PROGNOSTIC VALUE OF THE MAYO CLINIC RISK SCORE FOR CORONARY ARTERY REVASCULARIZATION USING THE AUSTRALASIAN SOCIETY OF CARDIAC AND THORACIC SURGEONS AND THE MELBOURNE INTERVENTIONAL GROUP REGISTRIES

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Background: The Mayo Clinic Risk Score (MCRS) comprises 7 pre-procedural clinical variables (age, creatinine, ejection fraction, myocardial infarction (MI) ≤24 hours, shock, peripheral arterial disease (PAD) and heart failure) which have been validated to predict cardiovascular complications after percutaneous coronary intervention (PCI) and coronary bypass surgery (CABG).

Methods: We assessed the ability of the MCRS to predict in-hospital mortality among 9,827 consecutive PCIs and 8,895 isolated CABGs between April 2004 and June 2008. Discrimination ability and calibration of MCRS was assessed using receiver operating characteristics (ROC) and Hosmer-Lemeshow (HL) statistics, respectively.

Results: The MCRS variables in the PCI and CABG cohorts are as follows:

<table>
<thead>
<tr>
<th></th>
<th>Mean Age (yrs)</th>
<th>Renal Impairment</th>
<th>Mean EF (%)</th>
<th>PAD</th>
<th>Heart Failure</th>
<th>MI ≤24 hours</th>
<th>Shock</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCI</td>
<td>64.6±12.0</td>
<td>4.2%</td>
<td>54±12</td>
<td>7.0%</td>
<td>5.0%</td>
<td>23.3%</td>
<td>2.4%</td>
</tr>
<tr>
<td>CABG</td>
<td>65.8±10.3</td>
<td>5.0%</td>
<td>56±15</td>
<td>12.7%</td>
<td>6.0%</td>
<td>4.1%</td>
<td>1.7%</td>
</tr>
</tbody>
</table>

The observed and predicted in-hospital mortality rates in the PCI group were 1.55% vs. 1.12% (p<0.01) and 1.78% vs. 0.75% (p<0.01) in the CABG group. The discriminatory ability of MCRS to predict in-hospital mortality after PCI was high (area under ROC=0.94, 95%CI 0.92-0.96) but somewhat lower after CABG (area under ROC=0.80, 95%CI 0.77-0.84). Performance of MCRS was maintained among subgroups. HL goodness-of-fit between MCRS and in-hospital mortality in the PCI cohort was good (p=0.67) but poorer in the CABG cohort (p=0.03)

Conclusions: The MCRS predicts mortality after PCI in this Australian cohort. Model recalibration may improve its use in CABG patients.