Tirone David-V Stanford Modification
Valve-Sparing Aortic Root Replacement
for Sievers’ type 0/lat BAV
Conflict of Interest Disclosure

Grant Research Support: NHLBI RO1 HL67025

• Stanford PI – PARTNER Trial, Edwards Lifesciences
• Consultant, Abbott Vascular Structural Heart (MitraClip)
• Consultant, Medtronic CardioVascular Division
• Executive Committee, PARTNER U.S. Pivotal Trial, Edwards Lifesciences (non-remunerative)
• Stanford PI, SURTAVI Trial (Medtronic)
• Stanford Co-PIT, COAPT MitraClip Trial (Abbott)
BAV types
T. David V-SARR for BAV

Sievers’ type 1/L-R/no
Sievers’ BAV type for Stanford V-SARR (n= 98)

<table>
<thead>
<tr>
<th>Main Category: Number of raphés</th>
<th>0 raphé - Type 0</th>
<th>1 raphé - Type 1</th>
<th>2 raphés - Type 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>28%</td>
<td>72%</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td>21(7)</td>
<td>269(88)</td>
<td>14(5)</td>
</tr>
</tbody>
</table>

1.subcategory: spatial position of commissures in Type 0 and raphés

<table>
<thead>
<tr>
<th>lat</th>
<th>ap</th>
<th>L - R</th>
<th>R - N</th>
<th>N - L</th>
<th>L - R / R - N</th>
</tr>
</thead>
<tbody>
<tr>
<td>13(4)</td>
<td>7(2)</td>
<td>216(71)</td>
<td>45(15)</td>
<td>8(3)</td>
<td>14(5)</td>
</tr>
<tr>
<td>19%</td>
<td>8%</td>
<td>65%</td>
<td>5%</td>
<td>2%</td>
<td>0%</td>
</tr>
</tbody>
</table>

2.subcategory: Modified from Sievers, H-H. and Schmidtke, C. JTCVS 2007;133:1226
BAV (28%) vs. TAV (72%) V-SARR
July 1993 – April 2015 (n= 350)

BAV n= 98
TAV n= 252

BAV
+ Aortic valve repair- 71%
+ Arch replacement- 60%

Boodwhani M, de Kerchove, E Knoufi G JTCVS 2011;141:917-25
BAV GEOMETRY

Marked pathological annular dilatation

34 mm
Mechanisms of AR - Why does the valve leak?

Boodhwani M, de Kerchove, El Khoury G JTCVS 2011;141:917-25
Mechanisms of AR
Why does the valve leak?
El Khoury I
El Khoury II
El Khoury III

Not just dilated annulus, but also can be elliptical shape
(Sievers’ type θ /LAT)

• Boodwhani M, de Kerchove, El Khoury G  JTCVS 2011;141:917-25
Variations of the T. David V-SARR Procedure

**T. David-I**  Reimplantation with cylindrical tube graft (1988)

**T. David-II**  *Yacoub remodeling*

**T. David-III**  *Yacoub remodeling* + NCC external annuloplasty

**T. David-IV**  Reimplantation with 2-4mm larger graft + narrowed distal end ("STJ")

**T. David-V**  Reimplantation with ~4-6mm larger graft + necking down both annular end & STJ (May 2001)

**T. David-V* Stanford modification***

Reimplantation with 6-8mm larger proximal graft + necking down annular end + small distal graft (December 2002)
Correct Prolapse: BAV Cusp Free Margin Shortening

Stanford CV Surgery
“Peninsula technique” partial or total arch replacement

(Not a “hemiarch”)
Annular reduction and creation of adequate cusp coaptation height

Stanford CV Surgery
Post-Op 4-D CTA BAV
So, given the long-term uncertainties, why strive to save these valves in young, active individuals?
And I mean REALLY
SERIOUS FULL
PHYSICAL
ACTIVITY
T. David V-SARR: +8.1 and -2.2 g’s supporting OEF over Afghanistan
T. David V-SARR after +8.1 and -2.2 g’s supporting OEF over Afghanistan