The extension of myocardial transmural necrosis in pt with successful myocardial necrosis and SS may represent an important predictive index of Conclusions:

A significant inverse correlation between SS and the extent of DH (r=-0.69) was observed as illustrated in the figure.

The extent of DH ranged from 45% to 100% of wall thickness.

DH was calculated as percentage of wall thickness.

DH remained low in group A but was significantly improved in group B (table). Systolic SR significantly decreased, after reperfusion, within the PW only in group A but not in group B.

Conclusion: In a rabbit model of IR, SR imaging accurately differentiates stunned and infarcted segments as early as 30 minutes after reperfusion.

Table 1. Echocardiographic measurements

<table>
<thead>
<tr>
<th>LVEF</th>
<th>Group A</th>
<th>30 min Group A</th>
<th>72 hours Group A</th>
<th>72 hours Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Simpson, %)</td>
<td>63.7±3.6</td>
<td>63.6±3.6</td>
<td>53.9±5.9*</td>
<td>53.6±5.9</td>
</tr>
<tr>
<td>AW thickening</td>
<td>56.6±4.8</td>
<td>54.8±5.8</td>
<td>55.1±12</td>
<td>61.7±12</td>
</tr>
<tr>
<td>(%)</td>
<td>52.1±12</td>
<td>51.8±12</td>
<td>31±18</td>
<td>18±8</td>
</tr>
<tr>
<td>PW thickening</td>
<td>50.10±58</td>
<td>58±9</td>
<td>22.8±8</td>
<td>31±18</td>
</tr>
<tr>
<td>(%)</td>
<td>42±21</td>
<td>42±10</td>
<td>18±8</td>
<td>18±8</td>
</tr>
<tr>
<td>AW SR (s^-1)</td>
<td>12±2</td>
<td>10±2</td>
<td>11±1</td>
<td>11±2</td>
</tr>
</tbody>
</table>
| | 10±1 | 10±1 | 9±1 | 9±2
| PW SR (s^-1) | 10±2 | 10±2 | 4±1 | 3±1 |

*p<0.05 between the 2 groups at 30 min reperfusion; \( \dagger \) p<0.05 between the 2 groups at 72 hours reperfusion

375 Tissue Doppler imaging in the evaluation of transmural extension of myocardial necrosis following reperfused ST elevation myocardial infarction: correlation with contrast-enhanced MRI.

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Background: Contrast-enhanced MRI (ce-MRI) identifies the transmural extent of myocardial necrosis. Tissue Doppler imaging (TDI) quantitatively assess regional myocardial function by measuring systolic strain (SS). Limited data are available on the correlation of the infarct extent by ce-MRI and the corresponding regional systolic function by TDI in patients (pt) with ST-elevation myocardial infarction (STEMI).

Methods: Ce-MRI was performed in 17 pt within 10 days of successful percutaneously reperfused STEMI. All examinations were conducted on 1.5T system (Avanto, Siemens). A bolus of Gd-DTPA (0.2 mmol/Kg) was injected and a multi-slice, breath-hold, segmented inversion-recovery turbo FLASH pulse sequences images were acquired at 15-20 minutes as multiple short-axis views encompassing the entire ventricle from base to apex. Regional myocardial function was evaluated in the corresponding delayed-hyperenhanced regions by measuring peak SS by TDI (Apico CV, Toshiba). The 17 segments model was applied to correlate the areas of delayed hyperenhancement (DH) with the corresponding systolic strain values. DH was calculated as percentage of wall thickness.

Results: Mean ejection fraction in the population was 39,1±8,8%. 53 segmenets with DH were studied by TDI and mean systolic strain was -12,43±5,24%. The extent of DH ranged from 45% to 100% of wall thickness. A significant inverse correlation between SS and the extent of DH (r=-0.69) was observed as illustrated in the figure.

Conclusions: Abnormal values of SS were observed in myocardial segments with DH. The significant inverse correlation between the transmurality of myocardial necrosis and SS may represent an important predictive index of the extension of myocardial transmural necrosis in pt with successful percutaneously reperfused STEMI.

376 Remote ischemic preconditioning reduces ischemic left ventricular dysfunction during dobutamine stress echocardiography

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Introduction: The protective benefits of remote ischemic preconditioning (rIPC) have been demonstrated in animal models of ischemia, but the clinical application in humans has not been extensively studied. We hypothesized that rIPC would protect the left ventricle from stunning during dobutamine stress echocardiography (DSE) in patients with coronary artery disease.

Methods: 12 patients with a single coronary stenosis and normal left ventricular (LV) function underwent two standard DSEs, one week apart. Patients were randomized to rIPC 30 minutes before either the first or second DSE. rIPC was administered by upper arm cuff inflation to supra-systolic pressures for 3-5 minutes cycles, with 5 minutes of reperfusion in between. Digital images were acquired at each stage using a Vivid 7 ultrasonograph. Images were obtained from standard apical 2 and 4 chamber views. Tissue Doppler data were analyzed offline using EchoPAC software and isovolumetric acceleration (IAV), peak systolic (s-wave), and e-wave velocities recorded.

Results: Systolic and diastolic velocities at matched dobutamine dose were significantly improved following rIPC, as measured by segmental peak velocities of the s-wave (mean (cm.s^-1) ± SEM; control 7.03±0.24, rIPC 6.41±0.24, p<0.01), and e-wave (mean (cm.s^-1) ± SEM; control 4.76±0.19, rIPC 5.08±0.2, p<0.01). Baseline velocities did not differ between the two groups.

Conclusion: Remote ischemic preconditioning prior to dobutamine stress protects the left ventricle from ischemic myocardial dysfunction.

377 The effect of autologous mononuclear bone marrow cell transplantation on regional left ventricular systolic and diastolic function in patients with acute myocardial infarction

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The aim of this project was to assess the changes in regional left ventricular (LV) systolic and diastolic function following the autologous mononuclear bone marrow cell (MBMC) transplantation in patients with acute myocardial infarction (MI).

Methods: Sixty-six patients with a first acute MI treated with coronary angioplasty and stent implantation were analysed using Doppler tissue imaging. Only patients with the evidence of irreversible damage of the infarcted myocardium confirmed by dobutamine echocardiography and Tc-99m-sestamibi single photon emission computed tomography (SPECT) were included. The patients were randomized into 3 groups. Group A patients (n=22) were transplanted with the higher number of MBMC (100 000 000 cells). Group B patients (n=22) received the lower number of MBMC (10 000 000 cells). Twenty-two patients who were not treated with cell transplantation served as controls (Group C). Cell transplantation was performed by intracoronary catheter cell implantation 5-9 days after the onset of MI. Longitudinal myocardial functional index of normal LV walls was determined by Doppler tissue imaging 1-4 days before the cell transplantation and 3 months later.

Results: The peak systolic velocity of longitudinal contraction of the infarcted wall (Sa) increased significantly in group A (from 4.3 cm/s to 5.2 cm/s, p<0.01) and group B (from 4.5 cm/s to 5.0 cm/s, p<0.05), but did not change in group C (from 5.2 cm/s to 5.2 cm/s, p=NS). The differences in pre- and post-transplant values of Sa differed significantly between groups A versus B (p=0.05), B versus C (p<0.05), and A versus C (p<0.01). The peak early diastolic velocity of longitudinal contraction of the infarcted wall (Ea) increased in groups A (from 5.0 cm/s to 5.4 cm/s, p<0.05) and B (from 4.7 cm/s to 5.7 cm/s, p<0.01), but did not change significantly in group C (from 5.2 cm/s to 6.1 cm/s, p=NS). The post-transplant changes in Ea did not differ among the groups (all p=NS).

Conclusion: Autologous intracoronary implantation of MBMC improved only regional systolic, but not diastolic function of the acutely infarcted myocardium.