Coronary Interventions in infants with congenital heart diseases

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Purpose: During the last decade the surgical and interventional techniques for the treatment of congenital heart diseases were constantly refined. Today children, who where considered to be inoperable some years ago undergo surgical or combined surgical-interventional treatment on a regular basis. This study focuses on coronary interventional procedures in children with CHD.

Population: During the last years we performed 16 coronary interventions in 14 patients. The Age ranged from 9 days to 26 years, mean 6 years, the bodyweight from 1.7 kg to 65 kg, mean 18 kg.

Results: During 10/16 procedures closure of coronary fistulas was attempted and successfully performed with a variety of implantable devices (coils, plugs). Coronary to right ventricular fistulae in pulmonary atresia/intact ventricular septum were occluded in 3/14 patients. In 3/14 patients acutely obstructed coronary arteries were successfully treated in 2/3 cases with balloon dilation and by stent implantation (1/3). All procedures were successfully performed without any mayor complications. One patient with a bodyweight of 1.7 kg and balloon dilation of the left main coronary artery died 2 weeks after the intervention because of haemostatic complications.

Conclusion: Balloon dilation or stent implantation is a realistic option in postsurgical coronary stenoses. It helps to improve myocardial perfusion and function without re-operation in severely depressed patients. Closure of coronary arterial fistulae with some of the newer low profile devices is possible even in newborns. Fistulae with a short channel to the right ventricular cavum remain critical for interventional closure if distal coronary perfusion has to be maintained.