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17 years follow up after interventional treatment of aortic valve stenosis in newborns and infants less than six month.

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Objetives: To evaluate the long term outcome of ballon valvuloplasty (BVP) in aortic valve stenosis in newborns and infants.

Method: Retrospective analysis of 39 patients under six month of age at time of first BVP with a special focus on a subgroup of 26 newborns with critical aortic valve stenosis.

Results: The short term results showed a significant reduction of the peak pressure gradient from mean 55,2 mmHg to 31,4 mmHg ($p < 0,0004$) measured in the cathlab after BVP and from 69,9 mmHg to 40,2 mmHg ($p < 0,00002$) measured in echocardiography after intervention. In the newborn subgroup the reduction of the invasive pressure gradient ($p < 0,0002$) and echocardiographically measured gradient ($p < 0,0001$) were similar. Aortic regurgitation (AR) was observed in 3 patients prior to BVP. After BVP AR was classified as mild in 11 patients and as moderate in 7 patients respectively. Mitral valve stenosis (MR) was noted only in neonates ($n=12$) prior to BVP with a reduction of severity or complete disappearance after intervention. We did not find any significant relationship whether the BVP was performed using retrograde arterial access or antegrade venous access. There was no significant relationship between the diameter of the balloon and the aortic valve either ($p > 0,2$). Nevertheless we noted a higher risc for AR with a ratio of balloon diameter to aortic valve diameter greater than 0,7.

The mid term results showed freedom from reintervention of 82% after one year and 77% after ten years respectively. 88% of the patients in the newborn subgroup needed a second BVP within 6 months after the first BVP. The long term followup showed a freedom from further procedures of 56% ($n=22$) after 17 years in all patients and 50% ($n=13$) in the subgroup respectively.

Conclusion: BVP in aortic valve stenosis is a save procedure in patients less than six month of age. The pressure gradient can be reduced significantly a can offer viability without signs for congestive heart failure and without need for reintervention. Even in newborns with critical aortic valve stenosis the results are encouraging.