

**Initial results of PDA stenting in newborn with duct dependent pulmonary circulation**

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Introduction (or Basis or Objectives): Surgical palliations of the congenital heart diseases which have duct dependent pulmonary circulation have high mortality and morbidity in the newborn period. Stenting of the Patent Ductus arteriosus as an alternative percutaneous approach is used by some cardiologist however not widely accepted. The aim of this study is to evaluate the early results of percutaneous PDA stent placement

Methods: Nineteen patients who had had a PDA stent placed percutaneously between April 2010 and December 2011 were included in the study. Three patients had pulmonary atresia with ventricular septal defect (PA-VSD), eleven PA with intact ventricular septum (PA-IVS), four critical pulmonary stenosis (CPS) and one a PA with single ventricle physiology (CAVSD-PA). The seven patients with IVS-PA were also subjected to valve perforation by radiofrequency (RF). Before the intervention, all patients were diagnosed by standard echocardiography; their PDA anatomy was examined in detail.

Results: The mean age and weight during intervention were  $14.2 \pm 13.3$  days and  $3.1 \pm 0.5$  kg, respectively. The mean of procedure and scopy time, time of stay in intensive care, total out-of-hospital and total follow-up time were  $116.31 \pm 42.99$  min;  $31.14 \pm 16.78$  min;  $4.88 \pm 6.07$  days;  $11.00 \pm 6.89$  days and  $215.62 \pm 118.90$  days, respectively. The mean of the radiation amount was  $761.07 \pm 792.10$  cGy/cm<sup>2</sup>. The mean of saturation before and after intervention were  $67.36 \pm 5.83$ ;  $85.76 \pm 6.87\%$ , respectively. Procedure-related deaths were observed in two patients. The causes of death were pulmonary haemorrhage (n = 1) and retroperitoneal hemorrhage (n = 1). Two patients also died after discharge before surgery due to sepsis (n = 2,) and aspiration pneumonia (n = 1). Eight of 13 patients achieved stent patency during 6 months of follow up and re-stenosis developed in one patient (1/8; 12.5%) who had undergone a Glenn operation at 4.5 months of age.

Conclusions: The placement of a ductal stent has results comparable to those of palliative or reparative surgery, without sharing the risks of thoracotomy surgery. In the newborn with duct-dependent pulmonary circulation, the placement of a PDA stent by the percutaneous approach is a good alternative to surgery