Which Patients Are Still Suited for SAVR: A Surgeon’s Perspective

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US TAVR Volume and Mortality


STS ≥ 3%
STS ≥ 8%

Surgical Aortic Valve Replacement

Inoperable
Extreme
Risk

Cohort C

Low risk
Intermediate risk
High risk
Extreme risk
Futility

TAVR Indications are Expanding

US TAVR Site and Procedure Counts


TAVR Operator and Hospital Requirements Outlined in 2018 AATS/ACC/SCAI/STS Expert Consensus

- Limits Number of TAVR programs
- Sets requirement for SAVR volume
- Possible financial disincentive to follow evidence based care

Nishimura RA et al. J Am Coll Cardiol 2017;70:252-89
Tradeoffs between SAVR and TAVR

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>SAVR</th>
<th>TAVR</th>
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<tbody>
<tr>
<td>Paravalvular leak</td>
<td>Less</td>
<td>More</td>
</tr>
<tr>
<td>New LBBB, pacemaker</td>
<td>Less</td>
<td>More</td>
</tr>
<tr>
<td>Atrial fibrillation</td>
<td>More</td>
<td>Less</td>
</tr>
<tr>
<td>Bleeding</td>
<td>More</td>
<td>Less</td>
</tr>
<tr>
<td>Acute renal injury</td>
<td>More</td>
<td>Less</td>
</tr>
<tr>
<td>Hospital stay</td>
<td>Longer</td>
<td>Shorter</td>
</tr>
<tr>
<td>Time to recovery</td>
<td>Slower</td>
<td>Faster</td>
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<tr>
<td>Durability</td>
<td>Proven</td>
<td>?</td>
</tr>
</tbody>
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Current TAVR Limitations
- Pre-existing PPM in failed Bioprosthetic SAVR
- Bicuspid aortic valve
- Concomitant moderate CAD
- Transcatheter valve failure

Small prostheses and pre-existing severe PPM lead to persistently high residual gradients after ViV

Higher postop gradients predict higher mortality at 1 year
Why there may be more paravalvular leak in bicuspid valves

Tricuspid Aortic Valve

Bicuspid Aortic Valve

A Bicuspid Aortic Valve Imaging Classification for the TAVR Era

Outcomes in Transcatheter Aortic Valve Replacement for Bicuspid Versus Tricuspid Aortic Valve Stenosis

All Cases Mortality

Miami Cardiac & Vascular Institute
Reasons for Difficult Coronary Re-access
- Bulky calcium at LM orifice
- Commissural tab facing LM
- Supraannular leaflet with small STJ

Evaluating Coronary Obstruction Risk in ViV
- Low obstruction risk
- High obstruction risk

Special Considerations on TAVR vs SAVR
- Pre-existing PPM in SAVR
  - ViV TAVR will unlikely improve PPM
- Bicuspid aortic valve
  - Anatomy may increase risk of PVL and decrease device success

The Changing Risk Paradigm

Special Considerations on TAVR vs SAVR
- Concomitant moderate CAD
  - SAVR may offer easier coronary re-access than TAVR
- Transcatheter valve failure
  - Redo TAVR may be feasible but depends on anatomy
Current limitations with TAVR

- Pacemaker
  - Impact on LV recovery, long-term function
- Durability
  - Should age/life expectancy be considered when choosing pathway
  - Are we pre-selecting the pathway based on patient preference
- Valve-in-valve: anatomy suitable? Hemodynamics?
- Future coronary intervention for CAD: does TAVR choice matter?

Conclusions

- TAVR indications are rapidly expanding
  - Low Risk TAVR will likely be approved
- SAVR is currently preferred
  - Life expectancy greater than 10 years
  - Bicuspid aortic valve +/- aortopathy
  - Pre-existing severe prosthesis-patient bioprosthetic mismatch
  - Concomitant CAD that may need revascularization
  - Pure aortic insufficiency +/- aortopathy
- Unbiased Heart team, patient-centered approach is critical for good long-term outcomes