Abstract: P5568

Disease stages of structural and functional cardiac changes associate with outcomes in patients with mitral regurgitation receiving mitral valve intervention

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Topic(s):
Mitral Valve Regurgitation

Citation:
Background/Introduction. Severe mitral regurgitation (MR) produces volume overload resulting in progressive cardiac dysfunction that can extend beyond the left-sided chambers. It is unknown whether a specific MR staging system, that would quantify the extent of structural and functional cardiac changes, would be associated with outcomes in severe MR patients receiving mitral valve (MV) intervention.

Purpose. To examine the clinical utility of a novel MR staging system, based on the extent of cardiac damage, for prediction of clinical outcomes for patients with severe MR who underwent surgical or transcatheter therapy.

Methods. Patients were categorized into five stages using pre-procedural echocardiography; Stage 0: no other cardiac damage detected; Stage 1: Left atrium (LA) abnormality, as defined by the presence of atrial fibrillation or LA chamber enlargement; Stage 2: LV dysfunction, as defined by LV ejection fraction <60%; Stage 3: Pulmonary artery vasculature or tricuspid valve abnormality, as defined by the presence of systolic pulmonary arterial pressure ≥60 mmHg) or ≥grade 2 tricuspid regurgitation; and Stage 4: Right ventricular (RV) disease as defined by the presence of >mild RV dysfunction. The primary outcomes were all-cause mortality, and the combined endpoint of death or heart failure rehospitalization at one-year follow-up.

Results. A total of 696 patients with MR (age 70±14 years; 60% men) who underwent MV surgery (69%) or transcatheter MV repair with MitraClip device (31%) were examined. Prevalences of stage 0, 1, 2, 3, and 4 were 6.6%, 34.6%, 20.0%, 26.6%, and 12.2%, respectively. The median follow-up time was 15 months (IQR, 6.4, 24.4 months). At one-year, there was graded increase in all-cause death and in the combined endpoint of death or heart failure rehospitalization with each MR stage (Figure). In multivariate models, these associations remained independently associated with both one-year endpoints for patients receiving either surgical or transcatheter interventions.

Conclusion. This novel MR staging system is practical and may improve clinical risk stratification of patients with severe MR being considered for MV interventions.
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Figure. Cumulative incidence of death at 1 year after mitral therapy

<table>
<thead>
<tr>
<th>No. at risk</th>
<th>Follow-up after mitral therapy (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 0/1</td>
<td>287 252 234 220 207</td>
</tr>
<tr>
<td>Stage 2</td>
<td>139 114 106  98  93</td>
</tr>
<tr>
<td>Stage 3</td>
<td>185 139 125 111  98</td>
</tr>
<tr>
<td>Stage 4</td>
<td>85  63   57   52   47</td>
</tr>
</tbody>
</table>

p<0.001