

36

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

N. Iyer, E. Lau*, D. Celermajer

Department of Cardiology, Royal Prince Alfred Hospital, Camperdown, Australia

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

37

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

S. Stewart^{1,*}, M. Carrington¹, C. Swemmer², N. Kurstjens², G. Jennings¹

¹ Baker IDI Heart and Diabetes Institute, Australia

² Novartis Pharmaceuticals Australia Pty Ltd, Australia

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

38

Osteopenia and Osteoporosis in a Hypertensive Population

N. Agarwal^{1,*}, S. Agarwal²

¹ Rutgers University, Piscataway, NJ, USA

² Agarwal Health Center, East Orange, NJ, USA

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

(36.4%) [20 (46.5%) males; 23 (53.5%) females] had T scores consistent with osteoporosis.

Conclusion: Osteopenia and osteoporosis are common in hypertensive patients. T scores consistent with osteopenia were found in approximately 34% and those consistent with osteoporosis were found in approximately 20% of our hypertensive population. Hypertensive treatment combined with strategies to prevent and treat osteoporosis may improve the clinical course of these patients.

doi:10.1016/j.hlc.2011.05.041

39

Presence of Subclinical Anxiety in Hypertensive Patients

N. Agarwal^{1,*}, S. Agarwal²

¹ Rutgers University, Piscataway, NJ, USA

² Agarwal Health Center, East Orange, NJ, USA

Introduction: Both hypertension and anxiety are common medical conditions. Since anxiety is associated with an increased incidence of sudden death, its presence in hypertensive patients may have prognostic significance. Although symptomatic anxiety is usually diagnosed and treated, subclinical anxiety may remain undiagnosed. This study was undertaken to evaluate the presence of subclinical anxiety in treated hypertensive patients.

Methods: One hundred consecutive hypertensive patients under treatment without clinically diagnosed anxiety were given the self administered Zung Self-Rating Anxiety Scale test. The scores (20–80) were classified as follows: Normal Range: 20–44; Mild Anxiety: 45–59; Moderate Anxiety: 60–74 and Severe Anxiety: 75–80. Hypertensive patients with an established clinical diagnosis of anxiety were excluded.

Results: Of the 100 patients (ages: 29–95 years), there were 52 (52.0%) females and 48 (48.0%) males. Of these, 28 (28.0%) [16 (57.1%) females; 12 (42.9%) males] had anxiety scores over 45. Of these 28 patients, 24 (85.7%) [15 (62.5%) females; 9 (37.5%) males] had mild anxiety and 4 (14.3%) [1 (25.0%) female; 3 (75.0%) males] had moderate anxiety. None had severe anxiety.

Conclusions: The interrelationship between anxiety and hypertension is not well studied. Our study reveals that a significant number of treated hypertensives suffer from 'subclinical' anxiety. Further studies are needed to evaluate the benefits of diagnosing and treating subclinical anxiety in these patients.

doi:10.1016/j.hlc.2011.05.042

40

Prevalence of Atrial Fibrillation and Left Ventricular Hypertrophy in the Valsartan Intensified Primary Care Reduction of Blood Pressure (VIPER-BP) Study Cohort

S. Stewart^{1,*}, M. Carrington¹, C. Swemmer², N. Kurstjens², G. Jennings¹

¹ Baker IDI Heart and Diabetes Institute, Australia

² Novartis Pharmaceuticals Australia Pty Ltd, Australia

Background: There are few large-scale studies of the prevalence of atrial fibrillation (AF) and left ventricular hypertrophy (LVH) in hypertensive individuals being managed in primary care; both are poor prognostic markers in this clinical setting.

Methods: VIPER-BP is a multicentre, open-label, randomised controlled trial in GP clinics throughout Australia comparing usual GP management with an intensive blood pressure (BP) management strategy using three forms of valsartan-based therapy. As part of baseline profiling, 2035 12-lead ECGs (96% of patients) were subject to blinded Minnesota coding.

Results: There were 1212 (60%) men and 823 women (mean age 68 and 73 years, respectively). Mean baseline systolic/diastolic BP in men and women respectively was 154/91 and 151/89 mm Hg. A similar proportion of men ($n=15$, 1.2%, 95% CI 0.8–2.0%) and women ($n=8$, 0.97%, 95% CI 0.50–1.9%) were in AF (1.1% overall). Compared to the rest, men and women with AF were older (mean age 68 and 73 vs. 60 and 58 years) and had higher mean resting heart rates (77 and 75 vs. 71 and 69 bpm); $p < 0.001$ all comparisons. Alternatively, more men ($n=115$, 9.5%, 95% CI 8.0–11.3%) than women ($n=28$, 3.4%, 95% CI 2.4–4.9%) had ECG evidence of LVF (7.0% overall). Men with LVF were younger (mean age 56 vs. 58 years) and had higher mean BP's (155/92 vs. 152/91 mm/Hg) while women were older (mean age 63 vs. 60 years) and had higher systolic BP (155/88 vs. 151/89 mm/Hg).

Conclusion: These data highlight the utility of ECG screening in hypertensive patients to detect evidence of advanced forms of heart disease requiring active treatment.

doi:10.1016/j.hlc.2011.05.043

41

Prevalence, Associations and Risk Factors for Orthostatic Hypotension in Medical, Surgical and Trauma Inpatients: An Observational Cohort Study

A. Aung^{1,*}, S. Corcoran^{2,3}, V. Nagalingam¹, E. Paul⁴, H. Newnham¹

¹ General Medical Unit, Alfred Hospital, Melbourne, Australia

² Caulfield Hospital, Melbourne, Australia

³ Baker IDI, Melbourne, Australia

⁴ Department of Epidemiology and Preventive Medicine, Monash University, Melbourne, Australia

Introduction: Orthostatic hypotension (OH) is prevalent in hospitalised elderly patients. It can lead to syncope and