Abstract citation ID: bvad114.668

Cardiovascular Endocrinology

FRI156

Novel Radiolabeled Ligand, Para-chloro-2-[^{18}F] fluoroethyletomidate (CETO) Is Equivalent To [11C] metomidate-PET (MTO) For The Lateralisation Of Primary Aldosteronism (PA)

Emily Goodchild, MRCP[1], Russell Senanayake, MSc, MRCP(UK)[2], Xilin Wu, MRCP(London)[3], Waiel Bashari, MBBS, MSc, MRCP[4], Jackie Salsbury, MSc[1], Giulia Argentesi, BMBS, MSc, MRCP[5], Samuel Matthew O'Toole, MA, MB, BChir, PhD[6], James McFarlane, MRCP[2], ***Kate Laycock, MBBS[7]****, Daniel Gillett, Masters[2], Istvan Boros, PhD, Chemistry[2], Anju Sahdev, FRCR[1], Nicholas Bird, PhD[2], Stephan Hader, PhD[2], Victoria Warnes, PhD[2], Kennedy Cruickshank, MD, FRCP[8], Franklin Aigbirhio, FRSC, FMedSci[2], Heok Cheow, FRCR[2], William Drake, DM, MRCP[9],*

Mark Gurnell, MBBS, MA (Med Ed), PhD, FRCP[10], and Morris Jonathan Brown, MD, FRCP[11]
[1]Barts Health, London, United Kingdom; [2]Cambridge University, Cambridge, United Kingdom; [3]Queen Mary University London, London, United Kingdom; [4]University of Cambridge, Cambridge, United Kingdom; [5]Queen Mary University of London, London, United Kingdom; [6]Sheffield Teaching Hospitals NHS Foundation Trust, Sheffield, United Kingdom; [7]NHS, Southampton, United Kingdom; [8]Guy's and St Thomas' Hospital, London, United Kingdom; [9]Saint Bartholomew's Hospital, London, United Kingdom; [10]University of Cambridge, Wellcome Trust-MRC Institute of Metabolic Science & School of Clinical Medi, Cambridgeshire, United Kingdom; [11]Queen Mary University of London, Cambridge, United Kingdom

Disclosure: E. Goodchild: None. **R. Senanayake:** None. **X. Wu:** None. **W. Bashari:** None. **J. Salsbury:** None. **G. Argentesi:** None. **S.M. O'Toole:** None. **J. McFarlane:** None. **K. Laycock:** None. **D. Gillett:** None. **I. Boros:** None. **A. Sahdev:** None. **N. Bird:** None. **S. Hader:** None. **V. Warnes:** None. **K. Cruickshank:** None. **F. Aigbirhio:** None. **H. Cheow:** None. **W. Drake:** None. **M. Gurnell:** None. **M.J. Brown:** None.

Introduction: Our MATCH study demonstrated 11-C ligand MTO was non-inferior to adrenal vein sampling in predicting adrenalectomy outcomes in patients with PA.[1] The 20-minute half-life of 11-C imposes major logistic constraints. We investigated an 18-F ligand, CETO; its 2 hour half-life permits use in anywhere with fluorodeoxyglucose (FDG)-positron emission tomography (PET) scan facilities. **Objective**: To determine whether molecular adrenal imaging, using CETO, is as accurate as MTO in predicting which patients with PA will achieve biochemical and/or clinical remission after unilateral adrenalectomy. **Methods:** This was an extension to the MATCH study (clinical trial number NCT02945904). All patients had an AVS and MTO scanning,[1] and in 31 patients, a second (CETO) scan was performed and interpreted in ignorance of the AVS results. **Results:** The probability of unilateral APA was in agreement in 27/31 patients (Kappa= 0.76). The number of APAs detected by CETO (18 on the left side, 19 on the right) was similar to MTO (21 left, 19 right) (Wilcoxon P=0.424 and P=0.773). The mean tumour maximum standardised uptake value (SUVmax), by time of flight (TOF), did not differ between CETO (21.9 on the left side, 22.6 on the right) and MTO (22.8 on the left, 24.1 on the right) (Wilcoxon P=0.142). The probability of an adenoma identified by CETO or MTO was very similar: CETO, low 48.4%, medium 22.6%, high 29.0% on the left; low 48.4%, medium 12.9%, high 38.7% on the right; MTO, low 38.7%, medium 19.4% and high 41.9% on left; low 48.4%, medium 16.1%, high 35.5% on the right (Kappa 0.765 for the left and 0.833 for the right). Analysis of scans by SharpIR gave similar probabilities as thee TOF analyses. There was less liver uptake measured by CETO than MTO, (CETO mean 3.7, MTO mean 14.5, Wilcoxon P<0.001). **Conclusions**: There is no significant difference in the primary outcome of CETO and MTO scans in the investigation of PA. CETO has the potential to be a more favourable ligand, for clinical use, due to its longer half-life, and consequent potential for greater geographical distribution. ^{18}-F CETO PET-CT imaging has the potential to increase lateralisation rates in PA. References: 1) 11C-metomidate PET CT versus Adrenal Vein Sampling for diagnosing surgically curable primary aldosteronism. Nature Medicine https://www.nature.com/articles/s41591-022-02114-5. In press.

Presentation: Friday, June 16, 2023