of dysfunctional segments/patient (11.4±3.0 vs 11.0±3.0), global wall motion score index (WMSI: 2.37±0.36 vs 2.12±0.42), and ejection fraction (EF: 29±9% vs 35±8% p=NS). However, in patients with RF pattern the number of segments/patient showing contractile response to dobutamine (3.50±2.43 vs 6.63±2.59; p<0.01) and the percent contractile reserve (31±22% vs 65±22%; p<0.0001) were lower compared to NRF patients, and WMSI at peak dobutamine infusion higher (1.93±0.24 vs 1.60±0.36; p<0.05), indicating reduced contractile reserve in patients with impaired diastolic filling. Across all patients there was also a positive correlation between the number of segments showing contractile reserve and both isovolumic relaxation time (r=0.64, p<0.0001), and deceleration time of peak E-velocity (r=0.56, p<0.001). After revascularization, LVEF increased by 11±9% in patients with NRF but by only 4±3% in patients with RF pattern (p<0.05). Also, in patients with NRF compared to RF pattern, function recovered in 4.22±4.0 segments vs 1.75±3.0, and WMSI improved by 0.44±0.42 vs by 0.33±0.40 (p<0.05), respectively.
Conclusions: In patients with hibernating myocardium, impaired diastolic filling is associated with reduced contractile reserve; restrictive filling pattern may also predict poor recovery of function after revascularization.

9:30 a.m.

802-2 **Dobutamine Versus Levosimendan Stress Echocardiography for the Prediction of Recovery of Left Ventricular Dyssynergies After Revascularization**

Georgios P. Pavlakis, Konstantina P. Bouki, Theodoros Kakavas, Kiriakos Poulopoulos, Athanasios Kotsakis, Valerios Foulidis, Takis Xidas, Evangelos Papasteriadis, Nikea General Hospital, Piraeus, Greece

Background: Levosimendan is a new calcium-sensitizer agent with inotropic and diuretic properties. Although it is used as an inotropic agent in decompensated heart failure showing comparable efficacy to the other inotropic drugs, it has not been used in stress echocardiography yet. The purpose of our study was to compare the accuracy of levosimendan (LSE) and dobutamine stress echocardiography (DSE) for the prediction of recovery of left ventricular (LV) dyssynergies after revascularization.
Methods: Twenty eight patients with LV dysfunction due to previous myocardial infarction scheduled for revascularisation (18 coronary angioplasty and 10 bypass surgery) underwent low-dose DSE (5-10μgr/kgr/min) and LSE. Levosimendan was infused at least 1 hour after dobutamine infusion, at 2 doses of 12 and 24μgr/kgr, over a 5 minutes period each. LV wall motion score was assessed using a 16-segment model. Myocardial viability was detected if improvement of ≥1 grade of regional wall motion score in at least two contiguous segments was noted, during either dobutamine or levosimendan infusion. All patients also underwent resting echocardiography within 6 months after successful revascularization.
Results: No major adverse events occurred during levosimendan or dobutamine administration. Of the 448 segments studied, 212 (47%) were dyssynergic at rest. Dobutamine infusion resulted in augmented contraction in 98/212 (46%) abnormal segments while 88 (90%) of them showed functional improvement after revascularization. During LSE 110/220 (52%) dysfunctional segments improved and 100 (91%) of them recovered function after revascularization. Analysis of results showed a significantly lower sensitivity of DSE compared to LSE (73% Versus 94% respectively, p<0.01) but a similar specificity (88% Versus 90% respectively, p=ns) for the prediction of the recovery of LV dyssynergies after revascularization.
Conclusions: Levosimendan can be used safely in stress echocardiography. Futhermore, LSE seems to predict postrevascularization recovery of LV dysfunction with higher accuracy than DSE.

9:45 a.m.

802-3 **Comparative Long-Term Prognostic Value of Dobutamine Stress Echocardiography Versus Dobutamine Stress Myocardial Perfusion SPECT**

Arend F.L. Schinkel, Jeroen J. Bax, Abdou Elhendy, Don Poldermans, Erasmus MC, Rotterdam, The Netherlands

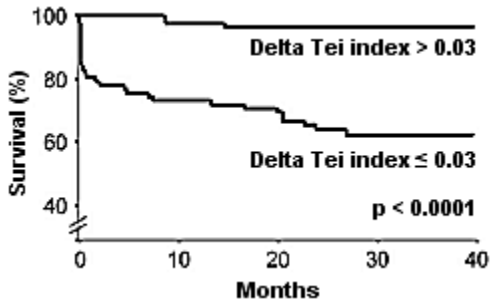
Objectives: The purpose of this study was to compare the long-term prognostic value of dobutamine stress echocardiography and dobutamine stress single photon emission computed tomography (SPECT).
Background: Dobutamine stress echocardiography and dobutamine stress SPECT are clinically useful methods for the detection of coronary artery disease. The comparative longterm prognostic value of these imaging modalities is not clear.
Methods: A total of 354 consecutive patients underwent simultaneous dobutamine stress 99mTc-sestamibi SPECT and dobutamine stress echocardiography. Follow-up was successful in 351 (99.2%) patients. Fifty patients underwent early (<60 days) revascularization and were excluded; the analysis is based on 301 patients.
Results: Abnormal perfusion was detected in 198 (66%) patients, and 182 (60%) had an abnormal stress echocardiography; the agreement was 82% (kappa=0.62). During 7.3 {plus minus} 2.8 years follow-up, 100 (33%) deaths occurred of which 43 (43%) were due to cardiac causes. Nonfatal infarction occurred in 23 (8%) patients and 29 (10%) underwent late revascularization. Annual event rates for cardiac death, or all cardiac events were respectively, 0.7%, and 3.6% after a normal scan, and 2.6%, and 6.5% after an abnormal scan, P<0.0001. For stress echocardiography, annual event rates for cardiac death, or all cardiac events were, respectively, 0.6%, and 3.3% after a normal test, and 2.8%, and 6.9% after an abnormal test, P<0.0001. In multivariable Cox models, 99mTc-sestamibi SPECT and stress echocardiography were the strongest predictors of cardiac death (OR 2.4, CI 1.1-6.5 and OR 3.3, CI 1.2-8.7, respectively) and all cardiac events (OR 2.3 CI 1.1-4.9 and OR 3.4 CI 1.7-6.8). Both modalities had a similar incremental prognostic value over clinical variables (SPECT vs. echocardiography: global chi-square 33.2 vs. 36.0, P=NS).
Conclusions: Dobutamine stress 99mTc-sestamibi SPECT as well as dobutamine stress echocardiography provide comparable, powerful, long-term prognostic information over clinical data.

10:00 a.m.

802-4 **The Doppler Tei Index During Dobutamine Stress Echocardiography: A Powerful Predictor of Mortality After Acute Myocardial Infarction**

Betina Norager, Mirza Husic, Jacob Moller, Kenneth Egstrup, Svendborg Hospital, Svendborg, Denmark, Odense University Hospital, Odense, Denmark

Background: Myocardial viability can be detected by systolic wall motion analyses during dobutamine stress echocardiography (DSE). However, not only systolic but also diastolic left ventricular function has a potential of improvement after acute myocardial infarction (AMI). Therefore, we hypothesized that the Doppler Tei index of combined systolic and diastolic performance (sum of isovolumic relaxation and contraction times divided by ejection time) obtained during DSE could provide prognostic information beyond conventional systolic wall motion analyses.
Methods: In 162 consecutive patients with first myocardial infarction DSE (10 μg/kg/min) was performed 16 ± 6 hours after hospital admission. Delta Tei index was calculated as the change in Tei index from rest to DSE.
Results: During follow-up of 25 ± 11 months, 33 patients (20 %) died. Delta Tei index was significantly higher in survivors than in patients dying (0.05 ± 0.09 versus -0.08 ± 0.11, p < 0.0001). Mortality rate was significantly lower in patients with delta Tei index above the median (0.03), p < 0.0001 (Figure). In a multivariate Cox regression model, delta Tei index (chi-square = 8.1, p = 0.004) added prognostic information above and beyond age, Killip class II ≥ on admission, ejection fraction, mitral deceleration time ≤ 140 ms, and infarct zone viability.
Conclusions: Tei index obtained during DSE is a powerful predictor of mortality after AMI and provides prognostic information incremental to conventional stress echocardiographic data.



10:15 a.m.

802-5 **Long-Term Prognostic Value of Pacing Stress Echocardiography Compared With Dipyridamole Tl^{201} Tomography in Patients With Permanent Pacemaker and Known or Suspected Coronary Artery Disease**

Sarah Shimoni, Sorel Goland, Shay Livshitz, Gera Gendelman, Avraham Caspi, Menashe Epstein, Kaplan Medical Center, Rehovot, Israel

Background: Myocardial ischemia is difficult to assess by noninvasive methods in patients (pts) with permanent pacemaker (PP).Recently, pacing stress echocardiography (PSE) using external programming of the PP has been used successfully for detection of coronary artery disease (CAD). However, the prognostic value of this method is not well defined.
Methods: We compared the long-term prognosis of PSE and radionuclide tomography (SPECT) in 46 pts (mean age 75 yr) with PP and known or suspected CAD. All pts underwent PSE with increasing pacing rate up to 100% of age predicted maximal heart rate or upper limit of pacemaker rate. Forty-one pts also underwent dipyridamole SPECT. Pts were followed for a median of 570 days (range, 60-870). Event-free survival was estimated using Kaplan-Meyer analysis.
Results: PSE was negative in 17 and positive in 29 pts. SPECT was negative in 8 and positive in 33 pts. During follow up there were 15 cardiac events (death, myocardial infarction and need for revascularization). The projected two-year event free survival was 81±13% in pts with normal PSE and 24%±18% when the PSE was abnormal (p=0.03). Predicted two-year event free survival was 41±19% and 88±11% in pts with abnormal and normal SPECT, respectively (p=NS).
Conclusions: PSE allows effective risk stratification in pts with PP known or suspected to have coronary artery disease. The prognostic value of PSE is better than SPECT in this population. PSE merits further study in a larger prospective comparative study.