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Titel des Beitrags: Does the amplatz septal occluder device alter ventricular contraction pattern? A ventricular motion analysis by MR tagging.

Abstract: To assess by cardiovascular magnetic resonance (CMR) and CMR tagging if the Amplatzer Septal Occluder affects right ventricular (RV) and left ventricular (LV) motion pattern.Sixteen consecutive patients with significant atrial septal defect (ASD) and nine consecutive patients with persistent foramen ovale (PFO) as controls were studied before and a median of 14 days after defect closure by an Amplatzer occluder. By CMR end-diastolic (EDV) and end-systolic (ESV) RV and LV volumes were determined. Aortic and pulmonary artery flow was measured for assessment of left-to-right shunt (Qp/Qs). By CMR tagging circumferential strain and radial shortening, maximal rotation and torsion were measured.In ASD patients RV-EDV and RV-ESV decreased (P< 0.05). LV-EDV and LV-ESV increased after ASD closure (P< 0.005). Qp/Qs dropped from 1.8 to 1.0 (P< 0.001). PFO patients showed no ventricular volume change after PFO closure. In ASD patients circumferential strain and radial shortening and maximal rotation of the RV decreased by ASD closure (P< 0.01). In LV only maximal rotation at the base and apex decreased significantly (P< 0.05). Torsion remained constant. In PFO patients no tagging parameter changed after defect closure.The Amplatzer occluder itself does not change the ventricular contraction pattern. All volume and myocardial deformation changes were
caused by ventricular loading shifts.