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Ductus-stenting in complex congenital heart disease – early and long-term results in the Netherlands

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Introduction:

Stenting of the ductus arteriosus has become an alternative for initial palliation in neonates with complex congenital heart disease.

Methods:

To gain insight into the use and complications of ductal stenting, the patients from the 4 tertiary referring hospitals in the Netherlands were evaluated by means of a questionnaire.

Results:

Between January 2010 and March 2015 ductal-stenting was performed in 57 patients. Median age at implantation was 22,4 (1- 84 days), median weight 3,3 (1.9 – 4.2 kg). Most patients (n=51) had a duct-dependent systemic circulation.

Diagnoses were: HLHS and variants n=28, borderline LV n=7, IAA B with VSD n=12, TOF/PA/VSD n=6, HRHS n=2, others n=2. Implantations were performed percutaneously in 42 patients. In 15 patients the transthoracic route was used. In total 88 stents of various materials (self-expandable Nitinol-stents, bare metal stents, coronary-stents) were implanted. For the systemic circulation the median stent diameter was 8 (6-10 mm) and for the pulmonary circulation 3 (3-3.5 mm). Procedural complications without mortality occurred in 6 (10.5%) patients. Stent dislocations in 4 and thrombotic complications in 3. During Follow-up 10 late stent stenoses needed treatment. Finally out of the 29 patients with a potentially biventricular circulation 26 (89%) could be corrected. 21 (72%) were long-term survivors. From the 28 patients with a univentricular circulation 17 (40%) are alive after staged-surgery.

Conclusions: Ductal stenting in the Netherlands is mainly used in duct-dependent systemic circulation. There was no mortality during implantation. The long-term results of bilateral banding and ductus-stenting in potentially biventricular circulations are encouraging. Patient selection may have influenced the poor results of ductus-stenting in the univentricular circulation.