A new option for the Diagnosis and Management of Valvular Heart Disease

Oregon Comprehensive Valve Center
I have no disclosures
Oregon Comprehensive Valve Center

• Multidisciplinary case conferences to discuss optimal treatment of complex patients.
• Involvement of primary care physicians through case conferences, phone consultations, or telemedicine.
• Use of evidence-based guidelines for the evaluation, treatment and follow-up of patients with valve disease.
• Automated reminders to patients for clinical follow-up and testing with their primary care physician and the valve center.
• Access to investigational procedures and techniques for patients who are not candidates for conventional therapy.
Burden of Valve Diseases in the US

Year 2000 → 2030

Disease

AS  2.5 millions → 4.6 millions

MR  2.7 millions → 4.8 millions
Aortic stenosis
The new presentation
Degenerative AS
Survival in Asymptomatic AS

Event-free survival

Time from enrollment (months)

Vmax < 3.0 m/s
3.0-4.0 m/s
> 4.0 m/s

Otto CM et al: Circ 95(9):2262, 1997
AS in the Elderly

Usual Management

- **Asymptomatic** elderly with severe VHD: “You are doing too well to consider a risky surgery”

- **Symptomatic** elderly with VHD: “You are too old to be operated”
Study Devices

Edwards-SAPIEN THV

- 23mm and 26mm valve sizes

Retroflex 1

- 22F and 24F sheath sizes
Transcatheter Aortic Valve Implantation in Inoperable Patients with Severe Aortic Stenosis
All Cause Mortality

Δ at 1 yr = 20.0%
NNT = 5.0 pts

Numbers at Risk

<table>
<thead>
<tr>
<th></th>
<th>TAVI</th>
<th>Standard Rx</th>
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<tbody>
<tr>
<td>at 1 yr</td>
<td>179</td>
<td>179</td>
</tr>
<tr>
<td>at 6 mo</td>
<td>138</td>
<td>121</td>
</tr>
<tr>
<td>at 12 mo</td>
<td>122</td>
<td>83</td>
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<tr>
<td>at 18 mo</td>
<td>67</td>
<td>41</td>
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<tr>
<td>at 24 mo</td>
<td>26</td>
<td>12</td>
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Medtronic and Edwards to Battle For Control of U.S. TAVR Market in 2014

Posted in Cardiovascular by Arundhati Parmar on November 4, 2013
Provides controlled and accurate deployment via self-expanding Nitinol frame.

Optimizes hemodynamics with supra-annular valve function.

Maintains coronary access.

Minimizes paravalvular leak (PVL) with conforming frame and sealing skirt.

Annulus range 18-29mm.

Delivers low rate of major vascular complications with 18Fr profile.
## Index Admission Costs

### Transfemoral

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Non-Procedure</th>
<th>Total MD Fees</th>
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<tbody>
<tr>
<td>TF-TAVR</td>
<td>$34,863</td>
<td>$4,742</td>
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<td>$31,192</td>
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<td></td>
<td>$5,773</td>
<td>$54,228</td>
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</tbody>
</table>

\[ \Delta = (2,496) \]

\[ P = 0.53 \]
Low-Flow Low-Gradient
Aortic Stenosis

- **Echocardiogram** is recommended if clinical exam detects:
  - New murmur
  - Diminished or absent S2
  - Murmur in patients with symptoms (chest pain, dyspnea, syncope or pre-syncope)

- **Exercise testing** is discouraged for aortic stenosis patients due to safety concerns, however can be performed in selected patients. Dobutamine ECHO

- **Serial testing in asymptomatic patients:**
  - Mild AS: Echo every three to five years
  - Moderate AS: Echo every one to two years
  - Severe AS: Annual echocardiogram
Conclusions

• TAVI improved cardiac symptoms (NYHA class, $P < 0.0001$) and six minute walking distance ($P = 0.002$), after 1-year follow-up

• TAVI resulted in more frequent complications at 30 days, including…
  
  ✓ major vascular complications, 16.2% vs. 1.1%, $P < 0.0001$

  ✓ major bleeding episodes, 16.8% vs. 3.9%, $P < 0.0001$

  ✓ major strokes, 5.0% vs. 1.1%, $P = 0.06$
Clinical Implications

• Balloon-expandable TAVI should be the new standard of care for patients with aortic stenosis who are not suitable candidates for surgery!

• Next generation devices (e.g. SAPIEN XT) may help to reduce the frequency of procedure-related complications in the future.

• The ultimate value of TAVI will depend on careful assessment of bioprosthetic valve durability, which will mandate obligatory long-term clinical and echocardiography FU of all TAVI patients.
TAVR Program SHRB

- Began September 12, 2012
- 33 Successful transfemoral TAVR cases
- Average age of patient 81 years
- 30 day mortality: 0%
- 1 year mortality: 9%
- 3 deaths
  - 1 GI Bleed
  - 1 Fractured hip
  - 1 COPD respiratory failure
Description of the Absorb Device

Absorb
Bioresorbable
Vascular Scaffold

Bioresorbable Scaffold

Rationale and Goals

- Rationale: Vessel scaffolding is only needed transiently*
- Goal: Revascularize the vessel like a metallic DES, then resorb naturally into the body
- Potential benefits:
  - Restoration of natural physiologic vasomotor function in some patients
  - Enable vascular remodeling and tissue adaptation
  - Elimination of chronic sources of vessel irritation and sources for chronic inflammation
  - Possibly avoid current challenges with leaving a metal implant behind
  - Potentially reduce the need for prolonged DAPT
  - No permanent implant to complicate future interventions and re-interventions, particularly in younger patients**
  - Non-invasive imaging with MSCT or MRA without ‘blooming artifact’
But still alive and enjoying life!