Hospital incidence, treatment, and in-hospital mortality following open and endovascular surgery for aneurysms of the descending thoracic aorta

secondary data analysis of the nationwide German DRG microdata from 2005-2014

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Disclosure

Speaker name:
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I have the following potential conflicts of interest to report:

☐ Consulting
☐ Employment in industry
☐ Stockholder of a healthcare company
☐ Owner of a healthcare company
☐ Other(s)

✓ I do not have any potential conflict of interest
Background

Nationwide population-based data on epidemiology and surgical treatment of TAA are not available for Germany.

Aim

→ to assess the in-hospital incidence and outcomes of an unselected TAA cohort undergoing any kind of surgical treatment.
Methods

Data source: Microdata of the Diagnosis related group (DRG) statistics of the German Federal Statistical Office


Type of study: Secondary data analysis, observational study

Outcomes: in-hospital incidence, treatment modality, mortality

Statistics: Descriptive analysis
Standardized for age, sex and comorbidity
multilevel multivariable regression model (generalized linear mixed model, GLMM)

Study population: aneurysms of the descending thoracic aorta (dTAA)
(ICD I71.1, I71.2 AND OPS 5-38.a.8, TEVAR, or 5-384.3, OAR)
# Characteristics and in-hospital incidence

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Ruptured (I71.1)</th>
<th>Non-ruptured (I71.2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$n/N$ (%)</td>
<td>4969</td>
<td>1161 (23.4%)</td>
<td>3808 (76.6%)</td>
</tr>
<tr>
<td>Age (average ± SD)</td>
<td>69 ± 12</td>
<td>71 ± 13</td>
<td>68 ± 12</td>
</tr>
<tr>
<td>Male (%)</td>
<td>3238 (65.2%)</td>
<td>710 (61.2%)</td>
<td>2528 (66.5%)</td>
</tr>
<tr>
<td>In-hospital incidence</td>
<td>6/Mio inhabitants</td>
<td>1.4/Mio inhabitants</td>
<td>4.6/Mio inhabitants</td>
</tr>
</tbody>
</table>
No. of hospitals treating TAA and annual center caseload

No. of hospitals treating TAA

Annual TAA center volume (median, Q1-Q3)
Proportion of patients treated with TEVAR

Total: 4969 patients
4057 TEVAR (82%)
912 OAR (18%)
In-hospital mortality*

Overall: 9.7%

nrTAA: 5%

rTAA: 25.2%

* standardized for sex, age, and medical risk
### In-hospital mortality - all TAA (n = 4,969 ; events = 483)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Adj. OR [95% CI]</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status (ruptured vs. non-ruptured)</td>
<td>6.63 [5.33 - 8.25]</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Age (per 10 years increase)</td>
<td>1.28 [1.17 - 1.40]</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Sex (women vs. men)</td>
<td>1.07 [0.88 - 1.31]</td>
<td>0.515</td>
</tr>
<tr>
<td>Elixhauser Score (per 1 point increase)</td>
<td>1.06 [1.05 - 1.08]</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

#### Treatment

- OAR: Reference
- TEVAR: 0.31 [0.23 - 0.41] <0.001

### Annotations

- **↑** Rupture, increased age, comorbidity
- **↓** Endovascular treatment
Summary

➢ In-hospital incidence of dTAA is 6 per 1 Mio. inhabitants

➢ 90% treated endovascularly

➢ Sex is not associated with in-hospital mortality

➢ Rupture, increased age and comorbidity are significantly associated with higher in-hospital mortality

➢ Endovascular treatment is significantly associated with lower in-hospital mortality
Thank you for your attention!

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