

**Immediate and long term results of balloon angioplasty of recurrent aortic coarctation in children less than one year**

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Background: Various publications have considered results of percutaneous angioplasty of aortic recoarctation, but none of them focused on procedures performed in children before one year of age. Aims: We aimed to describe the immediate and long term results of balloon angioplasty of recoarctation before the age of one year, and to define factors that may influence the outcome. Methods: We retrospectively reviewed data from 20 consecutive children undergoing percutaneous dilatation of aortic recoarctation before one year of age in University Hospitals of Tours and Nantes. Results: In all patients except one, dilatation improved the median recoarctation diameter Z score (from -5.8 (range -1.8 to -8.3) to -3.2 (range -4.3 to 0.7);  $p < 0.01$ ), and reduced the median peak systolic gradient (from 31 mmHg (range 20 to 60) to 21 mmHg (range 6 to 50);  $p < 0.001$ ). There was no procedure-induced mortality and no acute intimal flap or long term aneurysm. Three patients experienced femoral artery thrombosis and one had a transient ischemic stroke. Eight children (40%) needed reintervention for further recoarctation (surgery  $n=4$  or new dilatation  $n=4$ ). A smaller size of the balloon was significantly associated with the risk of reintervention (balloon to recoarctation diameter ratio: 1.66 (range 1.16-3.33) vs 2.72 (range 2.07-3.53); balloon to descending aorta ratio: 0.87 (range 0.69-1.20) vs 1.00 (range 0.86-1.43);  $p < 0.05$ ). Conclusion: Percutaneous balloon angioplasty for recoarctation in young infant less than one year is safe and immediately effective as well as in older children and adults. Although most of children achieve a good result during follow-up, the need for further intervention is high.