Early Postoperative Hemodynamics and Clinical Outcomes of Patients Receiving Freedom Solo Aortic Valve Replacement – The Asian Experience

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Abstract
Background and aim of the study: Freedom SOLO (FS) valve (Sorin Group, Saluggia, Italy) is a stentless aortic valve bioprosthesis that use a single running suture line implanted in supra-annular position. Current study aims to assess the early postoperative hemodynamics and clinical outcomes of patients receiving FS aortic valve replacement (AVR).

Methodology: 4 patients (2 male; 2 female; mean age 49.25 ± 23.78 years; range: from 25 to 73) who underwent AVR with FS valve in a single center were enrolled in the study. 2 patients underwent AVR for aortic stenosis and 2 patients for aortic regurgitation. Clinical and biological outcomes were recorded. Echocardiographic parameters were compared between preoperative and 5 months postoperative observation.

Results: There was no early mortality reported. Late death was reported in one patient which was non valve related. There were 2 patients who developed early postoperative complication but it was not attributed to the valve itself. The mean transvalvular pressure gradient was 26.50 ± 11.90 mmHg preoperatively and 15.25 ± 10.11 mmHg postoperatively. The mean aortic valve area (AVA) for patients having stenosis improved from 0.74 ± 0.23 cm² preoperatively to 1.50 ± 0.57 cm² postoperatively. Preoperatively, the mean left ventricular ejection fraction (LVEF) was 65.75 ± 6.29 % and postoperatively 61.25+_11.84 %. The mean cross-clamp time (CCT) for isolated valve replacement was 80.5 ± 21.92 minutes and 147.00 ± 26.87 minutes. The mean lowest postoperative platelet count recorded was 24.50 ± 6.19 (x10^9/L). The mean platelet count at discharge was 128.75 ±10.11 (x10^9/L).

Conclusion: The result demonstrated good short-term clinical and hemodynamic outcomes in patients underwent FS aortic valve replacement. However, the study also showed the occurrence of severe thrombocytopenia after FS valve implantation.

Keywords: Freedom Solo valve; postoperative; hemodynamics; thrombocytopenia; echocardiographic results; aortic valve replacement.