

Impact Of Intracardiac Echocardiography Vs. Transesophageal Echocardiography Guidance On Left Atrial Appendage Occlusion Procedures: A Meta-Analysis

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Abstract

Background: Intracardiac echocardiography (ICE) is increasingly used during left atrial appendage occlusion (LAAO) as an alternative to transesophageal echocardiography (TEE) **Aim:** To evaluate the impact of ICE vs. TEE guidance during LAAO on procedural characteristics and acute outcomes, as well the presence of peri-device leaks and residual septal defects during follow-up. **Methods:** All studies comparing ICE-guided vs. TEE-guided LAAO were identified. The primary outcomes were procedural efficacy and occurrence of procedure-related complications. Secondary outcomes included lab efficiency (defined as a reduction in in-room time), procedural time, fluoroscopy time, and presence of peri-device leaks and residual interatrial septal defects (IASD) during follow-up. **Results:** Twelve studies (n=5637) were included. There were no differences in procedural success group (98.3% vs. 97.8%; OR 0.73, 95% CI 0.42-1.27, p=0.27; $I^2=0\%$) or adverse events (4.5% vs. 4.4%; OR 0.81 95% CI 0.56-1.16, p=0.25; $I^2=0\%$) between the ICE-guided and TEE-guided groups. ICE guidance reduced in in-room time (mean-weighted 28.6-minute reduction in in-room time) without differences in procedural time or fluoroscopy time. There were no differences in peri-device leak (OR 0.93, 95% CI 0.68-1.27, p=0.64); however, an increased prevalence of residual IASD was observed with ICE-guided vs. TEE-guided LAAO (46.3% vs. 34.2%; OR 2.23, 95% CI 1.05-4.75, p=0.04). **Conclusion:** ICE guidance is associated with similar procedural efficacy and safety, but could result in improved lab efficiency (as established by a significant reduction in in-room time). No differences in the rate of periprocedural leaks were found. A higher prevalence of residual interatrial septal defects was observed with ICE guidance.

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