

## Using central blood pressure to guide therapy in hypertension: BP GUIDE Study design and initial findings

James E Sharman<sup>1,2</sup>, Michael Stowasser<sup>1,3</sup>, Deborah T Gilroy<sup>1</sup>, Thomas H Marwick<sup>1</sup>. University of Queensland, <sup>1</sup>Department of Medicine, <sup>2</sup>Menzies Research Institute, Tasmania, <sup>3</sup>Endocrine Hypertension Research Centre, Greenslopes & Princess Alexandra Hospitals, Brisbane, Australia

**Background.** Estimated central blood pressure (BP) predicts cardiovascular mortality independent of brachial BP, but whether central BP may be useful in clinical practice is unknown. This study aimed to test the value of central BP as a management tool for physicians treating patients with essential hypertension.

**Methods.** Patients with hypertension (n=84; 61±8 years) were randomised to 12 months of treatment decisions guided by usual care (UC, n=39) or, in addition, by central BP (CBP, n=45; based on age and gender-specific normal central systolic BP [SBP] values). Titration recommendations were provided to each patient's general practitioner, as well as the patient themselves. Relevant clinical information (eg left ventricular [LV] mass, blood biochemistry and symptoms) were considered when making titration recommendations in all patients. Central BP was estimated by SphygmoCor 8.0. Primary outcome measures were; 1) change in LV mass 2) use of medication and 3) quality of life. We hypothesized that there will be no significant difference in LV mass between groups (study powered for equivalence). However, it was expected that there will be significantly less use of medication and improved quality of life in the CBP group because more appropriate titration choices will be made to maintain normal central SBP.

**Results.** Baseline LV mass index (CBP, 27.6±5.7 v ± UC, 29.7±5.9 g/m<sup>2.7</sup>), brachial SBP (CBP, 130±14 v UC 130±14 mmHg) and central SBP (CBP, 118±13 v UC 118±15 mmHg) were similar between groups (P>0.05 for all). However, in the CBP group, 33% (n=15) received a recommendation to reduce medication, whilst there were 3% (n=1) in the UC group (P=0.001). Moreover, 8 CBP patients were recommended to cease antihypertensive medication but maintained normal BP, indicating that they may have been incorrectly diagnosed with hypertension and unnecessarily taking medication based on brachial BP assessments.

**Conclusion.** Therapeutic decisions based on CBP are different from those based on standard BP. Follow up data and final results (N=312) are expected in 2011.