without IMR (group 2=42 patients). LV volumes were calculated by apical biplane Simpson’s rule. The LV wall-motion score (WMS) index was obtained in a 17 segment model according to established methods. To identify the influence of regional wall-motion impairment for each individual LV segment, the mean WMS was calculated for each segment and compared between the 2 groups.

Results: The echocardiographic parameters that were associated with IMR were: LV dilatation and sphericity (p<0.0001), reduced ejection fraction (p<0.0001), inferior (p=0.001) interofateral (p=0.01) and anterolateral (p=0.02) asynergy.

Conclusion: The results of this study indicate the importance of abnormalities of both LV geometry and regional wall motion in the pathogenesis of IMR after myocardial infarction. Clinically, these findings imply that myocardial salvage by early coronary revascularization may improve outcome by preserving LV function and decreasing the incidence of IMR.

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Accuracy of mitral valve planimetry assessed from trans-thoracic Real-Time 3-Dimensional echocardiography
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Background: Mitral valve planimetry obtained from a transverse parasternal view may be particularly challenging, even with the use of a 3-Dimensional (3D) biplane imaging. This issue may be resolved by trans-thoracic echocardiography using real-time full volume 3D datasets that allow mitral valve planimetry from the apical view.

Methods: This study included 26 patients (69% women, aged 67±20 years, 45% degenerative etiology) referred for mitral valvuloplasty assessment. Mitral valve area computed from real-time 3D datasets (apical views) was compared to the results of 2D planimetry (parasternal transverse view), proximal isovelocity surface area (PISA), the continuity equation and patient’s clinical status. For functional status assessment, the following events were considered: previous heart failure, history of systemic embolic event or systolic pulmonary hypertension defined by systolic pulmonary artery pressure >50mmHg at rest or >60mmHg during exercise.

Results: Mitral valve area assessed from real time 3D planimetry was feasible in all patients (100%), while the feasibility from other methods ranged from 76% to 92%. Mitral valve area obtained from 3D planimetry correlated well with 2D planimetry (r=0.9, P<0.0001), PISA (r=0.77, P<0.0001) and the Continuity Equation (r=0.67, P=0.0003). Interestingly, 89% (17/19, concordance=0.88, kappa=0.59) of patients with significant mitral valve stenosis (1.5cm²) by real time 3D were symptomatic versus 80% (concordance=0.68, kappa=0.17) by 2D planimetry. Finally, inter-observer reproducibility for real time 3D were symptomatic versus 80% (concordance=0.68, kappa=0.59) of patients with significant mitral valve stenosis (1.5cm²) by real time 3D planimetry correlated well with 2D planimetry (r=0.9, P<0.0001), PISA (r=0.77, P<0.0001) and the Continuity equation (r=0.67, P<0.0001). In patients with a Vmax Ao positive (group 2 +3), the Vmax Ao was positively correlated with systolic blood pressure of 24 hours (p=0.026) and hs-CRP (p=0.005) and negatively to the nocturnal SaO2 average (p=0.026). In multivariate analysis, the relationship persists with systolic blood pressure of 24 hours (p=0.046) and hs-CRP (p=0.038).

Conclusion: The factors associated with aortic expansion after surgical treatment of a DA or HD type A are the persistence of a circulating false lumen, systemic inflammation, a high systolic blood pressure by ABPM and nocturnal SaO2 low.

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Impact of the method used for aortic annulus measurement on TAVI results – A transesophageal echocardiography and multislice computed tomography comparison.
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Background: Accurate measurement of the aortic annular diameter (AD) is critical for successful implantation of transcatheter aortic valve (TAVI) but the best method is still debated. We sought to compare the results of TAVI according to the method finally used for the choice of the prosthesis size: transesophageal echocardiography (TEE) or multislice computed tomography (MSCT).

Methods: AD was measured using both TEE and MSCT in 177 patients who underwent TAVI using either the Edwards Sapien or the Medtronic Corevalve prosthesis between January 2008 and April 2011. AD was measured from the long-axis view using TEE and at the level of the virtual basal ring in MSCT (mean of long and short axis). Agreement was defined as the use of the same prosthesis size with both TEE and MSCT according to manufacturers’ recommendations.

Results: Overall, mean AD was significantly larger using TEE than MSCT (24.6±2.2 vs. 23.2±1.93 mm, p<.0001). An agreement between TEE and MSCT was observed in 118 patients. Among the 59 patients with TEE and MSCT disagreement, prosthesis size was chosen according to TEE measurements in 54 and according to MSCT in 5. The Table summarized complications and in-hospital mortality. There was no significant difference between groups except for annulus rupture which occurred in one patient in whom MSCT measurements were used.

Conclusion: The present study shows that a TEE-based choice of the prosthesis size provided excellent clinical results not significantly different than when both MSCT and TEE agreed. Thus, in patients undergoing TAVI, the best imaging modality for the measurement of the aortic annulus diameter remains still not established but our data do not support the use of CT as the first line method.

Table – Complications and in-hospital mortality

<table>
<thead>
<tr>
<th>Complications</th>
<th>TEE/MSCT agreement strategy</th>
<th>TEE-based MSCT strategy</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aortic regurgitation</td>
<td>2/4</td>
<td>3 (3%)</td>
<td>0.57</td>
</tr>
<tr>
<td>Second balloon inflation</td>
<td>3 (3%)</td>
<td>3 (6%)</td>
<td>0.57</td>
</tr>
<tr>
<td>Second prosthesis</td>
<td>2 (2%)</td>
<td>2 (4%)</td>
<td>0.71</td>
</tr>
<tr>
<td>Annuus rupture</td>
<td>1 (1%)</td>
<td>1 (2%)</td>
<td>0.009</td>
</tr>
<tr>
<td>Prosthetic migration</td>
<td>1 (1%)</td>
<td>0</td>
<td>0.77</td>
</tr>
<tr>
<td>In hospital mortality</td>
<td>10 (8%)</td>
<td>1 (2%)</td>
<td>0.68</td>
</tr>
</tbody>
</table>

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