Transcatheter closure of secundum ASD with Cocoon septal occluder in children; early and intermediate term results

Kiplapinar N., Yucel IK., Bulut M.O., Basar E.Z., Hekim Yilmaz E., Erol N., Balli S., Celebi A. Department of Pediatric Cardiology, Dr Siyami Ersek Thoracic and Cardiovascular Surgery Center, Istanbul, Turkey

Introduction
The aim of this study is to investigate the efficacy and safety of Cocoon septal occluder (CoSO) in ASD closure, which has similar characteristics with Amplatzer septal occluders (ASO) but low cost than it.

Methods
From January 2004 to December 2014, 724 patients underwent transcatheter ASD closure with various devices. Initially we used ASO in 144 patients. The other devices used were 434 Cardiofix septal occluders, 29 Ceraflex, 13 Cardia, 9 Figulla Occlutech, 7 Gore Helex, 2 Hyperion, 2 PFM septal occluders later. Nowadays, we have been using predominantly CoSO in ASD closure. We evaluated the efficacy and safety of CoSO in ASD closure in patients whose ages <18 years and compared with the patients’ that ASO was used in regarding to procedural success, complications, procedure and fluoroscopy times, complete occlusion rate in one month. Only transthoracic echocardiography (TTE) was performed before the procedure in all, but TTE or transesophageal echocardiographic guidance was preferred according to complexity of the defect or echogenicity of the patient during the procedure.

Results
We have used CoSO in 76 and ASO in 87 children. Age and weight of the patient in CoSO and ASO groups were comparable as 8.5±3.9 vs 8.2±3.3 years, 29.8±15.5 vs 27.1±11.2 kg, respectively. Mean size of defects and devices were not statistically different between the groups; 15.1±5 vs 15.2±3.8, p: 0.85 and 19±5.5 vs 20±4.8, p: 0.95; respectively. The number of TTE guidance was 35 in CoSO and 45 in ASO. The complex defect rate and deployment technique was similar in both groups. Procedural success rate was %100 in both groups. Procedure and fluoroscopy time were significantly lower in CoSO group (48.6±21.6 vs 66±28.1; p: 0.008 and 8.8±5.7 vs 16.6±11.6; p<0.001, respectively). Complications were minimal and 2 in CoSO and 2 in ASO. Complete occlusion rate was similar as %97 in CoSO and %99 in ASO in one month. No complication has occurred during the intermediate term follow-up in both.

Conclusions
Our early and intermediate term results showed that CoSO is efficient and safe alternative in transcatheter ASD closure. It can be preferred because of low-cost.