Balloon valvuloplasty for severe and critical aortic stenosis in neonates and children - predictors of success

Surmacz R.¹, Moszura T.²,³, Mroziński B.¹, Bobkowska A.¹, Łaźniak A.¹, Jaremba O.¹, Walasek P.¹, Baszko A.¹, Siwińska A.¹, Bobkowski W.¹

¹Department of Pediatric Cardiology, Poznan University of Medical Sciences, Poznań, Poland
²Department of Pediatric Cardiology, Polish Mother's Memorial Hospital- Research Institute, Łódź, Poland

Introduction/Aim
In most centers, balloon aortic valvuloplasty (BAV) is a first line treatment, especially for neonates and infants with a congenital aortic stenosis (AS)¹.

The aim of this study was to evaluate results of BAV and identify variables associated with good immediate and midterm results of BAV in newborns and neonates.

Materials and methods
Data from 77 BAV procedures performed from 1999-2013 were reviewed.

Results
BAV was performed in 77 patients. The mean age at the time of the procedure was 27±42.9 days. There were 59 (77%) newborns. The mean body weight was 3.64±1.18 kg. 58 patients were followed, mean follow up time was 980±882 (median 720, range 20-3600 days).

Success in catheterization: decrease of PG of 50% or more in 78% of patients.

Success in ECHO: PG < 50mmHg in 85% of patients.

Moderate and severe aortic insufficiency (AI) was found in 24% of patients immediately after BAV. Significant AI in follow-up was present in 62% of patients and was associated with function and size of the left ventricle pre-BAV.

Conclusions
BAV is a valuable method of treatment of severe and critical AS in neonates and infants. Immediate results of BAV depend on left ventricle function and morphology of the aortic valve. Results of BAV in follow-up are associated with a body weight of the patient, the diameter of the aortic valve and LV function.

References