TAVI in Rheumatic Aortic Stenosis

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Magnitude of the problem

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Patients reviewed in AHC TAVI clinic: 127

Patients with definite rheumatic AS: 9

Patients with possible rheumatic AS: 4
Peculiar features of rheumatic AS patients

Clinical/demographic
- Usually younger (68 vs 78)
- Concomitant mitral valve disease more common (3/5 had previous MVR, one had moderate MS)
- Atrial fibrillation common (70%)
- Previous stroke more common (30%)

Anatomical
- Less calcification – anchorage
- Interaction with mitral prosthesis
- Commissural fusion/calcification (possible advantage)

Planning: key considerations
- Concomitant mitral valve disease
- Presence of mitral valve prosthesis
- Degree of leaflet calcification
- Anticoagulation
Planning: key considerations

- Concomitant mitral valve disease
  - Severity and hemodynamic burden?
  - Dominant valve lesion?
  - Amenable to percutaneous intervention?
- Same procedure/staged
- Sequence
- Approach

83 years old
Pneumonia + Acute pulmonary edema
Morbid obesity
83 years old
Pneumonia + Acute pulmonary edema
Morbid obesity

70 years old, morbid obesity, COPD
Planning: key considerations

• Concomitant mitral valve disease
• Presence of mitral valve prosthesis
  • Type of prosthesis: leaflet protrusion in the LV (by design and diastolic frames)
  • LVOT/mitral angle
  • Distance from annulus
Planning: key considerations

- Concomitant mitral valve disease
- Presence of mitral valve prosthesis
  - Type of prosthesis: leaflet protrusion in the LV (by design and diastolic frames)
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  - Distance from annulus
Planning: key considerations

• Concomitant mitral valve disease
• Presence of mitral valve prosthesis
• Degree of leaflet calcification
  • No/limited calcification → consider balloon-expandable valve (lower implantation depth if self-expandable valve us used)
  • Sizing

Technical considerations

Balloons-expandable valves

Disadvantages
• Balloon-mitral prosthesis interaction → cranial migration of the valve near the end of deployment (caution with bioprostheses)
• Non-repositionable

Advantages
• Better anchorage
• Lower risk of CHB

When to use:
• No mitral prosthesis
• Concerns about stability
• No concerns about interaction with prosthetic MV leaflets

Sizing: 15-20% area oversizing
68 years old, MVR X2, prolonged postop coma
Technical considerations

Self-expandable valves

Disadvantages
• Balloon-mitral prosthesis interaction → cranial migration of the valve near the end of deployment
• Non-repositionable

Advantages
• Repositionable
• No deployment-related

When to use:
• Mitral prosthesis present
• Concerns about interaction with prosthetic MV leaflets

Sizing: >30% area oversizing
<table>
<thead>
<tr>
<th></th>
<th>Balloon-expandable</th>
<th>Self-expandable</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAV</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>LVOT calcification</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Horizontal aorta</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Mitral prosthesis (or rigid ring)</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Rheumatic/non calcific</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>High risk of coronary obstruction</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Low coronaries</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Low sinus height, and/or small root</td>
<td></td>
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<tr>
<td>Very small (&lt;20 mm) or very large annulus (&gt;28mm)</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Hostile vascular access and porcelain aorta</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>High risk of AVB</td>
<td></td>
<td>✓</td>
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<tr>
<td>VIV aortic</td>
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<td>✓</td>
</tr>
<tr>
<td>EF&lt;30%</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
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*Assuming similar experience with both platforms*