**Supplementary**

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|  | **Failed AVS**  **N = 62** | **Successful AVS**  **N = 103** | ***P*** |
| Age (years) | 56.0 (49.5 – 60.0) | 52.0 (46.0 – 61.4) | 0.23 |
| Females (%) | 24 (38.7%) | 38 (36.9%) | 0.82 |
| Ethnicity (%)  Chinese  Malay  Indian  Others | 58 (93.5%)  1 (1.6%)  2 (3.2%)  1 (1.6%) | 82 (79.6%)  10 (9.7%)  5 (4.9%)  6 (5.8%) | 0.09 |
| Body mass index (kg/m2) | 25.0 (23.2 – 27.7) | 26.4 (23.7 – 28.7) | 0.13 |
| Lowest serum potassium | 2.7 (2.5 – 3.0) | 2.7 (2.3 – 3.0) | 0.70 |
| Estimated GFR (MDRD) (ml/min/1.73m2) | 78.1 (66.0 – 93.5) | 88.0 (72.8 – 104.8) | 0.006 |
| Baseline PAC (ng/dL) | 34.5 (23.3 – 47.6) | 31.0 (20.2 – 46.2) | 0.26 |
| PRA (ng/ml/hr) | 0.22 (0.20 – 0.52) | 0.22 (0.20 – 0.60) | 0.76 |
| Baseline ARR | 97.4 (64.8 – 178.8) | 107.5 (56.5 – 171.6) | 0.57 |
| Post SLT PAC (ng/dL) | 21.3 (13.9 – 31.8) | 20.0 (13.5 – 31.8) | 0.95 |
| Duration of Hypertension (years) | 5 (1 – 10) | 8 (3 – 11) | 0.08 |
| Ischemic Heart Disease | 3 (4.8%) | 7 (6.8%) | 0.61 |
| Chronic kidney disease | 3 (4.8%) | 8 (7.8%) | 0.47 |
| Stroke | 5 (8.1%) | 7 (6.8%) | 0.76 |
| Hyperlipidemia | 19 (30.6%) | 46 (44.7%) | 0.07 |
| Diabetes | 13 (21.0%) | 24 (23.3%) | 0.73 |
| Atrial Fibrillation | 0 (0.0%) | 3 (2.9%) | 0.18 |
| Abnormal CT findings  - unilateral adenoma  - bilateral abnormal  - bilateral normal | 52 (83.9%)  2 (3.2%)  8 (12.9%) | 78 (75.7%)  6 (5.8%)  19 (18.4%) | 0.56 |

**Supplementary Table 1. Baseline characteristics of 62 patients with failed AVS compared to 103 patients with successful AVS in the Asian development cohort** BP, blood pressure; AVS, adrenal vein sampling; GFR, glomerular filtration rate; PAC, plasma aldosterone concentration; PRA, plasma renin activity; ARR, aldosterone renin ratio; SLT, saline-loading test. Data are mean ± SD or median [interquartile range] or number (percent).

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| **ID** | **CT Nodules** | **AVS Lateralisation** | **AVS Lateralisation Ratio** | **AVS Contralateral Suppression** | **Surgery** | **Post-surgery ARR** | **Post-surgery Hypokalemia** | **Post-surgery Hypertension** | **Conclusion** |
| 109 | Bilateral | Left | 2.1 | 0.3 | No | NA | NA | NA | Bilateral |
| 120 | Nil | Right | 2.1 | 0.8 | No | NA | NA | NA | Bilateral |
| 314 | Nil | Left | 2.1 | 1.3 | No | NA | NA | NA | Bilateral |
| 138 | Nil | Left | 2.3 | 1.8 | No | NA | NA | NA | Bilateral |
| 115 | Left | Left | 2.4 | 1.2 | No | NA | NA | NA | Bilateral |
| 48 | Left | Left | 2.5 | 3.5 | No | NA | NA | NA | Bilateral |
| 306 | Left | Left | 2.5 | 0.7 | No | NA | NA | NA | Bilateral |
| 337 | Left | Left | 2.7 | 1.4 | No | NA | NA | NA | Bilateral |
| 326 | Left | Left | 2.8 | 0.6 | No | NA | NA | NA | Left |
| 361 | Right | Right | 2.8 | 0.5 | Yes | Not done | Resolution | Improved on same 2 medications | Right |
| 365 | Left | Left | 2.8 | 7.9 | Yes | Not done | Resolution | Cured (previously on 1 medication) | Left |
| 377 | Left | Left | 3.1 | 0.3 | Yes | Not done | Resolution | Cured (previously on 2 medications) | Left |
| 370 | Bilateral | Right | 3.2 | 0.6 | Yes | Not done | Resolution | Improved, previously 4 medications, now 2 | Right |
| 132 | Right | Right | 3.4 | 0.4 | Yes | <4 (PAC<4, PRA<0.6) | Resolution | Cured (previously on 2 medications) | Right |
| 153 | Nil | Left | 3.5 | 1.6 | No | NA | NA | NA | Bilateral |
| 119 | Left | Left | 3.6 | 0.6 | Yes | <4 (PAC<4, PRA 4) | Resolution | Improved on same medications | Left |
| 110 | Nil | Right | 3.8 | 1.0 | Yes | 3.2 (PAC 9.6, PRA 3.0) | Resolution | Improved on same medications | Right |
| 345 | Right | Right | 3.8 | 0.2 | Yes | Not done | Resolution | Cured (previously on 3 medications) | Right |
| 103 | Left | Left | 3.9 | 0.5 | Yes | 6.6 (PAC 4.6, PRA 0.7) | Resolution | Improved on same medications | Left |

**Supplementary Table 2. Patients with Lateralisation Ratios of 2.0 to 4.0 on AVS (sorted in ascending order), with final diagnosis, treatment, and post-surgery outcome**

ID, Patient unique identification; CT, computed topography of adrenal glands; AVS, adrenal vein sampling; ARR, aldosterone renin ratio; PAC, plasma aldosterone concentration, ng/dL; PRA, plasma renin activity (ng/ml/hr); NA, not applicable

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**Supplementary Figure 1. Concordant (white) and discordant (shaded) results between AVS and CT imaging in patients from the Asian development cohort (n = 103).** CT Bilateral indicates either bilaterally normal, or bilaterally enlarged adrenal glands on CT. AVS Bilateral indicates non-lateralised results on AVS.

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| --- | --- | --- | --- |
| **Variable** | **Coefficient** | ***P*-value** | **Final Points** |
| ARR > 131 ng/dL / ng/ml/hr | 13.8 | 0.011 | 1 |
| Post-SLT PAC >24 ng/dL | 24.5 | 0.016 | 1 |

**Supplementary Table 3. Coefficients of variables for multivariate logistics regression Model A.**

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**Supplementary Figure 2. Patient selection for Asian development cohort and European validation cohort taken from patients previously enrolled in SPARTACUS trial, using AVS criteria and PASO criteria**

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**Supplementary Figure 3. ROC curve analysis of Aldosterone-Potassium Ratio (APR) to diagnose unilateral Primary Aldosteronism in Asian development cohort (n = 74) using PASO criteria. Patients stratified by APR (ng/dL / mmol/L) into <5, 5-10, 10-15, >15.**

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**Supplementary Figure 4. ROC curve analysis of Aldosterone-Potassium Ratio (APR) to diagnose unilateral Primary Aldosteronism in Asian development cohort (n = 103) using raw (uncorrected) Plasma aldosterone concentration (PAC). Patients stratified by APR (ng/dL / mmol/L) into <5, 5-10, 10-15, >15.**

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**Supplementary Figure 5. Patients stratified by Baseline Aldosterone: Lowest Potassium Ratio (APR) (ng/dL / mmol/L), and the underlying subtype of Primary Aldosteronism (PA) (Unilateral vs Bilateral), with 95% confidence interval, in Asian (N=74) and European (N=84) cohorts combined (N=158)**