Editorial

Use of the BalMedic bovine pericardial bioprosthetic valve in China: a new light on the horizon?

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Since the early beginnings in the 1960s, bioprosthetic valves have been largely improved with regard to the continuous developments in tissue fixation, graft materials and chemical treatment (1). Despite the recent advances of trans-catheter based techniques for valve replacement, stented bioprosthetic valves remain the Gold standard for most patients with valvular heart disease in aortic, mitral and tricuspid position worldwide (2,3).

The present study by Lin *et al.* reports on 299 patients with a mean age of 53.5 years who received a BalMedic bovine pericardial bioprosthesis to treat mainly rheumatic and degenerative heart valve disease at a single institution. The overall perioperative mortality was very acceptable with 3% only (4).

Treatment of patients with bioprosthetic valves at a younger age is currently supported in the revised guidelines of the AHA/ACC and ESC/EACTS (2,3). However, the recommended age cutoff for a mechanical rather than a bioprosthetic valve differs between both guidelines. While the AHA/ACC guideline recommends a general age cutoff of <50 years, the ESC/EACTS guideline distinguishes between recommendations for mechanical aortic (<60 years) and mitral (<65 years) valve replacement.

The general use of the BalMedic bovine bioprosthetic valve for patients with rheumatic heart valve disease, especially for younger patients, might appear rather arbitrary due to a clear survival advantage with mechanical prostheses in aortic (<55 years) and mitral (<70 years) position that has been shown more recently (5). However, the level of the existing healthcare system with off-the-shelf availability for foreign products, patient compliance and general economic differences in China have to be taken into account.

Direct comparison with a similar Chinese cohort (n=225; mean age 61.2 years), treated with the Carpentier-Edwards Perimount (CE-P) bovine pericardial prosthesis, shows very similar results after 5 years (6). But after 10 years, the survival rates seem to favor the BalMedic bioprosthesis for aortic (80.6% *vs.* 66.2%) and double valve (82.9% *vs.* 55.9%) replacement. However, the structural valve deterioration (SVD) rates at 10 years were lower after mitral (58.9% *vs.* 83.9%) and double valve (53.8% *vs.* 68.2%) replacement using the CE-P bioprosthesis.

The indications for surgical and trans-catheter heart valve replacement with bioprostheses are likely to further expand in the future (2,7). Therefore, the current study by Lin *et al.* in this issue of the Annals of Translational Medicine adds important information with regard to postoperative mid- and long-term outcome after valve replacement with a bovine bioprosthestic heart valve.

The BalMedic bioprosthetic valve may indeed become a very valuable tool in the armamentarium of cardiac surgeons for the treatment of structural valve disease, however, more homogenous cohorts and larger patient numbers are required in future analyses.

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