Abstract: 5938

Mortality risk stratification in patients with severe tricuspid regurgitation - Insights from the Tricuspid Regurgitation REgistry (TRuE)

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Topic(s):
Tricuspid Valve Disease

Citation:

Background/Introduction:

Severe tricuspid regurgitation (TR) is associated with progressive right atrial (RA) and ventricular (RV) dilation, dysfunction and increased mortality. Risk factors impacting the long-term prognosis in patients with severe TR are largely undetermined.

Purpose:

Herein, we aimed to identify risk factors associated with long-term mortality in patients with severe TR and implement a novel risk stratification strategy based on an individual five-year mortality prediction score.

Methods:

From January 2013 to December 2017, 1238 patients with severe functional TR were enrolled in the TRuE-registry, of which 914 with a complete dataset were included in the present study. Echocardiographic quantification of RV-function and size included measurements of tricuspid annular plane systolic excursion (TAPSE), the end-diastolic basal (RVDbasal) and longitudinal diameters (RVDlong) and the RA-volume index (RAVI). The cohort was randomly divided into a development (n=610) and validation (n=304) sample. A risk stratification model was developed using a multivariable Cox regression.

Results:

The variables statistically significant to predict five-year-mortality, included in the final model and used as score parameters were: age, COPD, dialysis, pulmonary artery systolic pressure, RAVI, TAPSE RVDbasal, RVDlong and systolic hepatic vein flow reversal (sHVFR). Progressive enlargement of RV and RA and concomitant sHVFR was associated with higher values of hazard ratios (HR, Figure A). Based on the HR values, a risk score with 3 categories was developed (Figure B): low (0-2), intermediate (3-5), high (6-16). Among the risk groups, Kaplan Meier estimates of all-cause mortality at 5 years were 18%, 52% and 84% respectively (p<0.001; https://thetruerisk.com). The score showed good discrimination, with a concordance index of 0.75. At internal validation, a good agreement between the derivation and validation datasets indicated a good calibration of the survival curves.

Conclusion:

The present study demonstrates the prognostic impact of comorbidities and right heart remodeling on long-term mortality in patients with severe TR. The presented risk score provides an easy and accurate estimation of long-
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Conclusion: The present study demonstrates the prognostic impact of comorbidities and right heart remodeling on long-term mortality and may thus help to guide therapeutic decision-making in this difficult group of patients.

A.

<table>
<thead>
<tr>
<th>HR [95% CI]</th>
<th>P value</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.55 [0.81-2.20]</td>
<td>0.249</td>
<td>1</td>
</tr>
<tr>
<td>1.44 [0.82-2.57]</td>
<td>0.192</td>
<td>1</td>
</tr>
<tr>
<td>2.04 [1.25-3.33]</td>
<td>0.004</td>
<td>2</td>
</tr>
<tr>
<td>2.65 [1.41-4.98]</td>
<td>&lt;0.001</td>
<td>2</td>
</tr>
<tr>
<td>3.00 [2.14-4.26]</td>
<td>&lt;0.001</td>
<td>3</td>
</tr>
</tbody>
</table>

B.

<table>
<thead>
<tr>
<th>SCORE CUT-POINT</th>
<th>SCORE</th>
<th>RISK CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>25th percentile</td>
<td>0-2</td>
<td>Low</td>
</tr>
<tr>
<td>50th percentile</td>
<td>3-5</td>
<td>Intermediate</td>
</tr>
<tr>
<td>75th percentile</td>
<td>6-16</td>
<td>High</td>
</tr>
</tbody>
</table>

- RVDbasal diameter quintiles, mm: Q1=25-45; Q2=46-55; Q3=56-65; Q4=66-75; Q5=75-82
- RVDlongitudinal diameter quintiles, mm: Q1=21-35; Q2=36-45; Q3=46-55; Q4=56-65; Q5=66-82
- RAVI = RA volume index quintiles, ml/m²: Q1=7.1-14.4; Q2=15-25; Q3=26-39; Q4=40-73; Q5=74-101; Q6=101-251