Resistance to infection in over 300 consecutive patients using a Shelhigh No-React® treated aortic bioprosthesis


Background
The present study was performed to investigate the resistance to infection of the Shelhigh SuperStentless® aortic valve.

Methods
Since February 2001, 320 patients received a Shelhigh SuperStentless® bioprosthesis. The mean age at implant was 74.0 ± 8.4 years. Active endocarditis was present in 25 pts (7.8%). Concomitant procedures were performed in 202 pts (63.1%), CABG in 126 pts (39.4%) and MVR 63 pts (19.7%). The mean logistic Euroscore was 18.2% (range 1.4-93.6%). Patients were followed for complications and hemodynamics. Echocardiography was performed at discharge, 1 year and thereafter yearly.

Results
Operative mortality was 6.3%. The mean valve size was 24.4 ± 2.2 mm. The effectiveness of the device was demonstrated by mean gradients (16.6 ± 6.8 mm Hg for size 21, 14.0 ± 6.0 mm Hg for size 23, 13.5 ± 6.0 mm Hg for size 25, 11.7 ± 4.8 mm Hg for size 27, 10.9 ± 4.0 mm Hg for size 29) at discharge. The mean pressure gradient at discharge was 13.4 ± 5.9 mm Hg, at 1 year 14.3 ± 4.9 mm Hg and at 5 years 11.1 ± 3.8 mm Hg. Freedom from structural deterioration was 100% at 5 years. Three valves were explanted for suspected endocarditis. None of the three exhibited evidence of infection, but immunohistochemistry showed von Willebrand factor positive cells. None of treated patients with active infective endocarditis needed to be reoperated.

Conclusions
The results suggest that resistance to infection of the Shelhigh SuperStentless® heart valve may be related to the formation of endothelial cells on the valve following implantation. Additional studies are needed to confirm these findings.

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