

# THREE-DIMENSIONAL INTRACARDIAC ECHOCARDIOGRAPHY FOR LEFT ATRIAL APPENDAGE SIZING AND PERCUTANEOUS OCCLUSION GUIDANCE

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#### Objectives:

To report procedural success of 3D-intracardiac echocardiography (ICE)-guided left atrial appendage (LAA) occlusion and the correlation between pre-procedural transesophageal echocardiography (TEE) and intraprocedural 3D-ICE for LAA sizing.

#### **Background:**

LAA imaging is critical during percutaneous occlusion procedures. 3D-ICE features direct visualization of the LAA from multiple cross-sectional planes at a time, thereby overcoming the need for geometric assumptions.

#### <u>Methods</u>:

Among 274 patients undergoing LAAO with a Watchman FLX device, periprocedural ICE guidance was achieved via a commercially available 2D-ICE catheter (220 patients) or a novel (NUVISION™, Biosense Webster Inc) 3D-ICE one (54 patients).



Primary endpoint was a composite of procedural success and complete LAA sealing at followup TEE. Secondary endpoint was a composite of periprocedural device recapture/resizing plus unsuccessful LAA sealing (leaks≥3mm) at follow-up TEE. The correlation between preprocedural TEE and 3D-ICE measurements was assessed with Pearson's coefficient and Bland-Altman analysis.

## <u>Results</u>:

No major procedure- and device-related adverse events were documented. The incidence of the primary endpoint was 98.1% with 3D-ICE and 97.3% with 2D-ICE (p=0.99). 2D-ICE patients had a trend towards a higher incidence of periprocedural device recapture/redeployment (31.5% vs 44.5%; p=0.09). The secondary endpoint occurred in 31.5% of 3D-ICE patients versus 45.9% of 2D-ICE ones (p=0.065). 3D-ICE measurements of maximum landing zone (Figure 1) correlated highly with preprocedural TEE reference values [Pearson's: 0.94; p<0.001; bias: - 0.06 (-2.39, 2.27)].

### **Conclusion:**

3D-ICE-guided LAAO showed a very high success, with no major adverse events. A high level of agreement for LAA sizing was found between pre-procedural TEE and periprocedural 3D-ICE.