Clinical experience with expanded use of the Ross procedure: a paradigm shift?

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Background and aim of the study
The study aim was to evaluate the short-term survival and functional outcome after the Ross procedure, with expanded inclusion criteria.

Methods
A total of 91 patients (21 females, 70 males; mean age 57.3 +/- 13.1 years; range: 0.1-74 years) underwent aortic valve replacement (AVR) with a Ross procedure at the authors' institution during the year 2007. The underlying valve diseases were stenosis in 60 patients, regurgitation in 17, and a mixed lesion in 14. Seven patients suffered from acute infective endocarditis, and in five patients the Ross operation was a reoperative procedure. Forty-four patients (48%) underwent surgery in association with concomitant procedures, which included predominantly coronary artery bypass surgery, mitral valve repair or replacement, or procedures of the ascending aorta.

Results
The mean cardiopulmonary bypass and aortic cross-clamp times were 147 +/- 31 min (range: 87-246 min) and 124 +/- 26 min (range: 73-195 min), respectively. Hospital mortality was 2.2%. No patient died during the follow up period. The aortic gradient was decreased from 5.1 +/- 2 mmHg at discharge, to 3.2 +/- 1 mmHg during follow up (p < 0.05); at the same times, the mean gradient of the decellularized tissue-engineered pulmonary valve was 2.8 +/- 1 mmHg and 2.7 +/- 1 mmHg, respectively. An echocardiographic examination of neo-aortic valve competence at 12 months revealed no or trivial aortic valve regurgitation in 80 patients, and mild (grade 1+) regurgitation in nine patients. No patient required reoperation of the autograft during follow up. Two patients underwent reconstruction of the right ventricular outflow tract. At 12 months' follow up, all patients enjoyed normal social interactions, were in NYHA functional class I or II, and free from complications.

Conclusion
The Ross procedure can be offered as an alternative to standard prosthetic AVR with an excellent short-term outcome. The former inclusion/exclusion criteria for this procedure should be re-evaluated.

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