Effect of a 48-Hour Discontinuation of Beta Blockers Before Dobutamine Atropine Stress Echocardiography on the Occurrence of Sustained Arrhythmic Events During the Test
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Background: Beta blockers (BB) are often discontinued before dobutamine atropine stress echocardiography (DASE) in order to avoid blunting the ischemic response. However, the effect of their discontinuation on the occurrence of sustained arrhythmic events during DASE remains unclear.

Objective: To determine the effect of discontinuation of BB 48 hours before DASE on the occurrence of sustained arrhythmic events; duration ≥ 20s for supraventricular arrhythmias (SVA) and ≥ 10 complexes for ventricular arrhythmias (VA) and to analyze the consequences of this strategy to reach the target heart rate.

Methods: After obtaining informed consent, 124 patients (113M/11F; mean age 61) were randomized into 2 groups (G1 & G2). In G1 (n=62), all patients discontinued BB 48 hours before DASE. In G2 (n=62), patients continued BB up to the wash out period (4 hours before DASE).

Results:

- G1: 29 patients were identified as having SVA ≥ 20s (5SA, 24VA) and 13 patients were identified as having VA ≥ 10 complexes (1SA, 12VA).
- G2: 4 patients were identified as having SVA ≥ 20s (2SA, 2VA) and 1 patient was identified as having VA ≥ 10 complexes (1VA).

Conclusion: The discontinuation of BB 48 hours before DASE is safe and does not increase arrhythmic events during the test. However, stopping BB 48 hours before DASE does not seem to be enough to reach the target heart rate provided an increase in the dose of dobutamine.

1094-67
Noninvasive Diagnosis of Physiologic Stenosis in the Left Circumflex Coronary Artery Using Contrast Enhanced Tissue Doppler Echocardiography: Comparison With Exercise 201-TI Single Photon Emission Computed Tomography
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Background: Currently, coronary flow assessment with transcranial Doppler echocardiography (TTDE) has been reported to be useful to detect coronary artery stenosis. However, the use of this method has been restricted only for the left anterior descending coronary artery.

The purpose of this study was to measure coronary flow velocity reserve (CFVR) in the left circumflex coronary artery (LCX) by TTDE to estimate physiologic severity of LCX stenosis, compared with Exercise 201-Tl Single Photon Emission Computed Tomography (SPECT).

Method: We studied 44 patients with angina pectoris (38 men, mean age 61) suspected of coronary artery disease. We excluded the patients with left ventricular asynergy, left ventricular hypertrophy or atrial fibrillation. Using coronary flow mapping with low frequency transducer (3MHz), Doppler TDI was assessed at rest and peak dobutamine stress. CFVR was calculated by dividing the peak flow velocity by baseline flow velocity. Results were compared between the left anterior descending coronary artery (LAD) and the left circumflex coronary artery (LCX) at rest and peak stress. In 70 normal subjects, the peak flow velocity was 18.7 ± 7.7 cm/s and the baseline flow velocity was 1.2 ± 1.1 cm/s. The peak flow velocity was 16.7 ± 10.7 cm/s and the baseline flow velocity was 1.2 ± 1.1 cm/s. The peak flow velocity was 13.2 ± 8.1 cm/s and the baseline flow velocity was 1.2 ± 1.1 cm/s. The peak flow velocity was 13.2 ± 8.1 cm/s and the baseline flow velocity was 1.2 ± 1.1 cm/s. The peak flow velocity was 13.2 ± 8.1 cm/s and the baseline flow velocity was 1.2 ± 1.1 cm/s.

Conclusion: The results of this study indicate that TTDE is a useful technique to assess physiologic severity of coronary artery disease.

1094-68
The Doppler Flow Characteristics of the Grafted Left Internal Mammary Provide Diagnostic Information for Patency Over Stress T201 Scintigraphy and Dobutamine
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Background: In patients (pts) post-surgery bypass (CABG) with a left internal mammary artery (LIMA) grafted to left anterior descending artery (LAD) and/or radial arterial graft (RANG), maximal quantification of LIMA flow reserve is usually performed using Doppler TDI (CPR) at rest. However, the flow through the grafted LIMA may depend on the LAD patency.

Methods: 72 consecutive pts (age 65±9) were studied (57±5 years post CABG). All underwent coronary angiography, SPECT T201 and CPRad (proximal LIMA: supraclavicular fossa/isolation rate 14±2/g/min for 6 min) with a period <3months/3972

had also a Dob-echo during this time frame. The cut off point of 1.6 for CPRad was used as predictor of LIMA/LAD patency.

Results: Overall, when CPRad outcome value was applied to SPECT: 56% false negative and 18%/3% false positive SPECT were correctly classified as true positive and true negative respectively. When Dob-echo outcome was applied to Dob-echo: 24% false positive and 44% with false positive Dob-echo were reclassified as true negative and true positive respectively. RPMA group: CPRad outcome had a better kappa coefficient to LIMA/LAD anatomy than SPECT or Dob-echo in pts with resting hypokinesia/akinesis (both p<0.01).

Conclusion: CPRad yields incremental information for LIMA/LAD patency compared to both SPECT and Dob echo. Diagnostic accuracy is significantly improved in the presence of extensive LAD territory wall dysymmetry.

1095-59
Assessment of Myocardial Contractile Reserve During Dobutamine Stress Echocardiography in Patients With Coronary Artery Disease Using the Novel Index of Contractile Function: Myocardial Acceleration During Isovolumic Contraction
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Background: Tissue Doppler (TD) has improved quantitative assessment of dobutamine stress echocardiography. We evaluated a novel TD index of contractile function: myocardial acceleration during isovolumic contraction (IVA) after validation in animal experiments. Methods: 149 patients from 6 European centres with coronary artery disease had a dobutamine stress echocardiogram and coronary angiography. Tissue Doppler data were obtained from 4 standard views at rest, 5, 10, 20, 30 and 40 mcg/kg/min of dobutamine (s dobutamine). The digital cineimages (digital raw data of cardiac cycles each) was analysed off line for IVA and systolic velocities (s-wave). Using the 16 segment model, longitudinal (basal septal, lateral, anterior, inferior and mid septal, lateral, inferior segments), and radial function (basal posterior segment) was measured at rest and peak stress as average of 2 readings. In 70 normal subjects IVA response to dobutamine was determined at all stages. Results: In the normal group, IVA increased in a dose-dependent manner with dobutamine from 1.3±1.1 m/s to 8.3±5.8 m/s (638%) for longitudinal function and from 1.2±1.1 to 10.6±5.7 m/s (908%) in the basal posterior segment. IVA increased significantly at 5 mcg/kg/min but s-wave did not. In coronary artery disease, resting IVA was the same but the response to peak dobutamine was blunted in the segments corresponding to stenosis on angiogram. In the basal inferior segment (right coronary artery) the peak response was 5.7±2.8 vs. 9.3±4.0 m/s (475 vs. 715% of baseline) for diseased vs. normal (p<0.001). In the basal lateral segment (circumflex coronary artery) the peak response was 6.1±3.4 vs. 10.9±4.5 m/s (508 vs. 691% of baseline) for diseased vs. normal (p<0.001). Conclusion: Compared to s-wave velocity, IVA rises at lower doses and by a bigger margin, indicating improved sensitivity. IVA is useful as an adjunct to s-wave velocity to evaluate coronary artery disease.

1095-59
Reconstructive Three-Dimensional Tissue Doppler Imaging for Quantifying Left Ventricular Myocardial Infarction Area After Coronary Artery Occlusion: An In Vivo Chronic Animal Study
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Background: Characterization and quantification of regional myocardial wall motion abnormalities is of major importance in the noninvasive evaluation of patients with ischemic myocardial dysfunction. This study tested determination of myocardial infarction area of the LV using 3D reconstruction from tissue Doppler imaging in sheep. Methods: Right sheep (25-47kg) underwent occlusion of LAD coronary artery via its diagonal branch to create apical myocardial infarction and aneurysm formation 19-27 weeks prior to this study, at which time 3D echo images were obtained on open-chest animals. Volume loading, dobutamine and angiotensin acid infusion was used to induce a variety of hemodynamic states. Epicardial scanning was performed using a 2.5MHz probe rotated by a stepper motor over 180° controlled by a GE/VingMed Vivid Five scanner. Using EchoPac 3D analysis software, the infarcts were identified by perfusion velocity trace from 3D objects and 6-8 parallel cutting planes were selected to cover the entire left ventricle with the arc lengths of the infarcts.

Conclusion: This method was able to accurately identify the infarcted myocardial region with increased perfusion velocity and provide reliable data for determining the infarct size.