RESEARCH/findings Median CHADSVA2Sc and HASBLED scores were respectively 5(IQR 4-6) and 4(IQR 4-5). In most patients (46/49), serious or repeated bleeding was the procedural indication. Conscious sedation was achieved in all patients using midazolam 1.5mg (IQR 1-2) and fentanyl 100mcg (IQR 75-150). Devices implanted included the Amplatzer Cardiac PlugTM in 22, AmuletTM (St.Jude Medical Inc.) in 20 and UltraSeptTM LAA Ocluder (Cardia Inc, Eagen, MN) in 7. In all cases ICE provided adequate LAA visualization, procedural guidance, occlusion assessment, and device visualization and its relation with adjacent structures. Procedural success was achieved in all but 1 patient (challenging anatomy and consequent failure to implant the device). Median procedural time was 91min (IQR 81-119). Median hospital stay was 1 day. There was no procedural stroke or device embolization. Two patients developed tamponade, one treated with pericardiocentesis and 1 required surgical repair. Two patients had access site hematomas. No ICE related complication was noted. At 3 months 87% of patients had clinical and TEE follow-up. Non-clinically significant residual intratral blood shunts were found in 7/42. Successful LAA occlusion was observed in 41 of the 42 patients with follow-up TEE; one patient had a 4 mm residual leak. Three patients died during this period, all were non-procedure related deaths. Two patients had a recurrent GI bleeding and were hospitalized for transfusions.

CONCLUSIONS
This pilot experience suggests that LAA occlusion in conscious patients under ICE guidance is a valid alternative for general anesthesia and TEE guidance for percutaneous LAA occlusion.

CATEGORIES/STRUCTURAL Left Atrial Appendage Exclusion

KEYWORDS Atrial fibrillation, Intracardiac echo, Left atrial appendage

TCT-731 Rationale Of Cerebral Protection Devices In Left Atrial Appendage Occlusion

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BACKGROUND Intentional left atrial appendage (LAA) occlusion has been shown to be non-inferior to warfarin therapy. Thus, the Watchman4 device (Boston Scientific, Marlborough, MA, USA) has recently been approved by the FDA for clinical use as an alternative to warfarin in the United States. Therefore, a massive increase in performed LAA occlusions can be expected worldwide. However, per-procedural stroke has been a major contributor to adverse events in clinical trials. A similar problem was encountered in the field of transcatheter aortic valve replacement (TAVR). In TAVR, the use of a cerebral protection device (Sentinel CPS®, Claret Medical Inc., Santa Rosa, CA, USA) has been proven to reduce cerebral lesions as assessed with magnetic resonance imaging (MRI). We hypothesized, that the less invasive procedure of LAA occlusion leads to embolization of solid material, too and that the use of a cerebral protection system might reduce adverse events in LAA occlusion and even reduce long-term adverse effects of microemboli like cognitive deterioration.

METHODS In five consecutive patients treated with LAA occlusion in our center the Sentinel CPS® cerebral protection device was used. For LAA occlusion, the Watchman4 device was used in two patients and the Amulet® (St. Jude Medical Inc., St. Paul, MN, USA) in three patients. The procedures were performed according to the instructions for use. Presence of LAA thrombus was ruled out before the procedure by transesophageal echocardiography in all patients, the filters placed after the transeptal puncture. Throughout the procedure, unfractionated heparin was administered to maintain an activated clotting time > 250 seconds. After LAA occlusion the filters were removed and the content underwent histologic examination.

RESULTS A total of 10 filters (one proximal and one distal filter for each patient) were collected and underwent Histopathologic analysis (CV Path Institute Inc.). Debris was found in all patients (9/10 filters). Acute thrombus was found in 3 patients (2 Watchman; 1 Amulet), organizing thrombus in 4 patients (1 Watchman; 3 Amulet). One Amulet® patient showed endocardial tissue and one other platelets in their filters. None of the filters included calcifications or other foreign material. The maximal diameter of the collected material was 0.68 ±0.9 mm. No patient showed neurological abnormalities after the procedure.

CONCLUSIONS As expected the procedure of LAA occlusion leads to embolization of thrombus material, either preexisting or induced by the procedure, in all patients. This finding strongly encourages further investigations of the underlying mechanisms for embolization of different types of material, as well as the clinical impact of microemboli. A potential difference between different devices in thrombogenic potential as seen in our small series should also be addressed in future investigations and might help to improve device design and implantation techniques.

HEART FAILURE

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TCT-732 Hybrid Transcatheter-Thoracoscopic Ventricular Restoration: A Mini Invasive Therapeutics for Left Ventricular Anteroseptal Aneurysm

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BACKGROUND We have previously reported a less invasive off-pump epicardial ventricular enhancement (LIVE) procedure, which involves an open chest exposure with placement of an anchoring system in an experimental heart failure animal model. This study aimed to evaluate whether a novel hybrid transcatheter ventricular restoration (TCVR) approach, with thoracoscopic assistance, can achieve similar results in an ovine model of ischemic heart failure and LV anteroseptal aneurysm.

METHODS Left ventricular (LV) anteroseptal scar was created by percutaneous coil-occlusion of the mid-left anterior descending coronary artery. Two months later, the scar was completely excluded via placement of serial pairs of anchors in the right ventricular septum and LV anterior epicardium through either open chest surgical approach (n = 8) or minimal invasive hybrid TCVR approach (n = 5). LV performance was evaluated before (baseline) and six weeks after device implantation by echocardiography.

RESULTS All animals survived with no device or procedure-related complications. TCVR significantly reduced LV end-systolic and end-diastolic volumes and increased the ejection fraction, while stroke volume was preserved at 6 weeks follow-up; the apical rotation was significantly improved (4.3 ±1.3° vs. baseline 0.5±2.7°; p = 0.03) and LV twist was restored (8.56±3.45° vs. baseline 3.71±5.39°; p = 0.04). No difference was shown between the two groups in volume reduction, ejection fraction or LV twist improvement (Table).

CONCLUSIONS Compared with a more invasive open-chest surgical procedure, hybrid, thoracoscopically assisted TCVR can achieve similar volume reduction and improvement in contractility of the LV in an ovine model of ischemic cardiomyopathy with LV anteroseptal infarction. It might be a safe, effective and less invasive alternative to current open surgical therapies.

CATEGORIES/STRUCTURAL Heart Failure

KEYWORDS Apical Aneurysm, Heart failure, Transcatheter