IMPACT OF MITRAL REGURGITATION'S ETIOLOGY ON PERIOPERATIVE AND LONG-TERM MORTALITY AFTER MITRAL VALVE SURGERY

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Objectives:

This study was undertaken to evaluate the role of mitral regurgitation's etiology on perioperative/long-term mortality and intensive-care-unit length of stay (ICU-LOS) in patients who underwent isolated or associated mitral surgery.

Methods:

Data on 950 consecutive patients who underwent isolated or associated surgery for mitral regurgitation were prospectively collected in a 7-year period. Follow-up information was obtained by matching the clinical patient data with a national administrative database, the Tax Register (TR) Information System, which retrieves the status (death/alive) and the date of event.

Results:

The etiology of MR was ischemic (IMR) in 386 patients, functional non-ischemic (FNIMR) in 114 and organic in 450. Peri-operative mortality was 3.6% (34 pts) and median ICU-LOS was 1 day.

Table 1: Baseline characteristics according to mitral disease subgroup

<table>
<thead>
<tr>
<th>Subgroup</th>
<th>Age (mean)</th>
<th>Gender (male)</th>
<th>Chronic pulmonary disease</th>
<th>Extracardiac etiology</th>
<th>Neurological dysfunction</th>
<th>Previous cardiac surgery</th>
<th>Severe aortic stenosis</th>
<th>Left atrial size</th>
<th>Left ventricle dysfunction</th>
<th>Perioperative infarct</th>
<th>Persistent atrial fibrillation</th>
<th>Persistent systolic hypertension</th>
<th>Pulmonary hypertension</th>
<th>Emergency</th>
<th>Acute CHF</th>
<th>Chronic CHF</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMR</td>
<td>67.9 ± 10.0</td>
<td>0.43 ± 1.32</td>
<td>0.89 ± 1.36</td>
<td>0.04 ± 1.36</td>
<td>0.37 ± 1.36</td>
<td>0.15 ± 1.36</td>
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</table>

Results 2: PERIOPERATIVE OUTCOMES (MORTALITY AND ICU LENGTH OF STAY)

Although IMR and FNIMR were found associated to death at preliminary analysis (OR 5.6 and 4.9, respectively), the subsequent multivariate analysis demonstrated that they were not independent predictor of death. Several perioperative factors were found related to ICU-LOS prolongation and the strongest effect was observed for EF lower than 30% (OR 13.9; 95% CI 8.9-20.0), IABP use (OR 6.2; 95% CI 2.8-13.9). Differently from risk model for mortality, IMR but not FNIMR was an independent predictor of prolongation of ICU-LOS (OR 1.5; 95% CI: 1.1-2.1).

Results 3: LONG-TERM SURVIVAL

Kaplan-Meier estimates of long-term survival within organic MR group were significantly better than FNIMR and IMR (log-rank test p-value < 0.0001). After adjustment for confounding factors, the Cox semi-parametric model confirmed that IMR and FNIMR represent independent risk factors for long-term mortality (Hazard Ratios 1.62 (95%CI: 1.10 - 2.38) and 1.74 (95%CI: 1.09 – 2.78) respectively).

The proportionality of the Hazards was confirmed for the adjusted model (Grambsch-Therneau test p-values > 0.05).

Conclusions:

The etiology of mitral regurgitation does not affect in-hospital mortality. Nonetheless, both IMR and FNIMR are independent risk factor for long-term mortality. Moreover, IMR is an independent risk factor for prolonged ICU-LOS and hence for complicated postoperative clinical course.

Table 2: Operative data and perioperative outcomes

<table>
<thead>
<tr>
<th>Subgroup</th>
<th>MV repair techniques</th>
<th>Annular ring</th>
<th>PRI</th>
<th>PRI repair</th>
<th>PRI repair + PRI</th>
<th>PRI repair + PRI + PRI repair</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMR</td>
<td>687 (95.0%)</td>
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**Results 3**: The proportional of the Hazards was confirmed for the adjusted model (Grambsch-Therneau test p-values > 0.05).

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