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**Balloon valvuloplasty for critical aortic stenosis in neonates - long term follow-up**

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**Introduction:** Catheter balloon valvuloplasty (BVP) is a first choice treatment in newborn with critical or severe valvular aortic stenosis (VAS). Critical aortic stenosis was defined if duct dependent systemic circulation was present, or signs of heart failure due to VAS were observed. The aim of the study was to evaluate the short and long term results.

**Methods:** Forty-three neonates (median age: 9 days, range 1-30 days, mean weight: 3.09 kg, male/female:34/9) underwent BVP from 1955 to 2010. Re-intervention (re-BVP or surgery) rate, time to re-intervention, incidence and predictors for early (<4 weeks) and late (>4 weeks) mortality were evaluated.

**Results:** No procedural death occurred. Left ventricular endocardial fibroelastosis (2), hypoplastic aortic or/and mitral valve hypoplasia (2) and left ventricular diastolic heart failure (1) were associated with cases of early mortality (5/43, 11.6%). Among the 38 survivors Norwood procedure was performed in 1 patient. Re-BVP was indicated in 13 cases (34%). Median time to re-BVP was 11.3 months (14 days to 7 yrs). There was no significant difference in aortic anulus/balloon diameter ratio (0.86 vs 1.02) among the patients with and without re-BVP. Surgical valvulotomy was performed in 2 cases due to severe residual stenosis. Ross procedure was indicated in 7 cases because of progressive aortic valve regurgitation. Median time to Ross operation was 4.2 yrs (7 days to 7 yrs). 1 patient died after surgery. Overall 37 patients are alive (95%). Twenty-one patients (57%) remained free from re-intervention during the follow-up.

**Conclusions:** 1. Left sided cardiac comorbidities, especially hypoplastic mitral or/and aortic valve, endocardial fibroelastosis are risk factor for early mortality. 2. Late mortality rate is low after BVP. 3. Re-intervention rate is considerable, due to residual stenosis (early period) and severe regurgitation (late follow-up). 4. Aortic anulus/ balloon diameter ratio was not predictive for re-BVP. 5. Males dominate among patients with critical/severe VAS.