ABSTRACTS

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Novel Use of Intra-arterial Doppler in the Assessment of Pulmonary Artery Flow Velocities—Observations Before and After Therapy for Pulmonary Arterial Hypertension

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Background: Intra-arterial Doppler is a novel technique which enables accurate assessment of blood flow haemodynamics. We evaluated the feasibility of using intra-arterial Doppler for insights into the pulmonary artery flow velocity profile in patients with pulmonary arterial hypertension (PAH), and determined the changes in the flow velocity profile following pulmonary vasodilator therapy.

Methods: Intra-arterial Doppler was performed in the pulmonary arteries of seven subjects with PAH before and after six months of Bosentan therapy. The following Doppler derived parameters were measured: acceleration time (AcT), systolic ejection time (ET), ratio of acceleration time to systolic ejection time (AcT/ET), systolic velocity time integral (sVTI), diastolic velocity time integral (dVTI) and total velocity time integral (tVTI). Relationships between Doppler parameters and clinical response to Bosentan therapy were analysed.

Results: At baseline, all PAH patients displayed a Doppler flow velocity profile consisting of a sharp rise to peak velocity followed by mid-to-late systolic notching. In one patient, systolic notching disappeared following Bosentan therapy. Only clinical responders ($n = 3$) demonstrated a significant increase in tVTI (583 ± 132 versus 897 ± 138, $p = 0.023$), and an increase in dVTI (62 ± 28 versus 195 ± 40, $p = 0.044$). No significant change was observed in VTI amongst non-responders.

Conclusion: Intra-arterial Doppler is feasible in the quantitative characterisation of pulmonary artery flow velocity profile. An increase in pulmonary blood flow, particularly diastolic flow, was associated with a clinical response to Bosentan therapy. This technique may provide additional insights into the haemodynamics of the pulmonary circulation in pathophysiological states.

doi:10.1016/j.hlc.2011.05.039

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Optimising Primary Care Management of Hypertension: The Valsartan Intensified Primary Care Reduction of Blood Pressure (VIPER-BP) Study

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Background: We undertook Australia's largest ever randomised trial of integrated BP and risk reduction management (involving automated absolute risk profiling, standardised pharmacological treatment and computer assisted, intensified follow-up and treatment titration).

Methods: VIPER-BP is a multicentre, open-label, randomised controlled trial in GP clinics throughout Australia comparing usual GP management with an intensive BP management strategy using three forms of valsartan-based therapy. The primary endpoint is individualised BP control at six months.

Results: During recruitment 2334 patients initially screened. Of these, 2131 (91%) commenced a 28 day valsartan 80 mg "run-in" phase. Subsequently, 310 patients achieved their individual BP target (15%) whilst 81 patients (5.2%) were rescue randomised. Overall, 1555 patients were randomised to usual care ($n = 519$) or the VIPER-BP Intervention ($n = 1036$): comprising 948 men (62%) and 607 women (aged 59 ± 12 vs. 60 ± 12 years, respectively) and 1004 patients (65%) previously treated for hypertension. Individual BP targets (systolic/diastolic BP) were as follows; 125/75 mm Hg (18% with proteinuria), 130/80 mm Hg (55% with diabetes or CVD) and 140/90 mm Hg (27%). Mean BP at randomisation was $149 \pm 17/88 \pm 11$ mm Hg with similar BP profiles for men and women, respectively ($149 \pm 16/88 \pm 11$ versus $149 \pm 17/87 \pm 10$ mm Hg).

Conclusion: With study completion in August 2011, the VIPER-BP Study will provide invaluable insights into the most effective means to optimise BP levels (on an individualised basis) in the primary care setting.

doi:10.1016/j.hlc.2011.05.040

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Osteopenia and Osteoporosis in a Hypertensive Population

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Introduction: Hypertension is a common risk factor for coronary artery disease and stroke, two serious causes of cardiovascular morbidity and mortality. Osteoporosis related hip fractures result in pain, disability, diminished quality of life and increased mortality rates in men and women. The presence of osteoporosis in a hypertensive population may therefore prognosticate a worse clinical course. This study was undertaken to assess the prevalence of osteopenia and osteoporosis in hypertensive patients.

Methods: We reviewed dual-emission X-ray absorptiometry (DXA) scans of 220 consecutive hypertensive patients. Bone mineral density (BMD) was measured at the hip and spine. T scores were considered normal between +1 and −1. T scores were classified as osteopenia between −1 and −2.5 and osteoporosis if lower than −2.5.

Results: Of the 220 patients (ages: 20–87 years) [123 (55.9%) males; 97 (44.1%) females], 102 (46.4%) [67 (65.7%) males; 35 (34.3%) females] had normal T scores. 118 (53.6%) [56 (47.5%) males; 62 (52.5%) females] had abnormal T scores. Of these, 75 (63.6%) [35 (46.7%) males; 40 (53.3%) females] had T scores consistent with osteopenia and 43