Transcatheter closure of ventricular septal defect: different types and different devices.

Pediatric Cardiology Unit, Department of Pediatrics, Cairo University
Cairo, Egypt

Background: The most common congenital heart disease is VSD. Surgical repair is widely accepted, but still carries a small but definite risk of morbidity and mortality. The aim of this work is to report our initial experience in trans-catheter closure of VSD using different types of devices.

Methods: Between January 2013 and December 2014, a total of 40 patients with VSD underwent an attempt of transcatheter closure under trans-esophageal echocardiographic guidance.

Results: The median age was 3.5 years and median weight was 14.25 Kg. The median VSD size in echocardiography was 5 mm (ranging from 2.5 to 12 mm), while by angiography it was 5.2 mm. The type of VSD was: perimembranous in 25 cases, high muscular in 7, midmuscular in 4 & apical in 4 cases. Indications for closure were: pulmonary hypertension in 8 patients, LV dilatation in 29 patients, history of previous infective endocarditis in two patients, residual VSD S/P surgical closure in 3 patients and one patient had residual VSD after previous device closure.

Device implantation was accomplished for 33 patients (82.5%) with immediate closure in 30 patients (75%) while three patients showed minimal residual flow. The procedure was aborted for 6 patients due to inability to cross the defect while in another patient temporary heart block developed with implantation of the device. The types of devices used were: ADO I in 15 patients, ADO II in 9 patients, PFM in 6 patients, muscular VSD device in 4 patients and cribriform ASD device in 1 patient. The immediate success rate was: 93.3% with ADO I, 87.5% with ADO II, 80% with PFM and 100% with the muscular device. One patient with a small residual after implantation of a PFM coil, developed prolonged hemolysis, the defect was surgically closed with device removal. Two patients developed new mild mitral regurge. The approach was from the RV without arteriovenous loop in 14 cases closed by ADOI (94%) so the procedure was shorter with less fluoroscopy.

Conclusion: Transcatheter closure of different types of VSDs seems to be effective and safe using different devices. Long-term results are yet to be evaluated.