726 Mental stress and myocardial ischemia: hemodynamic and echocardiographic parameters.
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Introduction: Indirect evidences have suggested a link between mental stress and coronary artery disease (CAD). Recent research in CAD patients has confirmed the observation that mental stress is a potent trigger of myocardial ischemia.

Objective: The aim of this study was to evaluate the feasibility of mental stress test and the relation between mental stress and occurrence of myocardial ischemia as evaluated by echocardiography.

Methods: All laboratory sessions began at noon, and the patients were studied off antianginal therapy. Study population included 38 patients with angiographically proven CAD (31 male, 7 female, mean age 48±10 years; multivessel CAD in all patients) and previous positive exercise stress test (development of chest pain and ST depression >1mv, 0.08 sec after J point). 12-leads ECG, blood pressure, and echocardiography for wall motion abnormalities were continuously monitored. Test protocol consisted of rest phase (30 min in a partially darkened room), mental task phase: mental arithmetic (5 min, subtract 72 serially from a 4-digit number) and simulated public speech task (10-15 min, describing their personal faults and shortcomings). After mental stress test, in all patients submaximal Bruce treadmill protocol was performed.

Results: Mental stress test was successfully performed in all patients (feasibility 100%). During mental stress test, chest pain occurred in 5/38 pts (13%), ischemic ECG changes developed in 9/38 pts (24%, p<0.05 vs. anagia) and new or worsening of wall motion abnormalities was observed in 22/38 (58%, p< 0.05 vs. angina and ECG). Exercise stress echocardiography test after mental stress test was positive in 35/38 pts (100%; in 3 pts exercise stress test was not performed because of hyperensive reaction during mental stress test).

Conclusion: These results showed excellent feasibility of mental stress test and direct evidence that myocardial ischemia in significant number of pts with severe coronary artery disease is related to mental stress.

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Aim: The aim of this study was to evaluate the optimal surgical treatment of patients (pts) with severe post-myocardial infarction mitral regurgitation (MR), based upon transesophageal dobutamine stress echocardiography (TEE-DASE) results.

Material: The study group comprised 170 pts (105 men, 65 women; aged 64±11) with a history of MI following echo and coronary angiography (2-8 weeks post-MI). In this group small and mild MR was observed in 64 pts (38%), severe in 17 pts (10%). Detailed analysis was performed in 17 pts with severe MR. All this pts had multiple vessel coronary disease, significant contractility disturbances (EF 70±10). All pts were qualified to coronary artery bypass graft (CABG).

Method: All patients, prior to surgery underwent TEE examination for evaluation of left ventricular function, all pts were qualified to CABG. TEE-DASE was performed using Philips Sonos 5500 and 2500 (1.7) and were qualified to coronary artery bypass graft (CABG).

Results: Influence of TEE-DASE on MR. In group 1 there were 6 pts with significant MR decrease(at least 2+). In group 2 we observed 11 pts without influence on MR or MR decreased without WMSI changes. Patients were qualified towards CABG if MR and WMSI deterioration during TEE-DASE (Group 1), while those without DASE influence on MR or decreased MR without WMSI changes (Group 2) underwent CABG and mitral plasty or valve replacement. Further patient analysis, according to administered treatment.

Table 1. Degree of MR following treatment

<table>
<thead>
<tr>
<th>Group 1</th>
<th>Group 2</th>
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<tbody>
<tr>
<td>n=17</td>
<td>n=5</td>
</tr>
<tr>
<td>Small MR</td>
<td>M=4</td>
</tr>
<tr>
<td>Mild MR</td>
<td>M=9</td>
</tr>
<tr>
<td>Severe</td>
<td>M=2</td>
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Conclusions: 1. TEE-DASE enables to select patients with significant MR, in whom CABG improves mitral valve functioning.
2. TEE-DASE enables patient selection, in whom CABG should be performed with mitral plasty or valve replacement.

728 Force-frequency relationship during dobutamine stress echo: noninvasive exercise-independent assessment of left ventricular contractility.
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Background: Force-Frequency relationship (FFR) is a methodologically robust approach to evaluate left ventricular contractility during exercise echo.

Aim: To assess the feasibility of a noninvasive estimation of FFR during dobutamine stress in the echo lab.

Methods: We enrolled 33 consecutive patients (27 males, age 66±12 years) for dobutamine stress echo (up to 40 mcg/kg/min). Ejection fraction was 41±15%. To build the FFR, the force was determined at different steps as the ratio of the systolic pressure (SP, cuff sphygmomanometer)/end-systolic volume index (ESV, biplane Simpson rule/body surface area). Heart rate was determined from ECG at different dobutamine steps.

Results: Dobutamine stress was uneventfully completed in all patients. The FFR could be obtained in all. The 15 pts with ischemic echo response (new or worsening dysshynergy) had a flat-downsloping FFR slope (1.5 ±2.5 x 10-2); the 18 patients with normal- vs. positive response showed an upstipping FFR slope (3.2 ±1.9 x 10-2, p<0.05 between groups) (figure), in spite of comparable resting ejection fraction.

Conclusions: A noninvasive estimation of FFR is feasible during dobutamine stress in the echo lab. It unmasks a substantially heterogeneous contractile response in patients with similar values of conventional indices of left ventricular function.