

Critical Neonatal Aortic Valve Stenosis, Immediate and Intermediate Outcome of Percutaneous Balloon Valvuloplasty

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OBJECTIVE: To evaluate immediate and midterm results after balloon valvuloplasty in an infant population with critical aortic stenosis, giving special consideration to relief of aortic stenosis, degree of aortic regurgitation (AR), left ventricular function, and duration of freedom from reintervention.

METHOD: A retrospective follow up study was performed in 25 neonates who underwent aortic valve balloon dilatation from July 2006 to July 2010. We assessed the clinical and echocardiographic outcome for degree of restenosis, LV function, AR and need for reintervention.

RESULT: The median age at dilatation was 45 days (range from 6 days – 120 days). The median weight was 3.9 kg (1.9 kg-6.4kg). The balloon valvuloplasty was performed with manual inflation of balloon through the femoral artery. The mean systolic pressure gradient across the aortic valve decreased from 70 ± 7.23 mmHg to $40 \text{ mmHg} \pm 4.3$. Mild aortic regurgitation developed in 12 patients while in one patient non-coronary cusp was perforated, leading to severe AR, needing surgery. There was one death during the procedure.

At mean follow up of 25 months (3.0 - 48 months), there was no progression of AR. No patient had needed re-intervention for re-stenosis. LV function improved in 9 out of 11 patients (82%) while there was one death 2 months post procedure due to persistent LV dysfunction.

CONCLUSION: Balloon valvuloplasty in infants with critical AS is a safe and effective therapeutic procedure. The mortality is 8%. Mild aortic regurgitation does not progress in short and intermediate term. There is no restenosis in short term and LV function improves in majority of the patients.

Key Words: Aortic stenosis, Balloon valvuloplasty, Left Ventricle (LV) dysfunction, Interventions, Aortic regurgitation