observed a significant difference: 9.8 ±5.3 vs 7.3 ±3.9 Ohms p < 0.01 (Fig 2).
Conclusion: Contact force had an important residual impact on impedance drop in high AI lesions (> 400) but not in low AI lesions (< 400). This may be due to differences in conductive versus resistive heating requirements. Ablation Index using a fixed formula for duration, force, and power, may not accurately predict lesion formation throughout all value ranges and optimization of adequate contact force remains important for larger and deeper lesions.

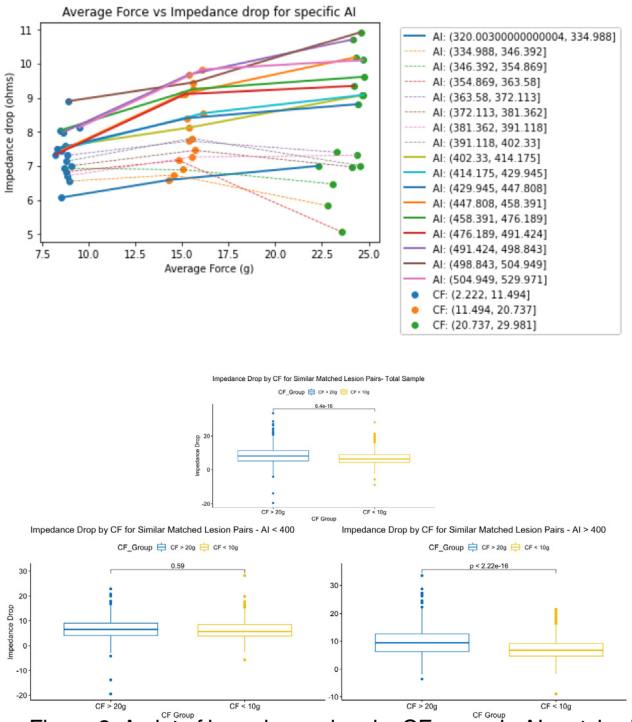

Figure 2: A plot of impedance drop by CF group in AI matched pairs. A significant difference is seen for the overall sample and pairs with AI > 400.

CA-530-02

LOWER ABLATION INDEX IS REQUIRED FOR POST-ABLATION DENSE SCAR FORMATION AT THE LEFT ATRIAL POSTERIOR WALL REGIONS WITH MRI-LATE GADOLINIUM ENHANCEMENT

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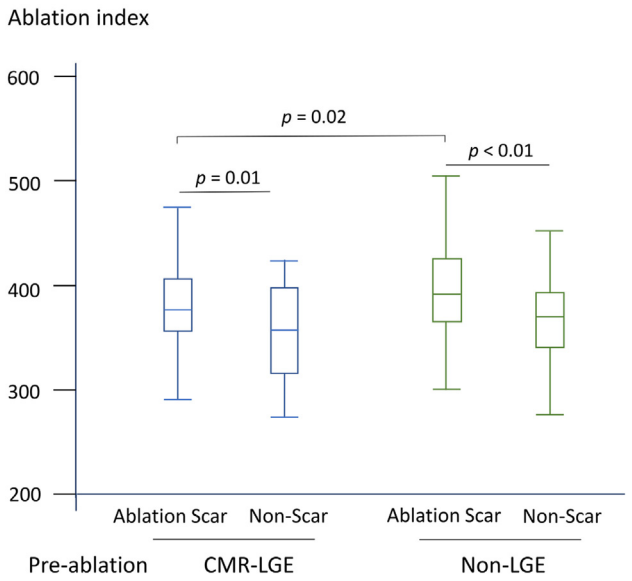
Background: Late gadolinium enhancement in magnetic resonance imaging (MRI-LGE) at the left atrial posterior wall (LAPW) is a surrogate of fibrotic remodeling and is often targeted in persistent atrial fibrillation (PrAF) ablation. It is unclear whether ablation efficacy differs between regions with and without LGE at the LAPW.
Objective: We aim to study the association of ablation index (AI) and post-ablation transmural scarring, in regions with pre-ablation MRI-LGE vs regions without.
Methods: A total of 14 PrAF patients who underwent pulmonary vein isolation and posterior wall debulking were included, and a total of 493 ablation lesions were analyzed. All patients had a pre-ablation MRI and a 3-month post-ablation MRI. Electroanatomic (EA) map was co-registered with pre-ablation MRI to delineate the posterior wall regions with and without LGE, respectively. EA map was then co-registered with post-ablation MRI to delineate regions of transmural scar by ablation. Ablation lesion parameters were collected within each region.
Results: Post-ablation dense scar formation was observed in 97.7% area of regions with LGE vs. 55.6% of regions without LGE ($p = 0.003$). Post-ablation dense scarring was associated with ablation lesions that had higher AI, in both regions with ($p < 0.01$) and without LGE ($p = 0.01$). However, the AI required to achieve dense scar was significantly lower in regions with LGE seen on pre-ablation MRI compared to regions without LGE (median AI with IQR: 379 (359,407) vs 393 (366,426), $p = 0.02$, MRI-LGE vs non-LGE). (Figure)
Conclusion: Effective ablation lesion is more feasible in LAPW regions with fibrotic remodeling demonstrated by pre-ablation MRI-LGE. Tailored AI-guided LAPW ablation may of benefit to achieve adequate lesions while minimizing collateral heat injury due to excessive ablations.



CA-530-03

TAILORED ABLATION INDEX BASED ON LEFT ATRIAL WALL THICKNESS ASSESSED BY COMPUTED TOMOGRAPHY FOR PULMONARY VEIN ISOLATION IN PATIENTS WITH ATRIAL FIBRILLATION

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Background: Although left atrial wall thickness (LAWT) is known to be diverse, fixed target Ablation Index (AI) value has been recommended in radiofrequency catheter ablation (RFCA) of pulmonary vein isolation (PVI) in patients with atrial fibrillation (AF).
Objective: To evaluate the efficacy of tailored ablation for PVI based on LAWT assessed by cardiac computed tomography (CT).
Methods: LAWT was evaluated by cardiac CT. The thick segment was defined as the segment including ≥LAWT grade 3 (≥1.5 mm) among 14 prespecified pulmonary vein (PV) segments (Figure A). Using SmartTouch SF catheter (Biosense Webster Inc., CA, US), point-by-point ablation was delivered at 40W on the anterior/roof segments and 25-35W on the posterior/inferior/carina segments. In the fixed AI group, AI targets were 450 on the anterior/roof segments and 350 on the posterior/inferior/carina segments regardless of LAWT. In the tailored AI