B-PO04-146

THREE-DIMENSIONAL ULTRASOUND MAPPING FOR SAFELY PERFORMING LEFT ATRIAL APPENDAGE OCCLUSION USING INTRACARDIAC ECHOCARDIOGRAPHY

Mahmoud Elsayed, Madhan Nellaiyappan MBBS, Christine Zanone RN, Mark Doyle PhD, Emerson Liu MD, George Shaw MD, FHRS, David Lasorda DO and Amit J. Thosani MD, FHRS

Background: Left atrial appendage occlusion (LAAO) has historically been performed with TEE. Recently, intracardiac echocardiography (ICE) has been described for LAAO in select centers. ICE requires left atrial appendage (LAA) imaging within the left atrium (LA) and introduces procedural risk.
Objective: We describe the use, safety, and efficacy of 3D ultrasound mapping (3DUS) to guide ICE catheter manipulation for LAAO compared to TEE.
Methods: We retrospectively reviewed 102 patients who underwent LAAO from 2017 to 2021. Intraoperative TEE was performed using standard views. Our initial ICE with 3DUS (Cartosound, Biosense Webster) case was performed due to TEE contraindication (Zenker's diverticulum); subsequent ICE cases were performed based upon operator preference. All ICE patients had preprocedure TEE and subsequent uninterrupted anticoagulation. 3DUS was used to assist free ICE catheter placement across the transeptal puncture site, and within the LA body, left pulmonary veins, and perimitral location for LAA imaging. 3DUS was used to avoid ICE catheter manipulation near the LA free walls. Ultrasound sector visualization was used with 3DUS to obtain all LAA views. Procedural data was compared between TEE and ICE groups.
Results: ICE with 3DUS was utilized in 27 patients (26%) and TEE in 75 patients (74%). Pericardial effusion requiring intervention was not observed in either group. Similar rates of successful LAAO were achieved with both methods. Table 1.
Conclusion: ICE with 3DUS for LAAO is noninferior to traditional TEE, and may be of benefit to operators initially learning ICE based LAAO. Further investigation is required to compare ICE with 3DUS versus ICE alone for LAAO.

Table 1. Baseline Demographics and Procedural Data.

Parameter	ICE (n=27)	TEE (n=75)	P value
Age (years)	73.3 ± 7.3	76 ± 7.3	0.103
Gender (% male)	40%	60%	0.541
Total procedure time (minutes)	89.3 ± 31.7	83.6 ± 31.9	0.430
Contrast dose (mL)	64.3 ± 32.2	56.9 ± 47.5	0.494
Radiation dose (mGy)	986.8 ± 911.1	983.23 ± 11021	0.987
Total fluoroscopy time (minutes)	11.8 ± 8.9	16.4 ± 11.5	0.058
Pericardial effusion	0 (0%)	0 (0%)	1
Groin bleeding	0 (0%)	2 (2.7%)	1
Successful watchman implant	26 (96.3%)	73 (97.3%)	1

B-PO04-147

TRENDS IN EARLY STROKE AND MORTALITY IN EPICARDIAL VERSUS ENDOCARDIAL LEFT ATRIAL APPENDAGE CLOSURE IN ATRIAL FIBRILLATION: NATIONWIDE READMISSIONS DATABASE 2016-2018

Edward V. Kogan MD, Christopher F. Liu MD, FHRS, Shing C. Wong MD, Geoffrey W. Bergman MBBS, James E. Ip MD, FHRS, George Thomas MD, Steven M. Markowitz MD, FHRS, Bruce B. Lerman MD, FHRS, CCDS, Luke Kim MD and Jim W. Cheung MD, FHRS

Background: Percutaneous left atrial appendage closure (LAAC) devices have emerged as an important alternative to anticoagulation for stroke prevention in patients with atrial fibrillation. National data on recent trends and early complication rates associated with endocardial (endo) LAAC and epicardial (epi) LAAC procedures are limited.
Objective: To examine the rates and predictors of stroke, mortality, and procedural complications occurring either during index admission or within 90-day readmission after LAAC using a national administrative database.
Methods: We evaluated 24,198 admissions for LAAC procedures (22,963 endo LAAC and 1,235 epi LAAC) between 2016-2018 using the Nationwide Readmissions Database. Admissions between October and December were excluded to permit 90-day readmission follow-up. Using ICD-10-CM codes, complications occurring during index admission and 90-day readmission were identified. Early stroke and early mortality were defined as events occurring during index admission or readmission. Rates of complications were compared with Fisher's exact test. Multivariable logistic regression was used to identify independent predictors of procedural complications as well as combined early stroke and mortality.
Results: Compared to epi LAAC, endo LAAC was associated with lower rates of procedural complications (2.8% vs. 14.5%; $p < 0.001$), index mortality (0.2% vs. 0.9%; $p = 0.003$), early mortality (0.5% vs. 1.5%; $p = 0.004$), and early stroke (0.7% vs. 2.4%; $p < 0.001$). Between 2016 and 2018, the rates of procedural complications as well as early stroke and mortality did not change significantly. Epi LAAC (aOR 4.5; $P<0.0001$), coagulopathy (aOR 3.5; $P < 0.001$), heart failure (aOR 2.2; $P < 0.001$), and pulmonary hypertension (aOR 2.0; $P = 0.002$) were independently associated with LAAC procedural complications. Female sex (aOR 1.7; $P=0.001$), epi LAAC (aOR 2.5; $P<0.001$), and coagulopathy (aOR 3.3; $P=0.001$) were independently associated with early stroke and mortality.
Conclusion: Endocardial LAAC is associated with lower rates of procedural complications, early stroke, and mortality. In this contemporary real-world analysis over a 3-year period, there was no significant decline in LAAC-associated complications.

B-PO04-148

ZERO FLOUROSCOPY WATCHMAN FLX IMPLANTATION

Brett A. Gidney MD, FHRS and Shephal K. Doshi MD

Background: Standard workflow for the Watchman FLX left atrial appendage (LAA) occlusion device requires both transesophageal echocardiography(TEE) and fluoroscopy(FL).
Objective: To demonstrate the Watchman FLX has unique characteristics which permit additional evolution of the implant protocol including the elimination of ionizing radiation, contrast dye, and lead aprons.
Methods: Consecutive patients (n=12) were implanted with a FLX device at 2 US centers using a workflow modification to allow no FL throughout the entire procedure. To facilitate echocardiographic visualization of the moment the FLX was aligned with the tip of the Watchman Access System sheath (WAS), the standard protocol was modified. Rather than advancing only to the radiopaque marker band prior to insertion, the FLX was advanced flush to the tip, past the radiopaque marker band. Once inserted into the WAS, the deployment knob was used to advance the Watchman 2-3 mm so that the FLX was partially deployed inside the sheath. As a result, upon alignment of the FLX with the sheath's tip it was echogenic allowing confirmation without FL. TEE was then used to visualize unsheathing the FLX within the LAA.
Results: Patients were 58% male (n=7) with mean age of 78(±5), CHADS-VASC 4(±1), and HAS-BLED 3(±1). Fluoroscopy time, time in lead, and contrast use were zero. Same day discharge was successful in 67%(n=8). 67% (n=8) were taking Direct Oral Anticoagulant (DOAC) or warfarin prior to procedure and of these 88% (n=7) were uninterrupted on the day of procedure. 33% (4/12)