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Percutaneous coronary intervention in children: a single center experience.

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Objectives: To investigate the feasibility, procedural techniques, safety, and overall potential of percutaneous coronary angioplasty and stent implantation in infants with coronary artery disease and acute coronary syndrome.

Methods: Retrospective review including all patients under 18 years old who underwent percutaneous coronary intervention during a period of 14 years.

Results: Between 2004 and 2018, 15 patients underwent coronary intervention, including percutaneous coronary balloon angioplasty in 2 and coronary stent implantation in 13. Median age was 5,5 years (range 13 days–17 years), and median weight was 17 kg (range 3,3–90). Indications for intervention included postoperative acute coronary syndrome in seven cases (46%), in the setting of arterial switch (3), Ross (3), and anomalous coronary (1) surgical procedures; severe coronary allograft vasculopathy in heart transplant recipients in four cases (26%); late severe ostial stenosis post arterial switch operation in two cases (13%); and acute coronary syndrome associated with Kawasaki or Williams syndromes in two cases (13%). Successful stent placement with excellent revascularization was achieved in all cases, with an average internal diameter of 2.7 mm (ranging from 2,25 to 3,5 mm). Balloon angioplasty alone resulted in optimal resolution of coronary stenosis in 2 patients under 2 months of age. Seven patients were in ECMO support during the procedure; four of them died in ICU postprocedure period. There were no late deaths (overall survival of 74%). Average intervention-free period in survivors was 3,5 years; severe in-stent re-stenosis occurred in 1 case and was successfully percutaneously treated at 4,1 years of follow-up.

Conclusions: In our experience percutaneous coronary intervention and stent implantation is a feasible and safe option in infants with coronary stenosis. Short-term benefits of the technique can be critical in certain cases, and it is a viable strategy for bridging patients with acute ischemia or poor ventricular function to elective surgical revascularization or transplantation.