Ten Year Experience with Transcatheter Closure of Perimembranous Ventricular Septal Defects Using the Amplatzer Asymmetric Perimembranous Ventricular Septal Defect Occluder in Children: A Multicenter study

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Introduction: We present 10 year experience with 78 patients (pts) with perimembranous ventricular septal defects (PMVSDs) who underwent transcatheter closure at 4 different institutions with the Amplatzer asymmetric PMVSD occluder. Methods: The age of the pts ranged from 0.3 to 15 years. During the study period 31 other patients were excluded from transcatheter closure because they did not fulfill the patient selection criteria (distance less than 2 mm from the PMVSD to the aortic valve, size of VSD in relation to patients age). Results: The devise was permanently implanted in 72/78 patients. Complete occlusion of the communication at six month, one-year, and 2-year follow-up was observed in 93%, 97%, and 97% patients, respectively. Main complications included: Early: were observed in patients less than one year (body weight < 8 Kg) and included: a. Device embolization (2 patients-catheter and surgical removal, respectively), b. Severe procedural bradycardia (5 pts) and c. Mobitz II and complete heart block in 3 and 1 patients respectively. Late (follow-up 6 months-10 years). Complete heart block was developed in one patient 4-year old with Down syndrome. No other patient developed heart block during the follow-up. Three patients developed mild aortic regurgitation. In one of them the regurgitation was not seen at the 1-year follow-up. No other complications were observed. Conclusions: Transcatheter closure using the Amplatzer APMVSD occluder is as a safe and effective nonsurgical alternative that should be offered in properly selected patients with PMVSDs. It should be noted, however, that with the current design of the occluder-delivery system the procedure carries an increased risk in small patients less than one-year of age. Finally, due to anatomic reasons, this therapy cannot be offered to significant number of patients with these defects.