

SUPPLEMENTAL MATERIALS

Supplementary Table I. Patient Characteristics: PV Isolation versus PV Reconnection Following Stage 1

Epicardial Ablation

| All Patients n = 64 | PV Isolation n = 46 | PV Reconnection n = 18 | p-value |
|--|------------------------|---------------------------|-------------|
| Age (year) | 65.5 ± 9.0 | 66.9 ± 12.7 | 0.64 |
| Female sex | 9 (19.6%) | 3 (16.7%) | 1.00 |
| Presence of ERAF | 27 (58.7%) | 9 (50.0%) | 0.53 |
| Race | | | 0.04 |
| White | 39 (84.8%) | 11 (61.1%) | |
| Non-white | 7 (15.2%) | 7 (38.9%) | |
| BMI kg/m ² | 32.5 ± 6.8 | 29.8 ± 4.8 | 0.13 |
| Hemoglobin A1c | 5.5 [5.3, 6.1] | 5.7 [5.4, 5.8] | 0.94 |
| Creatinine | 1.0 ± 0.24 | 1.1 ± 0.28 | 0.13 |
| CHA ₂ DS ₂ -VASc | 2 [2, 4] | 3 [2, 4] | 0.37 |
| Arrhythmia Type | | | 0.95 |
| Paroxysmal | 6 (13.3%) | 2 (11.1%) | |
| Persistent | 11 (24.4%) | 5 (27.8%) | |
| Long Standing Persistent | 28 (62.2%) | 11 (61.1%) | |
| Previous Catheter Ablation | 22 (47.8%) | 4 (22.2%) | 0.09 |
| Comorbidities | | | |
| Cerebral Vascular Accident | 1 (2.3%) | 1 (5.6%) | 0.50 |

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|--------------------------|------------|------------|------|
| Chronic Renal Disease | 37 (80.4%) | 17 (94.4%) | 0.26 |
| Congestive Heart Failure | 29 (63.05) | 10 (55.6%) | 0.78 |
| Coronary Artery Disease | 7 (15.6%) | 7 (38.9%) | 0.09 |
| Diabetes Mellitus | 7 (15.9%) | 1 (6.7%) | 0.66 |
| Hypertension | 32 (69.6%) | 13 (72.2%) | 1.00 |
| Obstructive Sleep Apnea | 22 (48.9%) | 6 (33.3%) | 0.40 |
| Tobacco Use | 16 (37.2%) | 8 (44.4%) | 0.77 |

Pre-operative Echocardiogram

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|--------------------------------------|-------------------|-------------------|------|
| LV Ejection Fraction (%) | 51.3 ± 10.8 | 52.3 ± 14.7 | 0.78 |
| LA Volume (mL) | 87.7 ± 31.0 | 91.1 ± 30.3 | 0.71 |
| LA Volume Index (mL/m ²) | 38.2 [30.7, 50.8] | 37.3 [32.3, 53.4] | 0.96 |

Table represents n (%), median [Q1, Q3] or mean (±SD); PV indicates pulmonary vein; ERAF, early recurrence of atrial fibrillation; BMI, body mass index; LV, left ventricle; and LA indicates left atrial.

Supplementary Table II. Patient Characteristics for Patient with PW Isolation versus PW Reconnection Following Stage 1 Epicardial Ablation

| All Patients | PW Isolation | PW Reconnection | p-value |
|--|---------------------|------------------------|----------------|
| n = 64 | n = 26 | n = 38 | |
| Age (year) | 65.5 ± 8.6 | 66.1 ± 11.1 | 0.81 |
| Female sex | 5 (19.2%) | 7 (18.4%) | 1.0 |
| Presence of ERAF | 14 (53.8%) | 22 (57.9%) | 0.75 |
| Race | | | 0.84 |
| White | 20 (76.9%) | 30 (78.9%) | |
| Non-white | 6 (23.1%) | 8 (21.1%) | |
| BMI kg/m ² | 31.6 ± 4.3 | 31.9 ± 7.6 | 0.86 |
| Hemoglobin A1c | 5.6 [5.3, 6.0] | 5.5 [5.4, 5.8] | 0.96 |
| Creatinine | 1.0 ± 0.3 | 1.0 ± 0.3 | 0.92 |
| CHA ₂ DS ₂ -VASc | 2.5 [2, 4] | 3 [2, 4] | 0.76 |
| Arrhythmia Type | | | |
| Paroxysmal | 3 (11.5%) | 5 (13.5%) | 0.613 |
| Persistent | 5 (19.2%) | 11 (29.7%) | 0.57 |
| Long Standing Persistent | 18 (69.2%) | 21 (56.8%) | 0.48 |
| Previous Catheter Ablation | 15 (57.7%) | 11 (28.9%) | 0.04 |
| Comorbidities | | | |
| Cerebral Vascular Accident | 0 | 2 (5.4%) | 0.51 |
| Chronic Renal Disease | 23 (88.5%) | 31 (81.7%) | 0.51 |
| Congestive Heart Failure | 14 (53.8%) | 25 (65.8%) | 0.44 |
| Coronary Artery Disease | 4 (15.4%) | 10 (27.0%) | 0.27 |

| | | | |
|-------------------------|------------|------------|------|
| Diabetes Mellitus | 4 (16.0%) | 4 (11.8%) | 0.71 |
| Hypertension | 18 (69.2%) | 27 (71.1%) | 1.00 |
| Obstructive Sleep Apnea | 11 (42.3%) | 17 (45.9%) | 0.80 |
| Tobacco Use | 7 (28.0%) | 17 (47.2%) | 0.18 |

Pre-operative Echocardiogram

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|--------------------------------------|-------------------|-------------------|------|
| LV Ejection Fraction (%) | 50.9 ± 11.3 | 52.0 ± 12.5 | 0.72 |
| LA Volume (mL) | 94.2 ± 27.8 | 84.8 ± 32.2 | 0.26 |
| LA Volume Index (mL/m ²) | 40.0 [34.3, 52.2] | 36.6 [30.3, 45.4] | 0.14 |

Table represents n (%), median [Q1, Q3] or mean (±SD); PW indicates posterior wall; ERAF, early recurrence of atrial fibrillation; BMI, body mass index; LV, left ventricle; and LA indicates left atrial.

Supplemental Table III: Summary of Isolation and Reconnection of Left Atrial Pulmonary Veins and Posterior Wall

| Mapping Post Hybrid Ablation n=64 | |
|---|-------------|
| <i>Complete Isolation of PV and PW</i> | 26 (40.6 %) |
| <i>Reconnected PVs</i> | 18 (28.1 %) |
| Gap in Left PVs | 10 (15.6 %) |
| Gap in Right PVs | 13 (20.3 %) |
| Bilateral PV Gaps | 8 (12.5%) |
| <i>Reconnected PW</i> | 38 (59.4%) |
| Gap in Roof | 28 (43.8%) |
| Gap in Floor | 20 (31.3 %) |
| Box (Roof + Floor) Gaps | 10 (15.6%) |
| Final Map Post Hybrid 2 Ablation | |
| <i>Complete Conduction Block</i> | 57 (89.1 %) |
| Incomplete PW Isolation | 7 (10.9 %) |

Table represents n (%) for categorical variables and mean (±SD) for continuous variables; PV indicates