Evaluation of the efficacy of ductus arteriosus stenting in neonates and infants to maintain pulmonary blood supply in cyanotic congenital heart disease: acute and midterm outcome after stent implantation, single center experience

Odemis E., Guzeltas A., Tuncer T., Ozyilmaz I., Ergul Y., Bakir I.
Mehmet Akif Ersoy Cardiovascular Research and Training Hospital, Istanbul, Turkey

INTRODUCTION: We aimed to assess the efficacy and outcome of transcatheter ductus arteriosus stenting in newborns and infants with ductal-dependent or decreased pulmonary circulation. With today's generation of coronary stents which have better profile, flexibility and trackability, ductal stenting may be achieved safely and with considerably less difficulty than previously described.

METHODS: Between April 2010 to January 2013, forty patients underwent PDA stenting after full assessment by echocardiogram and angiogram, 4 of patients had PA & VSD, 19 patients had PA with intact ventricular septum, 6 patients had critical pulmonary stenosis, 4 patients had hypoplastic left heart syndrome and 7 patients had different types of congenital heart diseases with ductal dependency. 7 patients had radio frequency perforation of the pulmonary valve at the same time.

RESULTS: Stenting was successfully performed in 97.5% of the patients. Median age of patients is 8.5 days and mean weight is 3.14 ±0.74 kg. Procedure related death observed in one patient, just after stenting due to hypotension. The mean post procedural follow-up period was 190 days. The causes of death after stenting were pulmonary hemorrhage (n=1), thrombus formation after Glenn procedure (n=1), sepsis (n=7), pneumonia (n=2) and one patient sudden cardiac death. Mean arterial oxygen saturation before and after stent implantation was 78.5% and 87.4%. Seven patients had Glenn procedure performed successfully, five of them still on follow up. Four patients who have hypoplastic left heart syndrome, had hybrid procedure performed, one of which was successfully operated with hybrid stage II and the other three died after hybrid procedure due to sepsis. Central shunt operation is planned for one patient due to stent obstruction. Two patients are now ready for Glenn operation and soon will be operated. Three patients dropped out of follow up. Remaining patients are periodically followed up until Glenn procedure.

CONCLUSION: Stent implantation of ductus arteriosus can be a good alternative to surgery for initial palliation in severely cyanotic newborns and infants until the latter stage palliative surgery or total repair. Patients with ductal stenting may provide growth for pulmonary artery which achieves more additional time for surgical repair.