

Percutaneous valvuloplasty versus surgical valvulotomy in neonates with critical aortic stenosis

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This study compared outcomes and prognosis of newborns with critical aortic valve stenosis (AVS) who underwent either percutaneous or surgical intervention as first therapeutic option.

Methods : Neonates with diagnosis of critical AVS (defined as aortic flow dependent on ductus arteriosus patency) were included in the study, and divided in group P (percutaneous valvuloplasty) and group S (surgical valvulotomy).

Results : 23 cases (19 males) were analyzed : 9 in group P and 14 in group S, aged 0 to 28 days at diagnosis (< 7days of age : 78% of group P vs 50% in S, p= NS). Weight was > 2.5kg in 100% of group S and 78% of group P. Symptoms of heart failure were more frequent in group P.

Echocardiography showed : LVSF < 28% in 67% of group P vs 43% group S (NS), LV fibroelastosis in 88% of group P and 21% group S (p< 0.05), mitral regurgitation in 77% of group P and 7% group S (p< 0.05). Aortic valve anatomy included bicuspidia in 52% of cases, aortic tricuspid valve dysplasia in 43.5%. Events occurring after first intervention included restenosis in 6 cases (26%, i.e. 55.5% in group P and 7% in group S), aortic valve regurgitation >grade2 in 11 cases (47.8%= 44% of group P and 50% of group S), Ross procedure in 5 cases (21.7%= 22.2% of group P and 21.4% of group S). Prognosis factors for reintervention in group P were : aortic valve dysplasia, LV fibroelastosis and aortic annulus diameter <6mm (respectively= 100%, 75% and 83%), and in group S were : bicuspidia, aortic valve annulus <6mm (respectively= 33% and 50%).

Conclusion : This study showed a higher rate of reintervention in the percutaneous valvuloplasty group and more severe aortic regurgitation in the surgical group. Aortic annulus diameter < 6mm was related to reintervention risk.