratio was used to assess the LV filling pressure. Concomitantly, the TVI waveform was derived and processed by the implanted pacemaker. TVI increases in systole and decreases in diastole, suggesting an inverse relationship with the ventricular volume.

Results.— At peak exercise, sinus rate and aortic VTI were increased, respectively, by 31±13 bpm and 16±12% versus the resting levels. The enhanced LV stroke volume was mainly the result of an increased LV end-diastolic volume (EDV: +17±13 ml), while the LV end-systolic volume showed not significant changes (+2±10 ml). The preload increase under stress was further confirmed by the increased peak velocity of mitral E-wave (+50±55%). During stress, E/Ea ratio decreased in five patients and increased in the remaining. Physical exercise induced an increase in the peak-peak amplitude of the TVI waveform, concomitantly to a decrease in E/Ea ratio. In contrast, the TVI signal amplitude was decreased in patients with increased E/Ea. The stress-induced changes in TVI wave and E/Ea ratio were well correlated (R2 = 0.76). The end-diastolic TVI was reduced during exercise in all patients, and its relative modification was inversely correlated with the relative change in LVEDV (R2 = 0.73).

Conclusion.— The TVI waveform is sensitive to LV diastolic volume and filling pressure, as assessed by transthoracic echocardiography.

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Transesophageal echocardiography, an unusual trigger to Takotsubo cardiomyopathy: A case report
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We report a case of Takotsubo cardiomyopathy (TC) occurring after a transesophageal echocardiography (TOE). TC is a recently described syndrome characterized by transient left ventricular (LV) dysfunction, mimicking ST-segment elevation myocardial infarction in its presentation, without obstructive coronary artery disease. Although the aetiology of TC syndrome remains obscure, stress appears to be the principal trigger. It is more common in middle-aged women, and the prognosis is favourable. TOE is considered as a semi invasive exam, but widely performed for cardiovascular evaluation with a relatively good tolerance and a very low rate of complication. We describe the case of a 65-year-old female patient who underwent a TOE and developed afterward a TC. To the best of our knowledge, this is the first case describing TC following TOE.

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Large ischaemia during stress echocardiography and normal coronary angiography
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After a positive stress echocardiography (stress echo), a coronary angiography is usually performed. When no significant lesion is found, the result is considered as a “false positive” test. Nevertheless, in some cases, new wall motion abnormality (WMA) during stress echo is large and clearly present for different observers. The aim of the present study was to evaluate the occurrence of large WMA during stress echo with normal coronary angiography in routine clinical practice.

Methods.— All patients referred for coronary angiography after a positive stress echo in our centre between April 2008 and October 2009 have been selected for the study. Stress echo were blindly analysed by two observers in order to specify the number of ischemic segments (new or worsening WMA).

Results.— Three hundred and seventy-nine patients (75% men, mean age 66±10 years) have been included in the study. Mean number of ischemic segments at peak stress echo was 4±1.5. Coronary artery stenosis >50% (visual analysis) was present in 322 patients (85%). In 178 patients, stress echo was positive in a large area...