

The Amplatzer Duct Occluder II Additional Sizes – our experience with different intra- and extracardiac shunts closure in paediatric and adolescent population

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Introduction

Amplatzer Duct Occluder II Additional Sizes (ADO II AS), introduced in 2012, was designed to address percutaneously medium to large patent arterial ducts (PDA) in small children. We report label and innovative off-label applications of ADO II AS.

Methods

Retrospective analysis included 128 elective patients (pts; 81 females) with median age of 3,7 years (y; range 0,3-24y, 11,7% pts older than 10y), who had interventional shunt closure with ADO II AS between July 2014 and November 2017 in a single tertiary center. We closed 120 PDA (mainly complex and elongated type; median narrowest PDA diameter 1,6 mm, 1,2-4 mm; median PDA length 7 mm, 2,5-15 mm), 4 perimembranous ventricular septal defects, 2 postsurgical ventricular septal defects in pts with Tetralogy of Fallot (including 1 Gerbode type), one aortopulmonary window (APW; 4 months, 6 kg) and one major aortopulmonary collateral artery (MAPCA; 5 months, 8 kg). The implantation techniques were routine. Venous delivery site was applied in less than 7 kg pts (3 PDA, 1 APW) and arterio-venous loop was used in 2 pts with perimembranous ventricular septal defect and in 1 pt with Gerbode type defect. Median fluoroscopy time was 3 minutes (1,5-36).

Results

All procedures but one were successful. In one infant with huge A-type PDA a stable position of occluder was achieved with neither ADO II AS nor ADO I (successful surgery 1 month later). There were transient access site complications in 3 pts (pulse loss; alteplase administration in 1 pt) and transient bifascicular block in 1 pt after perimembranous VSD closure observed in peri-procedural period. The median follow-up was 12 months (1-40 months; 121 pts in follow-up) with no procedure-related complications. Insignificant residual shunt was observed in 2 pts with postsurgical ventricular septal defect with no need for reintervention.

Conclusions

ADO II AS is an effective and safe occluder, which could be used not only to close different types of PDA in infants and small children, but also in adolescents and adults, replacing coils. Furthermore, off label ADO II AS application in properly selected ventricular septal defect or extracardiac shunts is possible.