P-271

Detachable coils versus Amplatzer Duct Occluder devices in transcatheter treatment of small-to-medium sized Patent Ductus Arteriosus: an analysis of costs and results.

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Objectives: to review our experience in transcatheter closure of small-to-medium sized patent ductus arteriosus (PDA) with detachable coils and Amplatzer Duct Occluder (ADO) devices, and to compare the results with the two devices.
Methods: between 1994 and 2010, 127 patients (pts) (median age 4,8 years, median weight 20 kgs) with a PDA size between 2 and 3,5 mm (median 2,4) underwent transcatheter PDA closure in our Institution. Procedural results were compared considering the type of device used in the first attempt; follow-up (FU) results were compared considering the type of device implanted. Costs were calculated considering the type and number of devices used (even if not implanted) for the procedure, excluding the fixed costs of the cardiac catheterization. A p value < 0,05 was considered statistically significant.
Results: Procedural results: there were 95 coil-procedures and 32 ADO-procedures. The mean fluoroscopy time was 14,3 ± 11 and 12,4 ± 4,7 minutes for coils and ADO, respectively (p= n.s). There were 3 (3,2%) coil embolization, no embolizations for ADO (p = n.s.). Multiple attempts were necessary in 5 (5,3%) and in 1 (3%) pts (p = n.s.), and the procedure was successful in 93 (98%) and 32 (100%) pts (p = n.s.) for coils and ADO, respectively. The 2 pts with failure of coil implantation were treated with ADO devices in the same procedure. FU results: residual shunt at discharge was present in 8/93 (9%) coil-pts and in 2/34 (6%) ADO-pts (p = n.s.). At the time of last FU visit, residual shunt was present in 2/93 (2,2%) coil-pts and 0/34 (0%) ADO-pts (p = n.s.). One pt with RS was treated with an additional coil-procedure. Costs: the mean cost of the procedure was significantly lower for coils than for ADO (538,5 ± 415 vs 2436 ± 294,2 € , p < 0,001).
Conclusions: in our experience of transcatheter closure of small-to-medium sized PDA, detachable coils compare favourably with ADO devices in terms of procedural and follow-up results. Given the great difference in costs, coils are a very cost-effective treatment option.