

EDITORIAL COMMENT

Concomitant Atrial Fibrillation Ablation and Appendage Occlusion



Ready for Prime Time?*

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Catheter ablation is the preferred modality of rhythm control in atrial fibrillation (AF) with increasing evidence suggesting improved efficacy over pharmacological approaches. Despite successful ablation, recurrence of even short episodes of asymptomatic AF is associated with residual stroke risk leading to current guidelines recommending continued oral anticoagulation (OAC) based on perceived stroke risk (1). However, a significant proportion of patients have limited OAC options due to contraindications or patient preference. The advent of percutaneous left atrial appendage occlusion (LAAO) devices such as the Watchman device (Boston Scientific) has revolutionized the field of stroke management in AF patients with increasing indications for use (2). Achieving an ostial seal of the left atrial appendage (LAA) is the cornerstone of LAAO devices with serial assessments of periprosthetic residual flow with transesophageal echocardiography (TEE) being standard of care. Traditionally, AF ablation and LAAO are performed as standalone procedures, both requiring transseptal catheterization and imaging guidance with either TEE (which also requires general anesthesia) or ultrasound intracardiac echocardiography.

Given significant similarities in procedural steps, concomitant AF ablation and LAAO has been previously evaluated as a potential one-stop option for AF

patients. Fassini et al (3) reported outcomes of concomitant cryoablation and LAAO in 35 patients undergoing a first-time AF ablation. A single transseptal access was used for both the cryoablation and Watchman delivery sheaths. Thirty patients (86%) had complete LAAO at 6-month TEE evaluation whereas 5 patients (14%) showed a persistent minimal residual flow (<5 mm). At 1 year, persistent residual flow was observed in 3 patients. Another study of 49 patients evaluating long-term outcomes of concomitant cryoablation and LAAO showed complete LAA seal in 88% with <5-mm peridevice leak in the remaining 12% of patients. Rates of complete and satisfactory (<5-mm leak) LAA seal at 6 months were 86% and 14%, respectively (4). There was 1 ischemic stroke over a 2-year follow-up in this cohort. In a multicenter study including 139 patients undergoing concomitant AF ablation and LAAO, Phillips et al (5) reported on acute and long-term outcomes of this strategy including both cryoablation and radiofrequency ablation for pulmonary vein isolation. Complete LAA seal was obtained in 97.2% patients and a satisfactory seal with <5-mm residual leak was obtained in 2.8%. At 4-week follow-up TEE, 2 patients (1.4%) were found to have a leak >5 mm due to device migration and were considered to have unsuccessful LAA closure, 3 patients were found to have device-related thrombus, and 1 patient had device embolization to the aorta requiring surgical intervention. Over a 2-year follow-up period, there was 1 ischemic stroke and there were 5 transient ischemic attack (TIA) events. Of these events, 2 TIAs and the stroke event occurred in 1 patient who had a residual leak >5 mm on follow-up TEE and was continued on OAC.

In this issue of *JACC: Case Reports*, van Rijn et al (6) present 2 cases of concomitant cryoballoon AF ablation and LAAO and caution towards suboptimal procedural outcomes using this strategy. The first patient

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was a 50-year-old man with persistent AF and a prior history of stroke. Indication for LAAO was an increased perceived risk of bleeding. He was found to have recurrent AF during follow-up. During the 3-month follow-up TEE, device shouldering with a residual flow <5 mm was detected and unfortunately had a recurrent stroke 15 months post-LAAO. The second patient was a 74-year-old man with paroxysmal AF and a prior history of spontaneous intracranial bleeding. At 3-month TEE, residual flow of 3 mm was detected. He also had recurrent AF with no stroke/TIA events. Based on these findings, the authors recommend that concomitant AF ablation plus LAAO is not ideal and the procedures should be performed at different timing.

Several points pertaining to the 2 cases deserve attention. First, in both cases, the same transseptal access was used for the cryoballoon sheath as well as the Watchman delivery system. Whether this impacted the access angle to the LAA with ability to deploy the device in a coaxial fashion is unclear. Second, TEE measurements of the LAA ostium for device sizing were performed following pulmonary vein isolation in both cases. Delivery of cryoenergy at the ridge between the LAA and the left superior pulmonary vein results in significant edema of this region as shown in the images and can lead to an underestimation of the actual LAA ostial dimension. Although prior studies have shown cryoablation to have a lower incidence of endothelial disruption and thrombus formation compared to radiofrequency energy, significant edema can still occur depending on catheter orientation and duration of freezing (7). A strategy of assessing LAA dimensions by TEE or computed tomographic imaging before the

pulmonary vein isolation may have resulted in better device sizing. Third, degree of residual leak was <5 mm in both patients during the 3-month TEE follow-up. Although there was some device shouldering, this degree of leak is considered satisfactory in most clinical scenarios (8).

Concomitant AF ablation and LAAO provides the advantages of patients having to undergo a single procedure. In many practice settings, this may lead to improved resource use and cost effectiveness. However, concomitant procedures require additional planning with attention to device sizing, site of transseptal access, and long-term anticoagulation strategies. Additionally, the risk of AF recurrence and need for additional ablation should be considered given that access to the LAA for ablation of AF triggers is sacrificed with LAAO during the first AF ablation. The ongoing OPTION (Comparison of Anticoagulation with Left Atrial Appendage Closure After AF Ablation) trial evaluating outcomes of sequential or concomitant AF ablation plus Watchman implantation will likely provide additional guidance on optimal procedural strategies (9). Until then the jury is still out.

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