Aortic valve repair in rheumatic disease and left ventricular hypertrophy: what’s new in developing countries?

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Objective: Left ventricular hypertrophy frequently accompanies the progression of aortic valve disease in children and young adults. Unobstructed left ventricular outflow tract with a competent aortic valve should help ameliorate both concentric and eccentric left ventricular hypertrophy that most often accompanies the pre-existing aortic valve pathology.

Methods: 147 patients, median age 14 years, underwent aortic valve repair. Aortic stenosis was the lesion in 62 patients and aortic insufficiency or mixed lesion in 85 patients. The aortic valve was inspected for stenosis, calcification, perforation, annular dilatation, leaflet prolapse, and deficient or retracted leaflet tissue. Operative findings included commissural fusion, cusp thickening, calcification in cusps, cusp perforation, cusp prolapse, rolling of the cusps. A variety of reparative procedures were performed, like commissurotomy, cuspal thinning, subcommissural annuloplasty, commissural plication, closure of the perforation and decalcification of cusps. Patients were prospectively followed with clinically and echocardiographic assessment for a median of 3 years. Preoperative and all postoperative echocardiograms were reviewed to analyze the hypertrophy grade of left ventricle. Decrease of left ventricular hypertrophy occurred after the first year, with continued gradual decline over follow-up period.

Results: No hospital death occurs. No early mortality. 7 patients required reoperations due to the progression of rheumatic disease. There were no thromboembolic complications, hemolysis or infective endocarditis in the operative survivors. Aortic valve repair in young adults result in a decreased left ventricle mass index at the most recent follow-up. Regression of left ventricle hypertrophy in children following the repair procedure occurred regardless of the timing of the operation. Children and young adults demonstrated a similar response in left ventricle hypertrophy regression within the first year post-operation followed by a steady decline throughout the course of the follow-up period.

Conclusion: The late survival after aortic valve repair was excellent and valve-related complications were minimal. The repair procedure results in significant left ventricular hypertrophy regression during follow-up period. Indices of left ventricular dilatation and hypertrophy regress after repair when the operation precedes important deterioration in preoperative ventricular function.