Comparison of the Acute Outcomes and Procedural Efficiencies of Standard vs. Porous Irrigated Contact Force Sensing Catheters for Pulmonary Vein Isolation: Results from the VISTAX Trial

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Introduction: Contact force (CF) sensing catheters are commonly used for pulmonary vein isolation (PVI); we sought to compare the acute effectiveness, safety, and procedure efficiencies of two CF irrigated catheters using standardized Ablation Index (AI) workflow: the 6-hole irrigated SmartTouch® (ST) and the 56-hole porous irrigated SmartTouch® SurroundFlow (STSF) catheters.

Methods: 329 patients (61.3±10.1 years, 61.5% male; median left atrial diameter 39.0 mm) underwent point by point paroxysmal atrial fibrillation ablations across 17 European centers in the VISTAX study. An inter-tag distance ≤6 mm and AI values of 550 on the anterior wall and 400 on the posterior wall were targeted. ST was used in 243 patients and STSF in 86 patients, depending on operator preference.

Result: Baseline characteristics amongst patients in both the ST and STSF cohorts were similar. High rates of first pass isolation were seen in both groups at ≥85%; PVI was adenosine-proof at 30 minutes in >80% in both groups. Procedural complications occurred in 3.7% in the ST group and 3.5% in the STSF group. Radiofrequency application time was comparable in both groups (STSF: 37.1 ± 9.23 vs. ST: 34.4 ± 11.73 min), while the total procedure time was lower in the STSF group (137.4 ± 30.1 vs. 162.9 ± 36.9 min). Fluid delivery via ablation catheter was lower in STSF vs. ST (785.3 ± 356.0 vs. 1255.6 ± 469.3 mL), and this translated to a lower requirement for Foley catheter usage (11.6% vs 25.9%).

Conclusion: Use of the STSF catheter for PVI was associated with improved procedural efficiencies, lower fluid delivery, and lower Foley catheter usage as compared to the ST catheter. High acute effectiveness and procedural safety were seen with both catheters. Based on the limited dataset, there was no difference observed with major complications, including tamponade.