Supplementary Table 1. The multivariate Cox regression analysis for mortality after transcatheter aortic valve replacement.

<table>
<thead>
<tr>
<th>Background</th>
<th>Univariate analysis</th>
<th>Multivariate analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HR (95% CI)</td>
<td>P-value</td>
</tr>
<tr>
<td>Em-TAVR</td>
<td>3.36 (2.14–5.26)</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Age (per 1-year-old increase)</td>
<td>1.01 (0.98–1.04)</td>
<td>0.392</td>
</tr>
<tr>
<td>BMI (per 1.0 kg/m² increase)</td>
<td>0.95 (0.91–1.00)</td>
<td>0.032</td>
</tr>
<tr>
<td>Clinical frailty scale score (per 1 category increase)</td>
<td>1.41 (1.26–1.59)</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>PAD</td>
<td>1.82 (1.28–2.59)</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Atrial fibrillation</td>
<td>1.77 (1.26–2.47)</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Hemoglobin (per 1 g/dl increase)</td>
<td>0.74 (0.67–0.81)</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Albumin &lt;3.5 g/dl</td>
<td>2.68 (1.97–3.64)</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>eGFR (per 1.0 ml/min/1.73 m² increase)</td>
<td>0.98 (0.97–0.99)</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>LVEF (per 1.0% increase)</td>
<td>0.99 (0.98–1.01)</td>
<td>0.426</td>
</tr>
</tbody>
</table>

P-values <0.05 were considered statistically significant.

HR = hazard ratio; CI = confidence interval; Em-TAVR = urgent/emergent/salvage transcatheter aortic valve replacement; BMI = body mass index; PAD = peripheral artery disease; eGFR = estimated glomerular filtration rate; LVEF = left ventricular ejection fraction
Supplementary Table 2. Baseline patient characteristics of urgent/emergent/salvage transcatheter aortic valve replacement in patients with or without mortality

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mortality group (n = 20 [23.0%])</th>
<th>Survivor group (n = 67 [77.0%])</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Baseline patient characteristic</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age, years</td>
<td>84.4 ± 8.9</td>
<td>85.1 ± 6.4</td>
<td>0.702</td>
</tr>
<tr>
<td>Female, n (%)</td>
<td>11 (55.0)</td>
<td>50 (74.6)</td>
<td>0.101</td>
</tr>
<tr>
<td>Height, cm</td>
<td>150.5 ± 9.5</td>
<td>148.7 ± 7.9</td>
<td>0.415</td>
</tr>
<tr>
<td>Weight, kg</td>
<td>46.8 ± 11.5</td>
<td>47.5 ± 8.7</td>
<td>0.783</td>
</tr>
<tr>
<td>Body mass index, kg/m²</td>
<td>20.8 ± 3.9</td>
<td>21.4 ± 3.2</td>
<td>0.451</td>
</tr>
<tr>
<td>Clinical frailty scale score</td>
<td>5.6 ± 1.4</td>
<td>4.8 ± 1.2</td>
<td>0.016</td>
</tr>
<tr>
<td>NYHA functional class III or IV, n (%)</td>
<td>17 (85.0)</td>
<td>60 (89.6)</td>
<td>0.586</td>
</tr>
<tr>
<td>Prior heart failure, n (%)</td>
<td>20 (100.0)</td>
<td>61 (91.0)</td>
<td>0.071</td>
</tr>
<tr>
<td>Syncope, n (%)</td>
<td>3 (15.0)</td>
<td>10 (14.9)</td>
<td>0.993</td>
</tr>
<tr>
<td>Current smoker, n (%)</td>
<td>3 (15.0)</td>
<td>4 (6.0)</td>
<td>0.222</td>
</tr>
<tr>
<td>Hypertension, n (%)</td>
<td>15 (75.0)</td>
<td>50 (74.6)</td>
<td>0.973</td>
</tr>
<tr>
<td>Diabetes mellitus, n (%)</td>
<td>7 (35.0)</td>
<td>22 (32.8)</td>
<td>0.857</td>
</tr>
<tr>
<td>Dyslipidemia, n (%)</td>
<td>10 (50.0)</td>
<td>30 (44.8)</td>
<td>0.681</td>
</tr>
<tr>
<td>Peripheral artery disease, n (%)</td>
<td>8 (40.0)</td>
<td>19 (28.4)</td>
<td>0.331</td>
</tr>
<tr>
<td>COPD, n (%)</td>
<td>4 (20.0)</td>
<td>11 (16.4)</td>
<td>0.714</td>
</tr>
<tr>
<td>Atrial fibrillation, n (%)</td>
<td>7 (35.0)</td>
<td>24 (35.8)</td>
<td>0.946</td>
</tr>
<tr>
<td>Prior MI, n (%)</td>
<td>4 (20.0)</td>
<td>9 (13.4)</td>
<td>0.482</td>
</tr>
<tr>
<td>Prior PCI, n (%)</td>
<td>8 (40.0)</td>
<td>19 (28.4)</td>
<td>0.331</td>
</tr>
<tr>
<td>Prior CABG, n (%)</td>
<td>5 (25.0)</td>
<td>4 (6.0)</td>
<td>0.024</td>
</tr>
<tr>
<td>Prior pacemaker implantation, n (%)</td>
<td>1 (5.0)</td>
<td>7 (10.5)</td>
<td>0.432</td>
</tr>
<tr>
<td>Prior stroke, n (%)</td>
<td>8 (40.0)</td>
<td>12 (17.9)</td>
<td>0.048</td>
</tr>
<tr>
<td>Urgency of procedure</td>
<td></td>
<td></td>
<td>0.708</td>
</tr>
<tr>
<td>Elective, n (%)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td></td>
</tr>
<tr>
<td>Urgent without catecholine or MCS, n (%)</td>
<td>8 (40.0)</td>
<td>33 (49.3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Group 1</td>
<td>Group 2</td>
<td>p-value</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>Urgent with catecholamine or MCS, n (%)</td>
<td>8 (40.0)</td>
<td>21 (31.3)</td>
<td></td>
</tr>
<tr>
<td>Emergent, n (%)</td>
<td>3 (15.0)</td>
<td>12 (17.9)</td>
<td></td>
</tr>
<tr>
<td>Salvage, n (%)</td>
<td>1 (5.0)</td>
<td>1 (1.5)</td>
<td></td>
</tr>
<tr>
<td>STS score, %</td>
<td>13.9 (8.7-20.1)</td>
<td>13.7 (7.9-22.5)</td>
<td>0.904</td>
</tr>
<tr>
<td>Logistic Euro SCORE, %</td>
<td>40.5 (27.4-52.2)</td>
<td>24.5 (13.9-46.9)</td>
<td>0.014</td>
</tr>
<tr>
<td>EuroSCORE II, %</td>
<td>14.0 (8.3-29.2)</td>
<td>9.9 (5.9-16.9)</td>
<td>0.057</td>
</tr>
<tr>
<td>State of catecholamine dependency, n (%)</td>
<td>10 (50.0)</td>
<td>26 (38.8)</td>
<td>0.375</td>
</tr>
<tr>
<td>Use of IABP, n (%)</td>
<td>4 (20.0)</td>
<td>4 (6.0)</td>
<td>0.058</td>
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</tbody>
</table>

**Laboratory data**

<table>
<thead>
<tr>
<th>Test</th>
<th>Group 1</th>
<th>Group 2</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemoglobin concentration, g/dl</td>
<td>9.6 ± 1.6</td>
<td>11.1 ± 1.8</td>
<td>0.002</td>
</tr>
<tr>
<td>eGFR, ml/min/1.73 m²</td>
<td>40.9 ± 25.0</td>
<td>46.8 ± 21.2</td>
<td>0.293</td>
</tr>
<tr>
<td>Albumin, g/dl</td>
<td>3.1 ± 0.6</td>
<td>3.5 ± 0.5</td>
<td>0.005</td>
</tr>
<tr>
<td>Albumin &lt;3.5 g/dl, n (%)</td>
<td>15 (75.0)</td>
<td>39 (58.2)</td>
<td>0.165</td>
</tr>
<tr>
<td>Brain natriuretic peptide, pg/ml</td>
<td>1401 ± 1864</td>
<td>1139 ± 1172</td>
<td>0.466</td>
</tr>
</tbody>
</table>

**Preoperative echocardiographic data**

<table>
<thead>
<tr>
<th>Test</th>
<th>Group 1</th>
<th>Group 2</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LVEF (modified Simpson), %</td>
<td>48.1 ± 18.9</td>
<td>47.9 ± 15.4</td>
<td>0.963</td>
</tr>
<tr>
<td>Bicuspid valve, n (%)</td>
<td>0 (0.0)</td>
<td>0 (0)</td>
<td>-</td>
</tr>
<tr>
<td>Aortic valve area, cm²</td>
<td>0.58 ± 0.16</td>
<td>0.55 ± 0.15</td>
<td>0.573</td>
</tr>
<tr>
<td>Index aortic valve area, cm²/m²</td>
<td>0.42 ± 0.12</td>
<td>0.40 ± 0.11</td>
<td>0.644</td>
</tr>
<tr>
<td>Mean pressure gradient, mmHg</td>
<td>45.6 ± 21.8</td>
<td>51.6 ± 19.4</td>
<td>0.239</td>
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<tr>
<td>Peak velocity, m/s</td>
<td>4.2 ± 0.99</td>
<td>4.6 ± 0.78</td>
<td>0.103</td>
</tr>
<tr>
<td>Aortic regurgitation ≥moderate, n (%)</td>
<td>1 (5.0)</td>
<td>8 (11.9)</td>
<td>0.337</td>
</tr>
<tr>
<td>Mitral regurgitation ≥moderate, n (%)</td>
<td>8 (40.0)</td>
<td>16 (23.9)</td>
<td>0.167</td>
</tr>
<tr>
<td>Tricuspid regurgitation ≥moderate, n (%)</td>
<td>5 (25.0)</td>
<td>8 (11.9)</td>
<td>0.171</td>
</tr>
</tbody>
</table>

Values are presented as mean ± standard deviation unless otherwise stated.

P-values <0.05 were considered statistically significant.

NYHA = New York Heart Association; COPD = chronic obstructive pulmonary disease; MI = myocardial infarction; PCI = percutaneous coronary intervention; CABG = coronary artery bypass graft; MCS = mechanical circulatory support; STS = Society of Thoracic Surgeons;
EuroSCORE = European System for Cardiac Operative Risk Evaluation; IABP = intra-aortic balloon pumping; eGFR = estimated glomerular filtration rate; LVEF = left ventricular ejection fraction.
Supplementary Table 3. Procedural characteristics and clinical outcomes of urgent/emergent/salvage transcatheter aortic valve replacement in patients with or without mortality

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mortality group (n = 20 [23.0%])</th>
<th>Survivor group (n=67 [77.0%])</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Procedural characteristics</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transfemoral approach, n (%)</td>
<td>16 (80.0)</td>
<td>55 (82.1)</td>
<td>0.834</td>
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<tr>
<td>Bioprosthetic valve type</td>
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<td>0.826</td>
</tr>
<tr>
<td>Sapien XT, n (%)</td>
<td>17 (85.0)</td>
<td>53 (79.1)</td>
<td></td>
</tr>
<tr>
<td>Sapien 3, n (%)</td>
<td>1 (5.0)</td>
<td>4 (6.0)</td>
<td></td>
</tr>
<tr>
<td>CoreValve, n (%)</td>
<td>2 (10.0)</td>
<td>10 (14.9)</td>
<td></td>
</tr>
<tr>
<td>Predilatation, n (%)</td>
<td>15 (75.0)</td>
<td>50 (74.6)</td>
<td>0.973</td>
</tr>
<tr>
<td>Postdilatation, n (%)</td>
<td>4 (20.0)</td>
<td>14 (20.9)</td>
<td>0.780</td>
</tr>
<tr>
<td>Use of ECMO, n (%)</td>
<td>6 (30.0)</td>
<td>8 (11.9)</td>
<td>0.068</td>
</tr>
<tr>
<td>Elective ECMO, n (%)</td>
<td>4 (20.0)</td>
<td>6 (9.0)</td>
<td>0.276</td>
</tr>
<tr>
<td>Emergent ECMO, n (%)</td>
<td>2 (10.0)</td>
<td>2 (3.0)</td>
<td>0.227</td>
</tr>
<tr>
<td>Contrast volume, ml</td>
<td>138.8 ± 92.0</td>
<td>115.4 ± 63.9</td>
<td>0.207</td>
</tr>
<tr>
<td>Fluoroscope time, min</td>
<td>31.2 ± 17.2</td>
<td>23.3 ± 9.4</td>
<td>0.010</td>
</tr>
<tr>
<td><strong>Clinical outcomes and complications</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-day mortality, n (%)</td>
<td>8 (40.0)</td>
<td>0 (0.0)</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>In-hospital death, n (%)</td>
<td>10 (50.0)</td>
<td>0 (0.0)</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Device success, n (%)</td>
<td>12 (60.0)</td>
<td>64 (95.5)</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Acute coronary obstruction, n (%)</td>
<td>0 (0.0)</td>
<td>1 (1.5)</td>
<td>0.468</td>
</tr>
<tr>
<td>New pacemaker implantation, n (%)</td>
<td>1 (5.0)</td>
<td>7 (10.5)</td>
<td>0.432</td>
</tr>
<tr>
<td>Stroke, n (%)</td>
<td>2 (10.0)</td>
<td>1 (1.5)</td>
<td>0.100</td>
</tr>
<tr>
<td>Life-threatening or disabling bleeding, n (%)</td>
<td>8 (40.0)</td>
<td>5 (7.5)</td>
<td>0.001</td>
</tr>
<tr>
<td>Major bleeding, n (%)</td>
<td>4 (20.0)</td>
<td>15 (22.4)</td>
<td>0.819</td>
</tr>
<tr>
<td>Transfusion, n (%)</td>
<td>13 (65.0)</td>
<td>34 (50.8)</td>
<td>0.258</td>
</tr>
<tr>
<td>Major vascular complication, n (%)</td>
<td>4 (20.0)</td>
<td>9 (13.4)</td>
<td>0.482</td>
</tr>
<tr>
<td>AKI stage 1, n (%)</td>
<td>1 (5.0)</td>
<td>5 (7.5)</td>
<td>0.693</td>
</tr>
<tr>
<td>AKI stage 2, n (%)</td>
<td>2 (10.0)</td>
<td>2 (3.0)</td>
<td>0.227</td>
</tr>
<tr>
<td>AKI stage 3, n (%)</td>
<td>5 (25.0)</td>
<td>5 (7.5)</td>
<td>0.045</td>
</tr>
</tbody>
</table>
### Postoperative echocardiographic data

<table>
<thead>
<tr>
<th>Measure</th>
<th>Group 1</th>
<th>Group 2</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LVEF (modified Simpson), %</td>
<td>50.9 ± 15.9</td>
<td>51.3 ± 13.1</td>
<td>0.918</td>
</tr>
<tr>
<td>Index effective orifice area, cm²/m²</td>
<td>1.1 ± 0.2</td>
<td>1.2 ± 0.3</td>
<td>0.281</td>
</tr>
<tr>
<td>Mean pressure gradient, mmHg</td>
<td>9.9 ± 3.5</td>
<td>10.3 ± 4.0</td>
<td>0.742</td>
</tr>
<tr>
<td>Aortic regurgitation ≥ moderate, n (%)</td>
<td>2 (11.8)</td>
<td>0 (0.0)</td>
<td>0.010</td>
</tr>
<tr>
<td>Mitral regurgitation ≥ moderate, n (%)</td>
<td>3 (17.7)</td>
<td>10 (14.9)</td>
<td>0.785</td>
</tr>
<tr>
<td>Tricuspid regurgitation ≥ moderate, n (%)</td>
<td>5 (29.4)</td>
<td>6 (9.0)</td>
<td>0.026</td>
</tr>
</tbody>
</table>

Values are presented as mean ± standard deviation unless otherwise stated.
P-values < 0.05 were considered statistically significant.

ECMO = extracorporeal membrane oxygenation; CHF = congestive heart failure; AKI = acute kidney injury; TAVR = transcatheter aortic valve replacement; LVEF = left ventricular ejection fraction.
Supplementary Table 4. The univariate logistic regression analysis for risk factors for 1-year mortality in patients with undergoing urgent/emergent/salvage transcatheter aortic valve replacement.

<table>
<thead>
<tr>
<th>Background</th>
<th>OR (95% CI)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (per 1-year-old increase)</td>
<td>0.98 (0.92-1.05)</td>
<td>0.576</td>
</tr>
<tr>
<td>BMI (per 1.0 kg/m² increase)</td>
<td>0.96 (1.10-1.04)</td>
<td>0.567</td>
</tr>
<tr>
<td>Clinical frailty scale (per 1 category increase)</td>
<td>1.50 (1.06–2.14)</td>
<td>0.023</td>
</tr>
<tr>
<td>PAD</td>
<td>1.81 (0.74-4.46)</td>
<td>0.195</td>
</tr>
<tr>
<td>Atrial fibrillation</td>
<td>0.94 (0.37-2.32)</td>
<td>0.867</td>
</tr>
<tr>
<td>Prior CABG</td>
<td>3.18 (1.15-8.77)</td>
<td>0.026</td>
</tr>
<tr>
<td>Prior stroke</td>
<td>2.43 (0.99-5.94)</td>
<td>0.052</td>
</tr>
<tr>
<td>Hemoglobin (per 1.0 g/dl increase)</td>
<td>0.71 (0.54-0.91)</td>
<td>0.010</td>
</tr>
<tr>
<td>Albumin (per 0.1 g/dl increase)</td>
<td>0.91 (0.85–0.98)</td>
<td>0.014</td>
</tr>
<tr>
<td>eGFR (per 1.0 ml/min/1.73 m² increase)</td>
<td>0.99 (0.96-1.01)</td>
<td>0.292</td>
</tr>
<tr>
<td>LVEF (per 1.0% increase)</td>
<td>1.00 (0.97-1.03)</td>
<td>0.950</td>
</tr>
</tbody>
</table>

P-values <0.05 were considered statistically significant.

OR = odds ratio; CI = confidence interval; BMI = body mass index; PAD = peripheral artery disease; CABG = coronary artery bypass graft; eGFR = estimated glomerular filtration rate; LVEF = left ventricular ejection fraction.
Supplementary Table 5. The baseline characteristics and outcomes in the current study and previous studies.

<table>
<thead>
<tr>
<th>Author</th>
<th>Our study (n = 1613)</th>
<th>The STS/ACC TVT Registry, Kolte et al.⁴ (n = 40,042)</th>
<th>Christian Frerker et al.⁵ (n = 771)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of urgent/emergent/salvage TAVR, n (%)</td>
<td>87 (5.4)</td>
<td>3,952 (9.9)</td>
<td>27 (3.5)</td>
</tr>
<tr>
<td>Urgent, n (%)</td>
<td>70 (4.3)</td>
<td>3,888 (9.7)</td>
<td>-</td>
</tr>
<tr>
<td>Emergent, n (%)</td>
<td>15 (0.9)</td>
<td>64 (0.2)</td>
<td>27 (3.5)</td>
</tr>
<tr>
<td>Salvage, n (%)</td>
<td>2 (0.1)</td>
<td>0 (0.0)</td>
<td>-</td>
</tr>
<tr>
<td>STS score, %</td>
<td>13.7 (8.2-21.0)</td>
<td>11.8 (7.6-17.9)</td>
<td>-</td>
</tr>
<tr>
<td>Logistic</td>
<td>35.1 ± 22.0</td>
<td>-</td>
<td>60.4 ± 21.1</td>
</tr>
<tr>
<td>EuroSCORE, %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Device success, %</td>
<td>87.4</td>
<td>92.6</td>
<td>88.9</td>
</tr>
<tr>
<td>30-day mortality, %</td>
<td>9.2</td>
<td>8.7</td>
<td>33.3</td>
</tr>
<tr>
<td>1-year mortality, %</td>
<td>23.0</td>
<td>29.1</td>
<td>40.7</td>
</tr>
</tbody>
</table>

STS = Society of Thoracic Surgeons; ACC = American College of Cardiology; TVT = Transcatheter Valve Therapy; TAVR = transcatheter aortic valve replacement; EuroSCORE = European System for Cardiac Operative Risk Evaluation.