00319 Plasma Free Metanephrines : Evaluation of LC-MS/MS Assay Performance and Verification of Reference Interval With a Healthy Local Cohort

Chan Wai-Ting, Ng Wai-Yoong, Leo Sai-Yuin, Tan Hui-Chen Carol, Yeo Chin-Pin

Singapore General Hospital

Aims: Recent clinical guidelines for the biochemical diagnosis of phaechromocytoma and paraganglionoma advocate measurement of plasma free metanephrines (pMETs; metanephrine MET, normetanephrine NMET and 3-methoxytyramine MTYR). Several advantages with plasma over 24hr urine for analysis include ease of collection, specificity and sensitivity improvements particularly with use of LC-MS/MS platform. We describe the performance of our LC-MS/MS assay and verification of reference intervals with a local cohort.

Methodology: Sample preparation (offline SPE), analytical separation and quantitation were according to assay kit (RECIPE Chemicals + instruments GmbH) with an Agilent 1290 Infinity-G6460 LC-MS/MS system. Evaluation included method comparison (with RCPA PT material) in addition to limits of imprecision. Subjects (n=34) for reference interval verification study, fasted and consented to have 2 blood draws – the first at supine position with 30min rest and the next at seated position following another 30min rest. The EDTA-blood specimens were immediately kept cool (in ice), spun at 4C, plasma aliquoted and kept at -80C (up to 1 month) before analysis.

Result: Imprecisions were typically well below 5% (intra and total CV respectively): MET 1.5-2.0%, 1.4-3.1% (0.279-3.839 nmol/L); NMET 3.9-7.1%, 3.8-6.2% (0.584-5.097 nmol/L); MTYR 1.0-3.6%, 1.2-3.1% (0.171-4.488 nmol/L). Use of RCPA PT samples showed good concordance between the observed and expected values. Generally pMETs at supine posture were marginally lower than at seated posture. The 95% reference limits are: Supine – MET 0.065-0.327, NMET 0.109-0.652, MTYR 0-0.042; Seated - MET 0.078-0.322, NMET 0.116-0.726, MTYR 0.006-0.045 nmol/L.

Conclusion: Test results indicated good performance characteristics; reference intervals in the local group affirm the often quoted URL NMET 0.90 and MET 0.50 nmol/L. With the implementation of the tests, it will provide endocrine specialists an improved tool for better diagnosis of such adrenal gland disorders.