

### **Transcatheter Closure of Perimembranous and Muscular VSD with Cardiofix Muscular VSD Occluder**

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Background: The difference of Cardiofix muscular VSD occluder (mVSDO) from Amplatzer mVSDO having a shorter (7mm vs 5mm) connecting waist choices. Taking into consideration that the muscular septum is thinner in children and also rims of perimembranous VSD (pmVSD) is slim; we preferred this device for closure of all muscular VSD and some selected pmVSDs.

Material and Method: 37 Patients underwent transcatheter VSD closure with Cardiofix mVSDO in our clinic between April 2007 and December 2013 were analyzed. During the study period Cardiofix mVSDO was used in all muscular VSD and in some selected pmVSDs in the existence of septal aneurysm by inserting the left disc of the device into the aneurysm or if there is sufficient ( $\geq 4$ mm) subaortic rim by leaving the left disc at the LV side.

Results: The procedure was successful 35 of 37 (94%) patients. The age of patient ranged from 1 to 34 years (median 7 years). Mean defect diameter was  $8,4 \text{ mm} \pm 3,1$  (4,3-18 mm) and mean Qp/Qs ratio was  $1,86 \pm 0,60$ . The defect types were perimembranous in 17 and muscular in 18 patients. 13 patients those pmVSDs were closed by left side, the mean distance between defect side and aortic valve (aortic rim) was  $5,4 \text{ mm} \pm 1,1$  (4-7 mm). In four patients with pmVSD the device was placed into the aneurysm. The only significantly complicated patient who developed moderate tricuspid regurgitation and significant residual shunt even after device releasing was referred for elective surgery. Full occlusion rate was 94% on follow up. There was trivial non-progressive new onset aortic regurgitation in one patient. There was no permanent complete AV block during early and mid-term follow up.

Conclusion; VSD closure with Cardiofix mVSDO having a short connecting waist (5 mm) is safe and efficacious. Shorter connecting waist than Amplatzer mVSDO is more convenient for muscular VSDs in children when regarding to septal thickness. On the other hand, it may be preferred in pmVSD closure with sufficient subaortic rim since the larger connecting waist than the eccentric pmVSD occluder may cause lesser pressure to conducting pathway to reduce the risk of AV block.