

The experience in percutaneous closure of patent ductus arteriosus using various types of devices

*Kusa J.(1,2), Czesniewicz P.(2), Skierska A.(1), Ras M.(2), Szydłowski L.(1), Mazurak M.(2)
Pediatric Cardiology Department, Medical University of Silesia, Katowice, Poland (1);
Pediatric Cardiology Department, Regional Specialized Hospital- Research and Development Centre,
Wrocław, Poland (2)*

Introduction: Percutaneous closure of patent ductus arteriosus (PDA) was applied for over 20 years, but in the initial period, the proportion of residual shunts was relatively large.

Objective: The aim of our study was to analyze the results of treatment using various devices, not always dedicated PDA closure. This study analyze our experience during last 5 years because in this period we have had available broad variety of implants.

Material and Methods. In this period 315 patients were catheterized with intention of PDA closure. Mean age was $2,8 \pm 4,1$ years and mean weight was $13,4 \pm 6,6$ kg. Six pts had pulmonary hypertension but it was lower than $2/3$ of systemic pressure. According to Kirchenko classification 168 pts (53,3%) had conical type, 3 pts (0,95%)- window type, 21 pts (6,7%)- tubular type, 77 pts (24,4%) complex type and 46 pts (14,6%)- elongated type PDA.

Results: PDA was closed in 309 pts (98,1%). In 6 pts the ductus was very small and we decided not to close. Because of the wide anatomical variety of PDA the eight different types of implants were applied: coils- 160 (51,8%), Amplatzer Duct Occluder- 124 (40,1%), Amplatzer Duct Occluder II-2 (0,6%), Amplatzer Duct Occluder II-AS- 11 (3,6%), muscular Ventricular Septal Occluder- 3 (1%), PFM coil- 4 (1,3%), Amplatzer Vascular Plug II- 2 (0,65%) and Amplatzer Vascular Plug4- 3 (1%). All implantations were successful. Residual shunt at 24h after procedure was in 5 pts (1,65%) but in all pts but one shunts disappeared during 3 months of follow up. In 7 month-old boy with pulmonary hypertension (PA-63/28/39, Ao-70/35/45) PDA was closed using ADO II but after 2 years the moderate residual shunt was still present. During repeated catheterization the normal pulmonary pressure and resistance was confirmed and coil 5/5 was implanted. The total occlusion was confirmed.

Conclusions: The introduction of new types of implants caused that the percentage of residual shunts after percutaneous closure is negligible. This is possible thanks to the diversity of shapes of these implants, because almost in even very complex anatomy we are able to choose the implant almost perfectly corresponding to the shape of PDA.