Comparison of percutaneous dilatation and surgical valvotomy in infants with aortic stenosis: a single center survey

Bertail Galoin C., Laux D., Boudjemline Y., Raisky O., Vouhé P., Bonnet D.
M3C-Centre de Référence Malformations Cardiaques Congénitales Complexes, Necker Enfants malades, AP-HP, Université Paris Descartes, Paris, France

Objective: The management of critical aortic stenosis between balloon valvotomy and surgical valvotomy remains a controversial topic. Here, we report our experience with these two techniques in a single tertiary referral center over a period of 24 years.

Methods: Retrospective analysis of files of 155 infants (<1 year) at the time of first intervention, and born between May 1986 and November 2009. Clinical data were collected: sex, age, birth weight, transvalvular aortic gradient in mmHg and semi-quantitative aortic regurgitation before/after procedure, aortic annulus size, fractional shortening, aortic valve morphology and associated cardiac malformations.

Results: 84 infants with aortic stenosis underwent surgical valvotomy (S - 43 newborns) and 71 infants underwent balloon valvotomy (D - 51 newborns). 29% in the surgical group and 37% in the dilated group had associated cardiac malformations. The procedure was successful in 82% D and in 92% S with significant decrease in mean aortic gradient (47±21% in D and 52±17% in S). LV dysfunction was more frequent in newborns (42 vs 22%, p=0.02) and was, with associated mitral valve malformations, the main risk factor for increased early and total mortalities in newborns (16% vs 3%, p<0.02 and 30% vs 7%, p<0.001). If newborns with LV dysfunction or with mitral valve malformations were excluded, no difference was found between diluted (n=21) and operated (n=36) patients for the rate of re-interventions (21.5%), aortic valve replacement (8.5%) and the delay of re-interventions (median of 3.5 years). Re-interventions for aortic regurgitation with/without stenosis was not significantly different (14% vs. 3%, p>0.05) but overall mortality was higher in the dilated group (29% vs 3% p<0.05). After 10 years follow-up, 50% of survivors remained free of any type of re-intervention in both groups.

Conclusion: In this single center retrospective study, there was no significant difference in outcomes for the two techniques in infants without LV dysfunction and mitral valve malformation although overall mortality was higher in the dilated group.