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Neonatal aortic coarctation repair: early and midterm results in a low volume Paediatric Cardiac Centre

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Objective: Repair of aortic coarctation (CoA) in neonates (1-30 days old) is associated with a higher mortality and an increased incidence of restenosis compared to older children. We present our early and mid-term results in neonatal CoA repair.

Methods: From June 2001 to June 2016, 99 neonates with a mean age of 16.8 (range, 4-30) days and a mean body weight of 2.79 (range, 1.40-4.56) kg, underwent CoA repair at our institution. Concomitant cardiac defects (besides PDA) were: VSD, 31; ASD / PFO, 16; hypoplastic aortic arch (HAA), 11; aortic stenosis-bicuspid aortic valve, 7; mitral stenosis, 3; AVSD, 1; smallish left ventricle, 2. Surgical techniques for CoA repair included: resection and end-to-end anastomosis (ETE), 61; extended ETE anastomosis (EETE), 12; radically extended ETE (REETE), 4; subclavian flap (SF), 4; synthetic patch (SP), 4; SP + ETE, 2; SF + ETE, 1; SF + SP, 1. Pulmonary artery banding was performed in 21 cases with unrestrictive VSD.

Results: Mortality was 7% (7/99). Causes of death were intractable cardiac (n=4) and/or respiratory failure (n=3). Follow-up of 87 patients (94% of the survivors) for 6 to 178 (mean: 88) months, revealed no late death; 15 patients (17%) developed recoarctation 2 to 5 months postoperatively, and were submitted to 17 percutaneous balloon dilatations. Three of these patients (all with HAA) had reoperation for aortic arch reconstruction (n=2), or post-balloon aneurysm formation (n=1); 21 patients (23% of the survivors) are under antihypertensive therapy. Age, weight, and surgical technique were not identified as risk factors for mortality or recoarctation.

Conclusions: CoA repair in neonates can be performed with low early and mid-term mortality; recoarctation is relatively high, especially in smallish / hypoplastic aortic arch, but is irrelevant to age, body weight and surgical technique.