Lifetech Cera vs Amplatzer VSD occluders for transcatheter closure of ventricular septal defects

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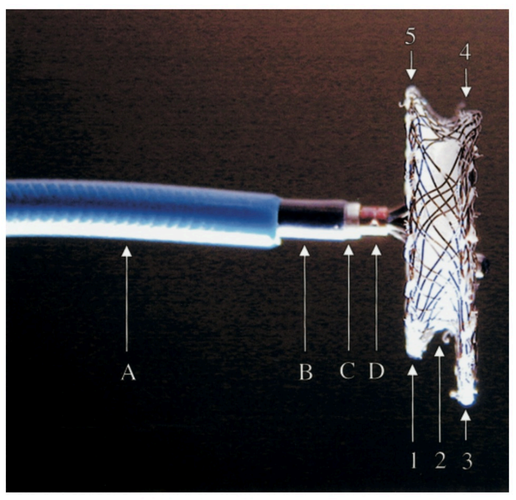
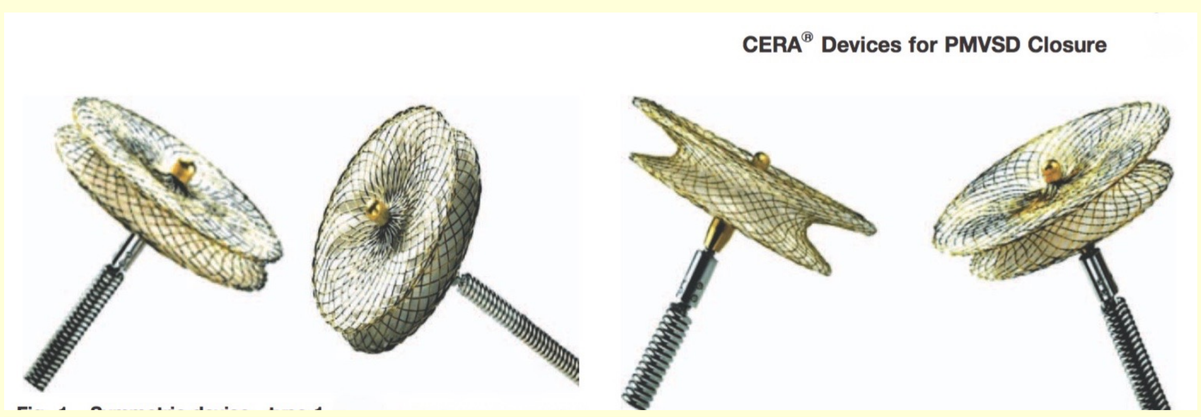
The Amplatzer and modified double-disc Lifetech Cera ventricular septal defect (VSD) occluders allow the transcatheter closure of the VSDs. The Amplatzer membraneous devices are not used anymore because of increased complete atrioventricular block risk. Therefore, a comparison of these devices will show us the exact risk of the differences of the devices.

Methods

From May 2009 to February 2016, 135 consecutive patients (mean age 8.5±4.2, range 1.4-26 year) underwent transcatheter closure of VSD. Used devices were Amplatzer membranous in 35 patients (25.9%), Amplatzer muscular in 32 (23.7%), Cera symmetric in 35 (25.9%), Cera muscular in 21 (15.6%), Cera asymmetric in 4 (3%) patients. And also 8 patients took Amplatzer ductal occluder I or II.



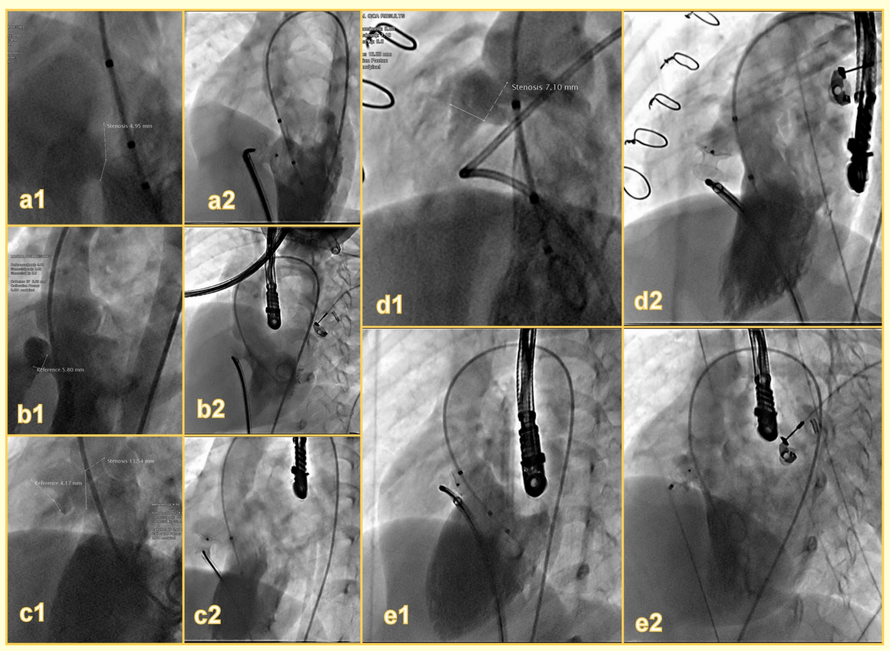
Amplatzer perimembranous VSD occluder



Cera perimembranous symmetric, asymmetric and eccentric VSD occluders

Results

There were no differences in age, sex, defect type, shunt ratio, and pulmonary artery pressure between groups. Membranous defect ratio was 71%. Amplatzer device sizes (7.2±2.1, range 4-16 mm) were bigger than Cera devices (6.2±1.8, range 4-10 mm) (p=0.009). Pacemaker implantation was performed temporary in 3 and permanently in 1 patient at Amplatzer group and none in Cera group. The follow-up period was statistically longer at the Amplatzer group (21.8±16.6 vs 5.7±6 months, p<0.001). The other complication and residual flow and success rate were similar at both devices (p>0.05). Membranous Amplatzer devices used in 72.9% of membranous defect but Cera symmetric and asymmetric devices used 94.5% of membranous defects (p<0.001), because of increased block risk of Amplatzer devices.



A1-2 (midventricular VSD closure with muscular VSD occluder), B1-2 (aneurysmal mVSD closure with muscular VSD occluder), C1-2 aneurysmal mVSD closure with duct occluder), D1-2 (postop TOF and residual VSD closure with mVSD occluder), E (mVSD closure with mVSD occluder),

Conclusions: Although success rate was similar, Cera devices compare favorably with lower complete block risk. And They make more alternative with choosing symmetric, asymmetric and eccentric types.