P-174

Balloon valvuloplasty (BAV) as primary treatment for congenital aortic valve stenosis: a 20-year retrospective review.

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Objective: The most appropriate treatment of congenital aortic valve stenosis is still under debate. We reviewed the outcomes of all 93 children 1 day to 18 years old (18 F- 75 M) treated with BAV as first line therapy from 1991 to 2012 in our institution.

Results: Mean age at BAV was 2.4 yrs, with 37 neonates (≤30 days), 29 infants (1-12 months), 27 children (≥ 1 year). Isolated aortic valve stenosis was present in 54 pts (58%), with Shone syndrome in 15 pts (16 %) and small LV structures in 9 pts (10 %). Mean f-up was 11±7 years. Actuarial survival was 89% (73% for the neonates). The invasive aortic gdt (59±22mmHg) was reduced to 24±12mmHg, with a similar reduction in each age group. Four patients had significant AI post-BAV. At last echo, peak gdt was 37±18mmhg, mean gdt 23±10mmHg, 2 patients had significant AI. Most pts (58%) were free from any reintervention and 66% were free from surgery, with no correlation to age at BAV. A second BAV was performed in 6 neonates, 6 infants and 6 children, a repeat BAV (≥3) was necessary in 5 pts. Surgery was performed as 2nd intervention in 17 pts (12 Ross, 2 valvuloplasty, 3 subaortic membrane resection), as 3rd or 4th intervention in 12 pts (4 Ross, 6 valvuloplasty, 1 univentricular palliation, 2 heart transplant). Death occurred in 11 pts (10 neonates and 1 infant, 4 days to 7 yrs after initial BAV, median 25 days) in relation with inadequate LV in 7 pts, BAV complications in 4 pts (in 2 pts after 2nd BAV: 2 AR, 1 mitral tear, 1 cerebral hemorrhage during streptokinase treatment), or post-op complications in 2 pts (1 infant after coa + VSD repair, 1 valvuloplasty).

Conclusion: BAV is an efficient procedure which significantly decreased aortic gradient, with no mortality in the infants and children groups, an overall survival of 89 %, 66 % of pts free from surgery and 58 % of pts free from any reintervention on long-term f-up. Deaths occurred mostly in the neonates group and were related to inadequate LV in 7/11, raising the difficult challenge of treating borderline LV.