Stroke and Cardiovascular Outcomes in Patients with Carotid Disease Undergoing TAVR: Insights from the ACC/STS TVT Registry

A report from the ACC/STS TVT Registry

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BACKGROUND

- Incidence of cerebrovascular events within 30 days of a TAVR procedure is 3-7%.
- Post-TAVR stroke is associated with a 3.5-10 times increase in 30-day mortality.
- Carotid Artery Disease (CD) is independently associated with an increased risk of stroke in non-TAVR patients.

The association between CD and cardiovascular (CV) outcomes among TAVR patients is unknown.

METHODS

- ACC/STS TVT Registry is a collaborative clinical registry that collects clinical information on consecutive U.S. TAVR cases.
- We linked the TVT Registry to Medicare claims data.
- CD severity was defined by percent stenosis: moderate (50-79%), severe (80-99%), and occlusive (100%).
- Primary endpoint: 30 day and 1 year incidence of stroke.

RESULTS

- 30 day mortality: 4.6%.
- 1 year mortality: 25.4%.
- Stroke: 1.9%.
- TIA: 0.2%.
- Major bleeding: 2.5%.

CONCLUSION

CD was associated with statistically significantly higher rates of 30 day stroke and 1 year mortality, but these differences attenuated after adjustment for baseline characteristics.

ACKNOWLEDGEMENTS

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Learn more about the STS/ACC TVT Registry at www.tvtregistry.org.

LIMITATIONS

- Results may not be generalizable to a non-Medicare population.
- TTV is an observational registry likely leading to unmeasured confounding.

DISCLOSURES

- No disclosures.
- No financial support.

REFERENCES

- For references, please see the full manuscript.

TABLE 1: BASELINE CHARACTERISTICS

<table>
<thead>
<tr>
<th>CD Severity</th>
<th>No CD (N = 22,733)</th>
<th>Moderate CD (N = 5,001)</th>
<th>Severe CD (N = 940)</th>
<th>Occlusive CD (N = 469)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographics</td>
<td>2.6%</td>
<td>3.7%</td>
<td>18.2%</td>
<td>14.4%</td>
<td>0.001</td>
</tr>
<tr>
<td>Age (years)</td>
<td>83 (77, 87)</td>
<td>82 (77, 86)</td>
<td>81 (77, 88)</td>
<td>81 (77, 88)</td>
<td>0.001</td>
</tr>
<tr>
<td>Male</td>
<td>60%</td>
<td>64%</td>
<td>68%</td>
<td>68%</td>
<td>0.001</td>
</tr>
<tr>
<td>Caucasians</td>
<td>94.4% (N = 21,316)</td>
<td>94.4% (N = 19,530)</td>
<td>94.4% (N = 873)</td>
<td>94.4% (N = 463)</td>
<td>0.001</td>
</tr>
<tr>
<td>Comorbidities</td>
<td>8.9% (N = 1,984)</td>
<td>11.2% (N = 568)</td>
<td>14.4% (N = 139)</td>
<td>16.8% (N = 89)</td>
<td>0.001</td>
</tr>
<tr>
<td>Stroke</td>
<td>11.1% (N = 2,515)</td>
<td>13.6% (N = 786)</td>
<td>18.3% (N = 171)</td>
<td>30.3% (N = 142)</td>
<td>0.001</td>
</tr>
<tr>
<td>Diabetes</td>
<td>34.7% (N = 833)</td>
<td>41.2% (N = 2,057)</td>
<td>40.3% (N = 378)</td>
<td>45.8% (N = 215)</td>
<td>0.001</td>
</tr>
<tr>
<td>Hypertension</td>
<td>86.6% (N = 20,001)</td>
<td>89.2% (N = 4,642)</td>
<td>93.1% (N = 873)</td>
<td>95.8% (N = 463)</td>
<td>0.001</td>
</tr>
<tr>
<td>PAD</td>
<td>21.5% (N = 3,594)</td>
<td>46.5% (N = 2,322)</td>
<td>52.2% (N = 319)</td>
<td>59.2% (N = 281)</td>
<td>0.001</td>
</tr>
<tr>
<td>Age</td>
<td>31.6% (N = 7,935)</td>
<td>38.9% (N = 1,941)</td>
<td>40.5% (N = 281)</td>
<td>41.6% (N = 195)</td>
<td>0.002</td>
</tr>
</tbody>
</table>

TABLE 2: IN-HOSPITAL OUTCOMES

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>No CD (N = 22,733)</th>
<th>Moderate CD (N = 5,001)</th>
<th>Severe CD (N = 940)</th>
<th>Occlusive CD (N = 469)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stroke</td>
<td>2.0% (414)</td>
<td>2.7% (121)</td>
<td>3.9% (40)</td>
<td>5.3% (14)</td>
<td>0.001</td>
</tr>
<tr>
<td>TIA</td>
<td>0.2% (38)</td>
<td>0.2% (11)</td>
<td>0.6% (7)</td>
<td>0.6% (2)</td>
<td>0.62</td>
</tr>
<tr>
<td>death</td>
<td>3.5% (784)</td>
<td>4.2% (211)</td>
<td>4.6% (45)</td>
<td>4.9% (23)</td>
<td>0.001</td>
</tr>
<tr>
<td>VARC major bleeding</td>
<td>3.7% (834)</td>
<td>4.6% (225)</td>
<td>5.1% (47)</td>
<td>4.9% (23)</td>
<td>0.001</td>
</tr>
<tr>
<td>Access Site Complication</td>
<td>1.3% (287)</td>
<td>1.1% (55)</td>
<td>1.2% (11)</td>
<td>1.9% (9)</td>
<td>0.63</td>
</tr>
</tbody>
</table>

VARC = Valve Academic Research Consortium

FIGURE 1: CONSORT DIAGRAM

FIGURE 2: CUMULATIVE INCIDENCE OF STROKE, MORTALITY, AND BLEEDING OVER 1 YEAR

FIGURE 3: FOREST PLOT OF ADJUSTED HR FOR 30 DAY AND 1 YEAR OUTCOMES

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No financial support.

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