Perils of the Widespread Use of FEVAR: All Results Are Not Good

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EVAR in the US

Decrease in total aneurysm-related deaths in the era of endovascular aneurysm repair

Will we see the same revolution with FEVAR?

FEVAR in the US

Results of the United States multicenter prospective study evaluating the Zenith fenestrated endovascular graft for treatment of juxtarenal abdominal aortic aneurysms
Oderich et al. JVS. 2014;60(4):1420-8.

Disclosures

• None
What happens when you take new technology and disseminate it into the community?

Can we assume that FEVAR will replace open JRAA just as EVAR replaced open AAA?

FEVAR vs. Open JRAA

Endovascular Repair With Fenestrated-Branched Stent Grafts Improves 30-Day Outcomes for Complex Aortic Aneurysms Compared With Open Repair

2005-2010 NSQIP

264 FEVAR vs. 1091 OSR

FEVAR vs. OAR

A propensity-matched comparison of outcomes for fenestrated endovascular aneurysm repair and open surgical repair of complex abdominal aortic aneurysms

2 Center Study

FEVAR Complications and LOS
FEVAR Complication Costs

<table>
<thead>
<tr>
<th>Table VI: Comparison of in-hospital cost between the complicated and uncomplicated hospitalization groups</th>
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<tbody>
<tr>
<td></td>
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<tr>
<td></td>
</tr>
<tr>
<td>Field</td>
</tr>
<tr>
<td>Direct medical</td>
</tr>
<tr>
<td>Endovascular</td>
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<tr>
<td>Emergency stay</td>
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<tr>
<td>72H, days</td>
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<td>Procedure duration, mins</td>
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</tbody>
</table>


FEVAR sizing variability

Inter-observer Variability in Sizing Fenestrated and/or Branched Aortic Stent-graft

Agreements of sizing with the core lab were good to excellent

However, critical discrepancies included:
- Target clock position
- Location
- Endograft sizing
- Level of proximal landing zone

FEVAR vs. EVAR

• Hypothesis:
  – FEVAR is a technically more complex procedure than EVAR.
  – Early dissemination of FEVAR would result in inferior outcomes compared to EVAR.

FEVAR vs. EVAR

2005-2012 NSQIP
• 458 FEVAR vs. 19,060 EVAR

FEVAR “Real World Experience”

<table>
<thead>
<tr>
<th>ZFEN Trial (Oderich et al.)</th>
<th>NSQIP Through 2010 (Czechanek et al.)</th>
<th>NSQIP Through 2012 (Czechanek et al.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Renal Complication</td>
<td>0%*</td>
<td>1.5%</td>
</tr>
<tr>
<td>Cardiac Complication</td>
<td>0%</td>
<td>2%</td>
</tr>
<tr>
<td>Total Hospital LOS</td>
<td>3.3 days</td>
<td>4 days</td>
</tr>
<tr>
<td>Any Complication</td>
<td>7%*</td>
<td>19%</td>
</tr>
<tr>
<td>30d Mortality</td>
<td>1.5%</td>
<td>0.8%</td>
</tr>
</tbody>
</table>

Outcomes after FEVAR can be excellent

Questions remain:
- Early outcomes may not be as good as the ZFEN trial. What will intermediate and long-term outcomes be? How do those compare with open repair of complex aortic aneurysms?
- Will US data match that of Europe or CCF?
- Should FEVAR be performed at high-volume institutions only?

Fenestrated technology not as straightforward as EVAR and (likely) should be disseminated in an adjudicated manner.