Is EndoAVF Economical? A surgeons perspective

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Disclosure

Speaker name:

..........A/Prof Chris Delaney..........................

I have the following potential conflicts of interest to report:

☒ Consulting – BD, Abbott Vascular, Polynovo
☐ Employment in industry
☐ Stockholder of a healthcare company
☐ Owner of a healthcare company
☐ Other(s)

☐ I do not have any potential conflict of interest
The importance of health economic analysis

• Poor patency rates have always been a feature of AVF’s for HD
  • High reintervention rate
    • Cost approx $2.8 billion in the US alone in 2013

• European Renal Best Practice Guidelines
  • Highlighted the importance of integrating health economic evaluations into clinical practice guidelines
  • Allows for identification of clinically beneficial and cost effective interventions

• To ensure best uptake of technological advancements they must be...
  • Cost effective
  • Clinically beneficial
How does this apply to EndoAVF

• Up front costs of EndoAVF are expensive!!

• Are these initial costs outweighed by the cost-savings derived from:
  • A reduced reintervention rate
  • Possible cardiac benefits – reduction in CV related morbidity/mortality
  • Cosmesis – can’t objectively quantify from a health economic perspective
    • potential mental health benefits
What is the current health economic evidence

- Cost savings with EndoAVF vs sAVF
  - ranging from $12,988/pt/yr (Yang et al) to $40,035/pt/yr (Rognoni et al)

- Conclusion from all 3 papers:
  - EndoAVF creation had substantially lower event rates and associated costs than sAVF patients

- Limitations of this evidence
  - Does not consider the upfront device costs
  - US Renal Data System
Our own Health Economic Modelling

- Adapted from USA economic model (Arnold et al)
  - Clinical data (reintervention rates remain the same)

- Using Australian epidemiological data and costing data
  - Review of local institutional cases to localise costs

- Considers index procedure (WavelinQ) costs (costs of catheter) and 1-yr post procedure reinterventions

- Conservative incidence/prevalence assumption
  - 50% incident patients will receive EndoAVF

- Approx $27,000 mean annual saving for incident patients and $7,000 for prevalent patients
  - >$2.2 million saving/annum for our institution
    - Will improve further with increased uptake of procedure

Key Economic Results for FMC (per patient)
$26,872.95 mean annual saving per incident patient based on FMC incident/prevalent patients and FMC WavelinQ substitution

<table>
<thead>
<tr>
<th>Results</th>
<th>Incident Patients</th>
<th>Per Patient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre WavelinQ</td>
<td>$80,000.18</td>
<td></td>
</tr>
<tr>
<td>Cost Savings</td>
<td>$26,872.95</td>
<td></td>
</tr>
<tr>
<td>Post WavelinQ</td>
<td>$53,127.43</td>
<td></td>
</tr>
</tbody>
</table>

Note:
- 25 Incidence Patients

Locked Savings Costs for Each Procedure Pre and Post WavelinQ Introduction

<table>
<thead>
<tr>
<th></th>
<th>Pre WavelinQ</th>
<th>Post WavelinQ</th>
<th>Incident</th>
<th>Prevalent</th>
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<tbody>
<tr>
<td>Total 1-Year Costs</td>
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<tr>
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<tr>
<td>Total</td>
<td>$80,000.18</td>
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United States Renal Data System

- Epidemiological data on >100,000 patients with ESKD on dialysis

- Event rates
  - EndoAVF – 0.74/pt/yr
  - Matched sAVF cohort – 7.2/pt/yr

- Number of reinterventions seems excessive!
Reintervention rates: EndoAVF vs sAVF

• Mordhorst et al (2022)
  • 61 EndoAVF and 308 sAVF (median 17 month F/U)
    • Mean Reintervention rate per patient/yr
      • 1.0 for EndoAVF
      • 0.9 and 1.2 for RC and BC AVF

• Our own FMC data
  • 1\textsuperscript{st} 12 months post creation
    • EndoAVF (n=18) = 0.16/pt/yr
    • sAVF (n=42) = 0.40/pt/yr

• These are reintervention rates only
  • Don’t include need for central catheters, infections etc that are captured and recorded by USRDS
How to interpret all of this...?

• Currently available evidence supports a health economic benefit with the use of EndoAVF technology
  • But, must be interpreted with caution
    • Current modelling all based on USRDS with higher than expected event rates for sAVF

• Think about the real benefits of EndoAVF vs sAVF
  • Method of creation and flow dynamics likely to prevent recurrent peri-anastomotic, cephalic arch and central vein stenosis
    • These occur in older sAVF’s
  • True cost savings of EndoAVF are unlikely to be identified in the 1st 12 months post AVF creation
    • Longer term follow-up periods, larger numbers and local level costings are required
At the Heart of it

- CVD is leading cause of death in ESKD patients on dialysis

- EndoAVF’s have lower flow volumes and different flow dynamics
  - Likely to reduce CVD morbidity/mortality
  - Potential for massive health ec benefits

- Cardiac MRI study about to commence
Conclusions

• I have no doubt that EndoAVF is associated with economic benefits
  • We just don’t know how great this benefit will be yet

• Remember current health economic analyses/clinical outcomes represent our earliest experience with EndoAVF
  • Clinicians skills/experience will increase
  • New generation/reduced cost of device
    • Improved outcomes and subsequent cost savings