

## **Concomitant Pulmonary Vein Isolation and Left Atrial Appendage Occlusion for Atrial Fibrillation: A Meta-Analysis of Safety and Efficacy Outcomes**

### **BACKGROUND:**

Pulmonary vein isolation (PVI) is an effective treatment for symptomatic atrial fibrillation (AF) with 50% to 90% freedom from recurrent AF. Percutaneous left atrial appendage occlusion (LAAO) has emerged as an alternative therapy for stroke risk reduction in patients with non-valvular AF who cannot tolerate oral anticoagulation. We conducted a meta-analysis of studies assessing the safety and efficacy of concomitant PVI and LAAO.

### **METHODS:**

PubMed, Embase and Cochrane databases were searched for all studies prior to March 2018 that included PVI and LAAO within a single procedure. Efficacy endpoints included ischemic stroke/transient ischemic attack (TIA), AF recurrence, and non-procedural major bleeding. Safety outcomes included peri-procedural pericardial effusion and bleeding. Cumulative incidence rates were calculated using the Der Simonian and Laird random effect model.

### **RESULTS:**

Ten studies met the inclusion criteria, of which 7 were observational and 3 were randomized controlled trials (RCTs). The 10 trials included in the analysis were comprised of 729 patients with mean age of 65.9 years, mean CHA<sub>2</sub>DS<sub>2</sub>-VASc score of 2.9, and mean HAS-BLED score of 2.8, and a mean follow up of 18.8 months. The cumulative incidence of each efficacy and safety outcome is shown in Table 1 with its 95% confidence interval, p-value, and I<sup>2</sup> heterogeneity statistic.

### **CONCLUSION:**

Concomitant PVI and LAAO within a single procedure is effective and safe. Our meta-analysis demonstrates similar rates of ischemic stroke/TIA and non-procedural bleeding that would be expected for either procedure alone and an AF recurrence rate like PVI alone.

**Table 1:** Safety and efficacy outcomes of concomitant PVI and LAAO.

<b>Outcome</b>	<b>Cumulative Incidence (%) (95% CI)</b>	<b>p-value</b>	<b>I<sup>2</sup> (%)</b>
<b><i>Efficacy</i></b>			
Ischemic Stroke/TIA	1.45 (0.34-2.56)	0.011	0.0
AF Recurrence	28.84 (17.5- 40.2)	<0.01	90.7
Non-Procedural Major Bleeding	1.39 (-0.015-2.79)	0.05	18.0
<b><i>Safety</i></b>			
Peri-Procedural Pericardial Effusion	0.79 (0.14-1.72)	0.095	0.0
Peri-Procedural Bleeding	1.82 (0.11-3.75)	0.064	43.7