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Transcatheter Closure of Moderate to Large Congenital Arteriovenous Fistula Using the Amplatzer Duct Occluders I and II

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Introduction Transcatheter closure of congenital coronary arteriovenous fistula (CAVF) using coils and occluding devices has become an accepted alternative to surgical closure. The aim of this study was to present data from 33 children with moderate to large CAVF who underwent catheter closure using the Amplatzer duct occluders I and II (ADOI ADO II).

Methods The median age of the patients was 3 years (range 2- 12 years). The anatomy and size of CAFF were defined by retrograde aortography and/or selective injection of contrast media in the proximal part of fistula. The devices were deployed from the femoral vein with the formation of an arteriovenous loop. The procedure was guided by hand injection proximal coronary arteriography.

Results The fistula originated from the left coronary artery and the right coronary artery in 21 (64%) and 12 (26%) patients, respectively. The drainage sites were: the right atrium in 18 (54 %) patients, the coronary sinus in 8 (24%) patients, and the right ventricle in 7 (22%) patients, respectively. The mean diameter of the CAVF was 5.2 ± 2.3 mm (range 3 – 10 mm). The mean device diameter was 5 ± 2 mm (range 6 – 10mm) and 4.2 ± 1.5 (range 3 – 6 mm) for the ADO I and ADO II, respectively. A 7-8F delivery sheath (DS) was used in 12 (ADO I) and a 4 - 5F in 21 patients, respectively. The occluders were implanted permanently in all patients. Complete occlusion after the procedure was observed in 32/33 (97 %) of the patients. Echocardiographic closure was demonstrated in all patients at the 3 – month follow – up. Four loses of the arterial pulses that were restored with intravenous infusion of heparin and rtPA (2 patients) the only complications of the procedure.

Conclusions The ADO occluders due to their safety, high complete closure rate, easiness of loading and implantation are the devices of choice for closure of moderate to large CAVF. When compared to ADOI the ADO due to its low profile can be implanted through a smaller DS facilitating closure in pediatric patients and tortuous CAVF.