All Cause Mortality is Lower After EVAS than Standard EVAR

Marc L. Schermerhorn, MD
Chief, Division of Vascular and Endovascular Surgery
Beth Israel Deaconess Medical Center
Professor of Surgery
Harvard Medical School

Disclosures
- Consulting: Abbott, Cook, Endologix, Medtronic, Silk Road

Sy Survival of Patients with AAA
67% Freedom from Mortality vs. 81% Matched Control
86% Freedom from CV Events vs. 93% Matched Control

Factors Affecting Survival
Aneurysm Size
Statin and Antiplatelet Therapy

Mortality Following EVAR and Open Repair
EVAR Confers No Mortality Advantage over Open Repair
AAA related survival after 8 years is worse for EVAR
50% of EVAR patients are alive at 8 years

EVAR Mechanism
Association of Aneurysm Sac Behavior with Long-Term Survival Following EVAR

Sac expansion was independently associated with late mortality, regardless of the presence or absence of endoleak.

Vascular Study Group of New England (VSGNE) Registry

Association of Aneurysm Sac Behavior with Long-Term Survival Following EVAR

Sac behavior associated with new endoleaks, reintervention, long-term mortality
Even stable sacs associated with lower survival
Association between sac behavior and long-term mortality persisted in patients without endoleaks; was not modified by reintervention


All patients (n=14,827) undergoing EVAR the Vascular Quality Initiative (VQI), 2003 - 2017

Might EVAS be Associated with a Difference in Mortality Compared to EVAR?

EVAS Mechanism: Active Sac Management

2Y Mortality Signals with EVAS: All-Cause and CV

2Y Mortality Signals with EVAS: All-Cause and CV

All Cause Mortality Stratified by Aneurysm Size

EVAS and Systemic Inflammatory Response Syndrome (SIRS)

<table>
<thead>
<tr>
<th>EVAS (63)</th>
<th>EVAR (41)</th>
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<tbody>
<tr>
<td>PIS (%)</td>
<td>4.9</td>
</tr>
<tr>
<td>CRP (mg/l)</td>
<td>6.6</td>
</tr>
<tr>
<td>WCC</td>
<td>9.7</td>
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<tr>
<td>MAE (%)</td>
<td>12.2</td>
</tr>
<tr>
<td>Cardiac MAE</td>
<td>0</td>
</tr>
<tr>
<td>Endoleaks</td>
<td>0</td>
</tr>
</tbody>
</table>

Berg et al. JEVT 2017; 24: 630
Stenson et al. Veith 2017

All Cause Mortality: Propensity Weighting EVAS

METHODS
- Test Group: 33 EVAS IDE patients treated in 2014-2016
- Control: 15,431 EVAR patients from the U.S. Vascular Quality Initiative (VQI) treated in 2014-2016
- Applied IDE exclusion criteria: hemodialysis, creatinine > 2.0 mg/dL, or rupture
- Calculated propensity scores, weighted for AAA and CV risk factors
- Applied inverse probability weighting to compare risk adjusted long-term survival using Kaplan-Meier and Cox regression

Methods (cont’d)
- Primary outcome: overall survival in propensity-weighted cohort
- Secondary analysis: overall survival stratified by aneurysm size

All Cause Mortality: Propensity Weighting EVAS
- After weighting, EVAS patients experienced higher 3y survival than EVAR
- Corresponds to 41% lower risk of mortality for EVAS (HR 0.59 [0.38 – 0.92], P = .02)

All Cause Mortality, AAA < 5.5 cm
VQI Propensity Weighting EVAS
- No difference in survival between patients with aneurysms < 5.5cm treated with EVAS vs EVAR (P = 0.25)

All Cause Mortality, AAA ≥ 5.5 cm
VQI Propensity Weighting EVAS
- EVAR patients with aneurysms ≥ 5.5 cm experienced twice the rate of mortality as those treated with Nellix (HR 2.01, P = .01)
Conclusion

- EVAS is associated with higher long-term survival than traditional EVAR
- EVAS and higher survival was strongest in patients with aneurysms ≥ 5.5 cm
- Biology of AAA post EVAS may play a role
- Further study needed
  - Comparison of cardiovascular events
  - Clinical benefits support continuation of therapy