Abstract citation ID: bvad114.573

Cardiovascular Endocrinology

OR02-02

Pre-operative Blood Pressure Response To Aldosterone Antagonists And Urinary Hybrid Steroid Ratios Predict Clinical Outcomes In Unilateral Primary Aldosteronism For At Least 2 Years Post-adrenalectomy

***Xilin Wu, MRCP*[1], *Emily Goodchild, MRCP*[2], *Russell Senanayake, MSc, MRCP*[3], *Waiel Bashari, MRCP, PhD*[3], *Jackie Salsbury, MSc*[1], *Claudia P. Cabrera, PhD*[1], *Giulia Argentesi, MSc, MRCP*[1], *Samuel M. O'Toole, MRCP, PhD*[1], *James McFarlane, MRCP*[3], *Matthew Matson, FRCR*[4], *Laila Parvanta, FRCS*[4], *Nicholas Hilliard, FRCR*[5], *Vasilis Kosmoliaptsis, FRCS*[5], *Alison Marker, FRCPath*[5], *Daniel M. Berney, FRCPath*[4], *Wilson Tan, PhD*[6], *Roger Foo, MD*[6], *Charles A. Mein, PhD*[1], *Eva Wozniak, BSc*[1], *Anju Sahdev, FRCR*[4], *Nicholas Bird, PhD*[5], *Kate Laycock, MRCP*[1], *Elizabeth Adeyeye, MBBS*[7], *Anne Dawnay, FRCPath, PhD*[4], *Daniel Gillett, MSc*[5], *Alessandro Prete, MD*[8], *Angela E. Taylor, PhD*[8], *Wiebke Arlt, FRCP, FMedSci*[9], *Anish N. Bhuva, MRCP, PhD*[4], *Charlotte Manisty, PhD,FRCP*[4], *Kennedy J. Cruickshank, MD, FRCP*[7], *Heok Cheow, FRCR*[5], *Gurnell Mark, PhD, FRCP*[3], *William Drake, DM, MRCP*[4], *and Morris J. Brown, MD, FRCP*[1]

[1]Queen Mary University of London, London, United Kingdom; [2]Queen Mary University London, London, United Kingdom; [3]University of Cambridge, Cambridge, United Kingdom; [4]Barts Health, London, United Kingdom; [5]Cambridge University Hospitals NHS Foundation Trust, Cambridge, United Kingdom; [6]National University of Singapore, Singapore, Singapore; [7]Guy's and St Thomas' NHS Foundation Trust, London, United Kingdom; [8]University of Birmingham, Birmingham, United Kingdom; [9]Medical Research Council London Institute of Medical Sciences, London, United Kingdom

Disclosure: X. Wu: None. **E. Goodchild:** None. **R. Senanayake:** None. **W. Bashari:** None. **J. Salsbury:** None. **C.P. Cabrera:** None. **G. Argentesi:** None. **S.M. O'Toole:** None. **J. McFarlane:** None. **M. Matson:** None. **L. Parvanta:** None. **N. Hilliard:** None. **V. Kosmoliaptsis:** None. **A. Marker:** None. **D.M. Berney:** None. **W. Tan:** None. **R. Foo:** None. **C.A. Mein:** None. **E. Wozniak:** None. **A. Sahdev:** None. **N. Bird:** None. **K. Laycock:** None. **E. Adeyeye:** None. **A. Dawnay:** None. **D. Gillett:** None. **A. Prete:** None. **A.E. Taylor:** None. **W. Arlt:** None. **A.N. Bhuva:** None. **C. Manisty:** None. **K.J. Cruickshank:** None. **H. Cheow:** None. **G. Mark:** None. **W. Drake:** None. **M.J. Brown:** None.

Introduction: A recent prospective, within-patient study (MATCH) demonstrated ^{11}C-metomidate PET-CT is non-inferior to Adrenal Vein Sampling in accurately detecting unilateral Primary Aldosteronism (PA)[1]. At 6 months post-adrenalectomy 79.5% and 28.2% of patients achieved, respectively, partial/complete or complete clinical success (by PASO consensus). These outcomes reiterate the need for careful selection of patients for surgery, especially when a widely available non-invasive test could increase, by many-fold, the number of patients diagnosed with unilateral PA. In MATCH, age, sex, genotype of tumour and systolic blood pressure (SBP) response (reduction to $\leq$135 mmHg) after 4 weeks of Spironolactone therapy all predicted clinical success at 6 month-adrenalectomy. **Aims and Methods:** To determine whether these short-term clinical outcomes and the above predictors of success are sustained at 2-year follow-up; and establish whether baseline urinary hybrid steroid (18-OH cortisol/cortisol) ratio could assist clinical decision making by providing surrogate evidence of genotype and probability of clinical success. We report outcomes for all patients who had undergone adrenalectomy with $\geq$2-year follow-up on 20th December 2022, including all 78/142 surgical patients in the original study, in addition to 18/40 in the study extension. **Results:** Partial/complete or complete clinical success were achieved in 78/96 (81%) and 24/96 (25%) of patients respectively. The mean defined daily dose of antihypertensives at 2 years was 1.32 (SD 1.76), comparable to 1.34 (1.90) at 6 months, and significantly lower than at baseline: 3.86 (2.47), $t = 7.70$, $p = 0.0001$. Younger age and female sex were associated with higher likelihood of complete clinical success (Fisher's Exact test $p = 0.0084$ and $p = 0.0001$ respectively). Pre-operatively, SBP reduction to $\leq$135 mmHg after 4 weeks of spironolactone was seen in 10/23 patients and associated with higher likelihood of complete clinical success at 2 years (versus 6/39 complete clinical success in the SBP >135 mmHg group, Fisher's exact test $p = 0.0135$). 13/18 (72%) of patients harbouring *KCNJ5* mutations achieved complete clinical success at 2 years, compared to 1/20 (5%) with *CACNA1D* mutations. A baseline hybrid steroid ratio >2 was seen in 13/14 (93%) patients with *KCNJ5* mutations. Absence of clinical success in the *KCNJ5* cohort was seen in the only patient with a ratio <2. **Conclusion:** Favorable clinical outcomes seen at 6 months post-adrenalectomy were sustained at 2-year follow-up. SBP response to spironolactone and *KCNJ5* genotype are both potential predictors of ongoing clinical success at 2 years. The presence of high urinary hybrid steroid ratios in patients with *KCNJ5* mutations could highlight, pre-operatively, those likely to derive the most clinical benefit from surgery. 1. Nature Medicine, in press, https://doi.org/10.1038/s41591-022-02114-5

Presentation: Thursday, June 15, 2023