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Outcomes of sutureless aortic valve replacement in moderate-to-high risk patients with unexplained postoperative thrombocytopenia

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Aim: The aim of this study was to compare perioperative and postoperative outcomes of first series sutureless aortic valve replacement (SU-AVR) and AVR in developing country.

Methods: We conducted a retrospective study of SU-AVR in moderate-to-high risk patients (pts.). Data of those underwent AVR or SU-AVR from January 2013 to May 2016 was obtained. A 1:1 propensity matching with sex, age and society of thoracic surgeons (STS) scored in same period study of AVR group. Preoperative, intraoperative and post-operative echocardiograms (day 3-7) were obtained. Primary outcome was 30-day mortality. Secondary outcomes were perioperative, intraoperative outcomes and complications. After matching, demographics, comorbidities and outcomes of interest were compared using x^2 (Fischer's exact) and student t-tests for categorical and continuous variables, respectively.

Results: 277 pts were present in both AVR and SU-AVR groups. Until now, there were 10 patients (five were male, median age of 81.5 years) undergone SU-AVR with propensity compared to AVR in the same period of study. Sutureless valve were successfully implanted in 9/10 pts. The median STS score in SU-AVR group was 5.77 (2.1-79) vs. 5.81 (2.5-34.8) in AVR group. The most common presenting symptom was progressive dyspnea at mean functional class three. The median cardiopulmonary bypass (CPB) time was 120 min (48-276) in SU-AVR vs. 148 min (103-261) in AVR, p=0.61. The median cross-clamp duration was 93.5 min (37-157) in SU-AVR vs. 124 min (73-168) in AVR, p=0.14. Postoperative echocardiogram demonstrated impressive outcomes in SU-AVR group, defined as reduced mean pressure gradient from 53.1 to 12 mmHg without left ventricular impairment. 30-day mortality was 20% in both SU-AVR and matched AVR group (p=1.00). All patient in SU-AVR developed postoperative thrombocytopenia. Platelets level decreased from 225*103/μl preoperatively to 94.5, 54.5, 50.1 at postoperative day (POD) one, two and three, respectively compared with 135.5, 93.4, 91.8 in AVR group (p=0.04, 0.16 and 0.20, respectively). The maximal drop of platelets was found on POD three. The requirement of platelets transfusion was higher in SU-AVR group compared to AVR (leucocyte-poor platelet concentration 14.5 units vs. 4 units) (p=0.04).

Conclusion: There was no difference in 30-day mortality among moderate-to-high risk SU-AVR vs. AVR. Despite SU-AVR was associated with favorable CPB and clamp time, SU-AVR found related to postoperative thrombocytopenia in all patients.

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