

POSTER SESSION

POSTER SESSION P33 AGEING

PP.33.71 PHYSICAL ACTIVITY AND CARDIOVASCULAR AGING

L. Garcia-Ortiz, J. Recio-Rodríguez, E. Rodríguez-Sánchez, M. Patino-Alonso, E. Ibáñez-Jalón, P. Moreno-Gonzalez, C. Agudo-Conde, R. Colominas, D. Perez-Arechaederra, M. Castaño-Sánchez, C. Rodríguez-Martin, M. Gomez-Marcos. *Primary Care Research Unit La Alamedilla (IBSAL), Salamanca, SPAIN*

Objective: To analyze the relationship regular physical exercise with aging cardiovascular, evaluated by Framingham (D'Agostino) score, the radial augmentation index, Ambulatory arterial stiffness index and pulse pressure in subjects without atherosclerotic disease.

Methods: We performed a cross-sectional study in a previously established cohort of healthy subjects. We included 1,365 subjects from the EVIDENT study (mean age 54 ± 90 years; 60.3% women). Physical activity was assessed using the Actigraph GT3X accelerometer (counts/minute) for 7 days. Radial Augmentation index (rAIx), ambulatory arterial stiffness index (AASI) and central and ambulatory pulse pressure (PP) was measured with the B-pro device. Cardiovascular risk and ageing of the heart was estimated by Framingham- D'Agostino score.

Results: We found a negative correlation of age of the heart with the counts/minute ($r = -0.163$, $p < 0.01$), especially with the time spent doing vigorous activity ($r = -0.266$, $p < 0.001$) and positively with time sedentary ($r = 0.138$, $p < 0.01$). The peripheral pulse pressure, ambulatory and clinic, showed a negative correlation with measures of physical activity (counts/min) ($r = -0.156$, $p < 0.001$), but not with central pulse pressure. The rAIx not correlated with the counts/minute but with time spent in intense and very intense activity was negative ($r = -0.90$, $p < 0.01$). In multiple regressions, after adjusting for confounding factors, remains a negative association between physical activity (counts/min) with the age of the heart and sleep pulse pressure and positive with rAIx, but not with the central pulse pressure.

Conclusions: Regular physical activity assessed by accelerometer, especially the time spent on activity intense and very intense, was negatively associate with parameters that assess the cardiovascular aging.

PP.33.72 TOWARDS A UNIFYING CONCEPT OF IMPAIRED BLOOD PRESSURE HOMEOSTASIS IN THE ELDERLY: PATHOPHYSIOLOGICAL AND PRACTICAL CONSIDERATIONS

A. Fisher¹, R. Teh², M. Davis^{1,2}. ¹ *Australian National University Medical School, Canberra, AUSTRALIA*, ² *Department of Geriatric Medicine, The Canberra Hospital, Canberra, AUSTRALIA*

Objective: To describe the prevalence, pathophysiology, management and prognostic significance of blood pressure dysregulation (BPD) syndromes including essential hypertension (HT), orthostatic hypotension (OH) and postprandial hypotension (PPH) which often co-exist in the elderly but treated as distinct entities.

Methods: We analysed data on BPD in 1047 subjects (74.7 % women) aged 60 years and older: out-patients attending a Falls Clinic (n=191), out-patients with diabetes mellitus (DM, n=123), residents in long-term facilities (n=179), medical (n=256) and orthopaedic (n=298) in-patients. Standard definitions were used.

Results: At least one type of BPD was present in 74.3% of patients, hypertension in 42.2 %, OH in 24.1%, PPH in 29.4%, orthostatic hypertension in 11.5%, postprandial hypertension in 8.3% and multiple disorders in 56.5%. Vitamin D deficiency was common in subjects with (78%) and without (82%) BPD, but the prevalence of secondary hyperparathyroidism was 2-fold higher in the BPD group (OR 1.98, $p = 0.002$). Multivariate analyses revealed that PPH was significantly (all $p < 0.001$) associated with HT (OR 4.3), use of selective serotonin reuptake inhibitors (OR 4.3), antipsychotic medications (OR 5.2) and history of smoking (OR 5.2), whilst OH was associated with Parkinson's disease (OR 7.5) and use of tricyclic antidepressants (OR 3.2). OH was independently associated with albumi-

nuria (OR 3.9) in DM. Patients with hypotensive responses have significantly higher baseline BP and demonstrated chronotropic incompetence in 70.8%. There was an improvement in postural and postprandial BP changes with antihypertensive therapy. Falls were associated with low systolic BP (< 115 mm Hg seated: OR 3.7, $p = 0.001$). PPH was the strongest independent predictor of total (OR 1.9, $p = 0.006$) and cerebrovascular mortality (OR 4.2, $p = 0.021$), and low diastolic BP (< 65 mm Hg) predicted non-vascular death (OR 4.2, $p = 0.04$).

Conclusions: The single syndrome approach should be replaced by a new BPD paradigm based on profiling individual type(s) of BPD and assessment of co-morbidities. A better understanding of abnormal haemodynamic responses should facilitate individualized prognosis, proper selection of medications and stepped interventions.

PP.33.73 CARDIOVASCULAR AND RENAL NITRIC OXIDE AND THYROID HORMONES DURING AGING

L. Sarati¹, C. Martinez¹, J. Toblli², N. Arreche¹, A. Balaszczuk¹, A. Fellet¹. ¹ *Cátedra de Fisiología, Facultad de Farmacia y Bioquímica, UBA-IQUIMEFA CONICET, Buenos Aires, ARGENTINA*, ² *Laboratorio de Medicina Experimental, Hospital Alemán, Buenos Aires, ARGENTINA*

Objective: To examine the effects NO on hemodynamic parameters, cardiovascular function and AQP2 in hypothyroid rats.

Method: Sprague-Dawley rats of 2 (young, y) and 18 (adults, a) months of age were divided into euthyroid (Eut) and Hypo group (Hypo) that received methimazole 0.02% (g/v) for 28 days. We evaluated cardiac function (echo and electrocardiogram), urine volume (UV), glomerular filtration rate (GFR), NOS activity in the right atrium, left ventricular (LV) and renal medulla ([14C (U)]-L-arginine to [14C (U)]-L-citrulline), AQP2 protein levels (Western blot) and localization (immunohistochemistry). The results were expressed as $\bar{X} \pm \text{SEM}$, $n = 7$ each group. ANOVA was performed followed by a Tukey test and Tamhane T2-test. * $P < 0.05$ vs. Eut, # $p < 0.05$ vs 2 months.

Results: The diameters of the LV (mm) in systole (s) and diastole (d) increased with age and hypothyroidism (DLVs Euty 1.77 ± 0.06 , Hypo 2.87 ± 0.09 *; DLVs Euta 6.7 ± 0.07 †, Hypo 2.10 ± 0.07 * †; DLVd Euty 5.20 ± 0.16 , Hypo 5.98 ± 0.17 *; DLVd Euta 9.97 ± 0.14 †, Hypo 6.12 ± 0.05 * †. Ejection (EF%) decreased with age and hypothyroidism. EF Euty 95 ± 1 , Hypo 83 ± 2 *; EF Euta 69 ± 2 †, Hypo 25 ± 1 * †. NOS activity were showed in Fig. 1. GFR Euty $5.6-5 \pm 0.0019$, Hypo $0.0025 \pm 8.3-5$ *; GFR Euta $0.0020 \pm 4.3-5$, Hypo $0.0012 \pm 7.3-5$ * †; UV Euty 3.10 ± 0.26 , Hypo 4.87 ± 0.28 *, UV Euta 2.91 ± 0.21 , Hypo 2.14 ± 0.07 * †. Hypothyroidism increased AQP2 in young and adult rats, mainly localized in the apical membrane and in the cytoplasm of the renal tubular cell, respectively (OD Euty 1.500 ± 0.041 , Hypo 1.851 ± 0.126 *; Euta 1.584 ± 0.048 , Hypo 2.726 ± 0.071 * †).

Conclusions: Hypothyroidism potentiates heart aging-related changes. Hypothyroidism contributes to aging-induced changes in the renal function, and medullary NO and AQP2 would be implicated in maintaining water homeostasis. (See table on the following page).

PP.33.74 INFLUENCE OF AGE ON ARTERIAL STIFFNESS AND BLOOD PRESSURE CONTROL IN HYPERTENSIVE MAN

U. Cieslik-Guerra¹, E. Trzos¹, B. Uznanska-Loch¹, M. Kaminski², T. Rechcinski¹, J. Kasprzak¹, A. Napieralski², M. Kurpesa¹. ¹ *Medical University, Department of Cardiology, Lodz, POLAND*, ² *Technical University, Department of Microelectronics and Computer Science, Lodz, POLAND*

Hypertension is one of the most important risk factor of cardiovascular diseases. Since many years it has been observed cardiovascular over-mortality in man population. In this study we assessed effect of age and gender on blood pressure in 24-hour monitoring and ambulatory arterial stiffness index in hypertensive man.

Methods: Study group consisted of 1392 hypertensive man was divided in 3 subgroup in relation to age (< 40 years old (yo), 40-55 yo, > 55 yo). Each man had performed 24 hours ambulatory blood pressure monitoring (ABPM by SpaceLabs 90207; Spacelabs, Inc.) and calculated ambulatory arterial stiffness index (AASI).