Telemedicine Preoperative Evaluation Associated with Similar Outcomes in TAVR

Objective: The COVID-19 pandemic has accelerated the adoption of telemedicine evaluations (TME) in patient care, including TAVR preoperative evaluations. However, the safety and utility of TME compared to in-person evaluation (IPE) remains understudied. Therefore, the current study aims to investigate the impact of TME on TAVR outcomes.

Methods: All adult patients undergoing isolated TAVR at a large academic center between January 2021 and December 2022 were investigated retrospectively. Patients were further categorized into an outpatient IPE group and TME group. The primary outcome was 30-day mortality. Secondary outcomes included vascular injury, cerebrovascular accidents, 30-day readmission, 1 year mortality, on-table death, procedural complications, length of stay, and direct procedural costs.

Results: A total of 497 patients were studied, of which 361 (73%) were TME. At baseline, the two groups had similar median age (80 vs 79, p= 0.73), STS risk scores (2.6 vs 2.7 p=0.46), male gender (51.6% vs 58.0%, p=0.12) and incidence of comorbidities such as heart failure, end stage renal disease, cerebrovascular accidents, chronic lung disease, and atrial fibrillation. TME and IPE outcomes were comparable exhibiting no difference in 30-day mortality rates (1.4% vs 0.74% p=0.55), 1-year mortality (8.6% vs 5.9% p=0.30), 30-day readmission (15.2% vs 13.2% p= 0.57), and aborted TAVR rates (1.4% vs 0.74% p=0.55). TME patients were associated with similar direct costs ($37,731 vs $38,217 p=0.92) and similar median length of stay (1 day, p=0.33). Postoperatively, there were no differences in complication rates including bleeding, stroke, renal failure, and new onset atrial fibrillation. Intraoperatively, both groups displayed no significant difference in rates of device embolization, aortic valve reintervention, PCI, cardiac arrest, and myocardial infarction.

Conclusion: Presurgical TME’s are associated with equivalent outcomes, similar costs, and similar length of stay compared to IPE’s, with no significant increase in observed complications. Hence, presurgical TMEs are a convenient alternative method to IPE’s without sacrificing safety or costs, paving the way for telemedicine into TAVR workflow.

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<table>
<thead>
<tr>
<th>Patient Characteristics</th>
<th>Telemedicine Evaluation (N=361)</th>
<th>In-Person Outpatient Evaluation (N=136)</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median Age</td>
<td>80</td>
<td>79</td>
<td>0.73</td>
</tr>
<tr>
<td>Male Gender</td>
<td>51.5%</td>
<td>58.0%</td>
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<tr>
<td>Urgent Status</td>
<td>2.8%</td>
<td>5.9%</td>
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<tr>
<td>Median STS Score</td>
<td>2.6</td>
<td>2.7</td>
<td>0.46</td>
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<tr>
<td>Smoking</td>
<td>42.9%</td>
<td>49.3%</td>
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<tr>
<td>Chronic Obstructive Lung Disease</td>
<td>14.4%</td>
<td>11.8%</td>
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<tr>
<td>Diabetes</td>
<td>35.5%</td>
<td>33.1%</td>
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<td>Heart Failure</td>
<td>60.7%</td>
<td>69.9%</td>
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<tr>
<td>Hypertension</td>
<td>90.3%</td>
<td>90.4%</td>
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<td>End Stage Renal Failure</td>
<td>4.4%</td>
<td>1.47%</td>
<td>0.11</td>
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<tr>
<td>Cerebrovascular Disease</td>
<td>6.7%</td>
<td>5.2%</td>
<td>0.53</td>
</tr>
<tr>
<td>Atrial Fibrillation</td>
<td>28.6%</td>
<td>24.3%</td>
<td>0.33</td>
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