PERCUTANEOUS TRANSLUMINAL BALLOON DILATION
AND SURGICAL VALVOTOMY COMPARATIVE ANALYSIS
IN NON-CRITICAL CONGENITAL AORTIC VALVE STENOSIS

Sergej Prijic, Vladislav Vukomanovic, Mila Stajevic, Igor Sehic, Jovan Kosutic*
Department of Pediatric Cardiology and Cardiothoracic Surgery
Mother and Child Health Institute of Serbia; School of Medicine - University of Belgrade; Belgrade, Serbia

Introduction: Percutaneous balloon aortic valvoplasty (BAV) and surgical aortic valvotomy (SAV) are palliative procedures in patients with non-critical congenital aortic stenosis (AS). We present our 26.5 years experience (1987-2013) and long-term BAV and SAV results after up to 24 years of follow-up.

Materials and methods: 74 interventions (44 BAVs and 30 SAVs) in children with AS were performed. Exclusion criteria were critical/severe AS or borderline small left ventricle in the first month of life, and dominant subvalvular stenosis (12 patients). Subsequently, 62 interventions were included in the study (39 BAVs and 23 SAVs). Optimal outcome was registered in 35/39 BAVs, and 20/23 SAVs (3/23 patients did not survive). FU period was 7.0 ± 5.4 and 9.0 ± 8.0 years after BAV and SAV, respectively.

Patients BAV (n 39) SAV (n 23) p
Age (years) 7.0 ± 5.3 2.5 ± 4.2 0.000
Boys 79% 70% 0.378
Bicuspid valve 67% 65% 0.954
PtP-PG (mm Hg) 66.4 ± 28.5 - -
PG (mm Hg) 81.5 ± 18.4 87.6 ± 19.2 0.237
AR 0 (0-0.75) 0 (0-0) 0.107

Acute results BAV (n 35) SAV (n 20) p
PtP-PG (mm Hg) 26.9 ± 18.1 - -
PG (mm Hg) 42.2 ± 12.0 41.6 ± 10.7 0.851
AR 1 (0.375-1.5) 1 (0-2) 0.836
Follow-up (FU) BAV (n 35) SAV (n 20) p
PG (mm Hg) 55.7 ± 25.3 46.9 ± 21.6 0.206
AR 1.5 (1.0-2.125) 1.5 (1.0-2.25) 0.887

Doppler peak instantaneous gradient (PG) increment was significant after BAV (a) and emphasized after 10-year-FU (p = 0.020). However, progression was non-significant after SAV.

Mean reintervention-free survival (a) was 12.0 years in the BAV (n 39) and 14.5 years in the SAV (n 23) group (p = 0.733), and mean survival without aortic valve replacement (b) was 15.2 and 17.4 years, respectively (p = 0.877).

Conclusion: Our study presented very comparable early and late follow-up (FU) results of BAV and SAV in patients with aortic stenosis. BAV is a less invasive procedure, with less important early complications, shorter hospitalization, and avoided repeated thoracotomy. However, long-term results are slightly better after surgery with somewhat prolonged reintervention and AVR-free survival.