Introduction: Ablation technique targeting high-amplitude signals (maximum voltage guided - MVG) on the cavotricuspid isthmus (CTI) has emerged as viable alternative option compared to standard anatomical approach (ST) for the creation of bidirectional conduction block (BDB) across the isthmus but limited data are available to date. To evaluate the effectiveness of acute and long-term outcome of CTI ablation through MVG technique for AFL compared to standard linear (SL) lesion ablation.

Methods: Atrial Flutter Ablation in a Real World Population (LEONARDO) is a prospective, multicenter cohort study aimed at providing an estimate of acute to long-term outcome in a large population of patients (pts) indicated for AFL ablation. Recurrence of AFL were retrieved at 12-month follow-up. Complete BDB was defined by agreement with the presence of widely split double potentials (DP) along the ablation line and assessment of the atrial activation sequence (AAS). For MVG technique the ablation catheter was positioned at the site of maximum local electrogram voltage.

Result: Two-hundred fifteen consecutive pts were included (mean age 68 years, 73% male). A median of 4 [2-6] ablation lesions were required. Median follow-up was 359 [192-443] days. Complete BDB was achieved in 175 (81.4%) pts (9 pts had DP only criterion, 30 pts had AAS only criterion whereas in 1 pt we failed to reach a BDB). In the 106 pts with complete data at 1-year follow-up, 10 (9.4%) had a recurrence of AFL. 171 pts (79%) underwent a SL ablation whereas 44 pts (21%) were treated by MVG approach. The median number of lesions/pt was significantly lower in the group of pts targeted with MVG compared to the SL approach (3[2-4] vs 4[2-8], p<0.01), whereas no differences were found in terms of fluoroscopy time (16[12-18] min vs 12[7-22] min, p=NS) or proportion of pts with BDB achievement (86.4% of the cases for MVG vs 80.1% of the cases for ST, p=NS). No complications were reported. AFL recurrence was comparable during follow-up between groups (8.3% for MVG vs 9.8% for SL ablation; p=NS).
Conclusion: Ablation of a targeted site through MGV approach seems to be safe and effective as standard anatomical ablation technique. This strategy may avoid unnecessary ablation of the entire anatomic isthmus.