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CRITERIA FOR SUCCESS OF LEFT ATRIAL APPENDAGE LIGATION BY A NOVEL CATHETER-BASED SUTURE LIGATION PROCEDURE

ACC Poster Contributions
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Background: A novel percutaneous approach for left atrial appendage (LAA) ligation may be appropriate for AF patients ineligible to anticoagulation therapy. However, the clinical applicability of the catheter-based approach is unknown. Efficacy of complete exclusion of the LAA was correlated to the LAA anatomy defined by contrast 3D-computer tomography (CT).

Methods: A total of 79 patients between the ages of 35 to 78 years old was evaluated by contrast 3D-CT. Morphology of the LAA was classified by size, orientation and shape.

Patients underwent percutaneous ligation of the LAA with the LARIAT snare device (SentreHEART, Palo Alto, CA). The catheter-based approach was comprised of a .025" endocardial magnet-tipped guidewire placed in the apex of the LAA via transseptal catherization and a .035" epicardial magnet-tipped guidewire that was attached to the endocardial magnet-tipped guidewire via a percutaneous pericardial approach. A 20 mm compliant occlusion balloon catheter was advanced over the endocardial guidewire and positioned at the ostium of the LAA under transesophageal echocardiography (TEE) guidance. An over-the-wire approach was used to guide the LARIAT snare device over the LAA to enable ligation of the LAA. TEE and left atriagram were used to confirm acute closure of the LAA. Follow-up TEE was performed at 1 day and 1 month.

Results: 14 of 79 patients were excluded from undergoing LAA ligation. 9 of 14 patients had superiorly oriented LAA. 5 of 14 patients had LAA thrombus identified by TEE prior to the procedure. 65 of 79 patients underwent successful LAA ligation. 60 of 65 patients had complete acute closure of the LAA. 5 patients had less than a 3 mm jet identified by color flow Doppler. Presence of an acute jet by color Doppler was correlated to LAA size and shape. There were no device related complications. Results of 30 day TEE follow-up by color flow Doppler is being collected.

Conclusion: Success of percutaneous suture ligation of the LAA is dependent on LAA morphology and can be improved with prescreening 3D-CT imaging. This novel catheter-based LAA ligation approach is feasible in humans. Further long-term follow-up is needed to confirm efficacy.