P10.05: CALCIUM CHANNEL BLOCKERS USE IS ASSOCIATED WITH A BETTER COGNITIVE PERFORMANCE IN OLDER HYPERTENSIVE PATIENTS WITH SUBJECTIVE MEMORY COMPLAINTS


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Conclusions: Polyarthritis rheumatisa is associated with increased aortic stiffness, which may improve upon reduction of systemic inflammation determined by treatment with corticosteroids.

P10.02 EFFECT OF ANTHYPERTENSIVE TREATMENT ON AORTIC STIFFNESS IN A GENERAL POPULATION
J. Seidlerová 1, J. Filippovský 1, O. Mayer Jr. 1, M. Dolejšová 1, R. Cifková 2, P. Wohlfahrt 2
Institute of Experimental Medicine, Prague, Czech Republic

Objectives: Aortic stiffness, an independent cardiovascular risk factor, is strongly related to age and mean arterial pressure (MAP). In a general population, we investigated effect of antihypertensive treatment on systolic pressure wave velocity (aPWV) with respect to age and MAP.

Methods and design: In a Czech post-MONICA study, we measured aPWV in 1007 subjects, mean age 54.5 years (55.0% women, 33.8% on antihypertensive medication). We used linear regression analyses to assess effect of antihypertensive treatment on aPWV. As independent covariates we considered: sex, age (MAP), heart rate, body mass index, smoking, and observer.

Results: Subjects undergoing antihypertensive treatment were older, had higher SBP, BMI and aPWV (P < 0.0001). In analysis adjusted for MAP, but not in unadjusted analysis, use of antihypertensive medication diminished effect of age on aPWV (regression equations, untreated subjects (TRT-0): 5.74 + 0.032*age vs. treated patients (TRT-1): 9.24 – 0.004*age; difference of slope, F = 28.9; P < 0.0001). In both unadjusted (regression equations -1.80 + 0.096*MAP vs. difference of slopes, F = 28.7; P < 0.0001) and analysis adjusted for age (3.81 + 0.037*MAP vs. 9.55 – 0.0056*MAP; difference of slopes, F = 38.9; P < 0.0001), use of antihypertensive treatment was associated with smaller increase of aPWV with MAP.

Conclusions: In a general population, we observed that use of antihypertensive medication reduces the increase of aPWV with age. The increase of aPWV with blood pressure was also smaller in treated patients compared to untreated subjects. Antihypertensive drugs prevent aortic stiffening even in subjects whose blood pressure is not well controlled.

P10.03 ACTIONS OF VERAPAMIL IN PRODUCING VASCULAR RELAXATIONS
J. R. Docherty, S. W. Seto
Royal College of Surgeons in Ireland, Dublin, Ireland

We have investigated the vascular relaxant actions of verapamil in comparison with the L-type calcium antagonist nifedipine and the putative selective T-type calcium antagonists NNC 55-0396, mibebradil and thalidomide. Male Wistar rats (250g) were killed by CO2 overdose, the aorta and vas deferens were removed for organ bath studies and rings of tail artery were set up in small vessel myographs. In rat aorta, verapamil (100 uM) significantly reduces the maximum contraction to noradrenaline at a similar degree as nifedipine or mibebradil, but thalidomide had no effect. In rat tail artery, verapamil (1-10 uM) inhibited contractions to calcium restoration both in the presence of phenylephrine and KCI, but the T-type calcium channel blocker NNC 55-0396 (100 uM) inhibited contractions to calcium restoration only in the presence of phenylephrine, and the L-type blocker nifedipine (10 uM) inhibited contractions to calcium restoration only in the presence of KCI. Verapamil inhibited nerve-evoked contractions of epididymal, but not prostatic, portions of rat vas deferens, an action shared with the T-type calcium channel blocker NNC 55-0396 and by thalidomide. In contrast, nifedipine inhibited contractions of prostatic portions of rat vas deferens. It is concluded that verapamil produces vascular relaxations by a mechanism that involves aspects of both L-type and T-type calcium channel block.

P10.04 VACCINATION AGAINST INFLUENZA A/H1N1 VIRUS ADVERSELY AFFECTS ENDOTHELIAL FUNCTION, BUT NOT ARTERIAL STIFFNESS, IN HIV INFECTED PATIENTS
P. Xaplantitis, C. Vlachopoulos, D. Terentes-Printzios, I. Mariolis, H. Sambatakou, C. Stefanadis
Hippokrateion Hospital 1st Department of Cardiology, Athens Medical School, Athens, Greece

Purpose: Vaccines have been shown to induce a transient impairment of endothelial function and arterial elastic properties. Newly developed vaccines against the pandemic influenza A/H1N1 virus have been reported to have a safe cardiovascular profile; however, their impact on endothelial function and arterial stiffness has not been established.

Methods: We recruited 25 HIV infected patients (all male, 3 naive to antiretroviral therapy, mean age 35±10 years) with a good functional status (mean CD4 count: 719±271). All were free from overt cardiovascular disease; 14 patients were vaccinated with a single dose of a monovalent, adjuvanted vaccine against influenza A/H1N1.11 patients were subjected to a sham procedure (controls). Measurements were taken prior to, 8 and 48 hours post vaccination. FMD of the brachial artery was used as an index of endothelial function; carotid-femoral PWV as a measure of arterial stiffness. ADMA, IL-6 and sICAM-1 were measured in blood samples. Comparisons were performed by repeated measures ANOVA.

Results: Vaccination led to a significant impairment of endothelial function, denoting a diminished bioavailability of nitric oxide that persisted even after 48h (baseline: 6.5±4.8, 8h: 2.3±4.9%, 48h: 1.8±4.8%; p < 0.05). However, arterial stiffness, as assessed by cfPWV, was not significantly altered (baseline: 7.2±1.2 m/sec, 8h: 7.0±1.2 m/sec, 48h: 6.8±0.9 m/sec; p = ns). ADMA, IL-6 and sICAM-1 levels did not change.

Conclusion: Vaccination against influenza A/H1N1 with a monovalent, adjuvanted vaccine against influenza A/H1N1 leads to a significant impairment of endothelial function, which lasts for at least 48 hours. Given the increased cardiovascular risk of these patients, these findings warrant further research.

P10.05 CALCIUM CHANNEL BLOCKERS USE IS ASSOCIATED WITH A BETTER COGNITIVE PERFORMANCE IN OLDER HYPERTENSIVE PATIENTS WITH SUBJECTIVE MEMORY COMPLAINTS
G. Watfa 1,2,4, P. Rossignol 2,4, A. Kearney-Schwartz 1,2,3, R. Fay 4, S. Bracard 4,5,6, J. Felbinger 4,6, J. M. Boivin 2,4, P. Lacolley 2,4, F. Zannad 2,4, A. Benetos 1,3,4
1Department of Geriatrics, University Hospital of Nancy, Nancy, France
2Nancy University Hospital & Inserm Clinical Investigation Centre, CIC 9501, Nancy, France
3Inserm, U961, Faculty of Medicine, Nancy, France
4Inserm U947, Adaptive, Diagnostic and Interventional Imagery, and CIC-innovative Technologies, Hospital Brabois, Nancy, France

Background: Hypertension is strongly associated with cognitive decline and a promising target for dementia prevention. Our aim was to investigate the association between different antihypertensive treatments and cognitive performance in elderly hypertensive patients presenting with subjective memory complaints (SMC).

Abstracts
Patients and methods: 378 elderly hypertensive patients > 60 years (mean age 70.4 ± 6.3 years) treated with at least one antihypertensive agent and presenting with SMC but without dementia were prospectively recruited and underwent a combination of neuropsychological tests, a brain magnetic resonance imaging with semi-quantification of White Matter Hyperintensities (WMH), carotid echotomgraphy, brachial endothelial function and ambulatory blood pressure (BP) assessments.

Results: None of the 3 composite scores (Memory score, verbal fluency, visual memory capacity) was found associated with BP levels. On the other hand, age and gender-adjusted analyses showed a significant and positive association between memory score and calcium channel blockers (CCBs) use (users: +0.14 ± 0.09 versus non-users: -0.12 ± 0.06, p = 0.016). Multivariate analyses also revealed that CCBs use was significantly associated with a better memory score, independently from age, male gender, WMH and carotid wall cross-sectional area, all of which were associated with worse memory scores.

Conclusions: In elderly hypertensive treated patients with SMC, CCBs use was associated with better memory performances independently of BP level and macro and microvascular alterations, suggesting a specific neuroprotective effect of this pharmacological class. Interventional controlled trials are required to confirm the specific protective effect of CCBs on cognitive decline.

P10.06 RESPONSES OF THE AMBULATORY ARTERIAL STIFFNESS INDEX AND OTHER MEASURES OF ARTERIAL FUNCTION TO ANTIHYPERTENSIVE DRUGS

Y. Jin 1, L. Thijss 1, T. Richart 1, T. Y. Li 2, A. Doland 4, J. W. Wang 3, A. Protogerou 3, E. O’Brien 4, J. A. Staessen 1, 2, M. E. Safar 1

1University of Leuven, Leuven, Belgium
2Maastricht University, Maastricht, Netherlands
3Shanghai Institute of Hypertension, Shanghai, China
4Addenbrooke’s hospital, Cambridge, United Kingdom
5National and Kapodistrian University of Athens, Athens, Greece
6University College Dublin, Dublin, Ireland
7Paris-Descartes University, Paris, France

Objective: We used antihypertensive drugs as pharmacologic tools to clarify the physiologic meaning of the ambulatory arterial stiffness index (AASI) in comparison to pulse pressures (PP), the arterio-venricular coupling index (AVCI), and aortic pulse wave velocity (aPWV).

Methods: After a 4-week placebo period, 94 and 107 patients with uncomplicated hypertension were randomly assigned to treatment for one year with atenolol 50 mg/d (AT) or perindopril/indapamide 2.5/0.6 mg/d (PER/IND). From the individual readings in each patient’s 24-hour ambulatory BP recording, we determined 24-hour systolic and diastolic BP. We computed PP as the difference between 24-hour systolic and diastolic BP, AASI as unity minus the regression slope of diastolic on systolic BP, and AVCI as (T/EF - 1)/(1 + 1/EF), where T is the heart period in seconds and EF is the decay time of aortic BP during diastole.

Results: Compared to PER/IND, in patients on AT, systolic BP and PP decreased less and AVCI lengthened more (P<0.009), whereas the changes in AASI and aPWV did not differ between the two treatment groups (P>0.25). In patients with the metabolic syndrome (NCEP-ATPIII criteria), AT and PER/IND lowered systolic BP similarly, but AT lowered diastolic BP more than PER/IND. Conversely, in patients without the metabolic syndrome, PER/IND lowered systolic BP more than AT, but diastolic BP to a similar extent.

Conclusions: On antihypertensive drugs with a different hemodynamic profile, AASI and aPWV behaved similarly. The metabolic syndrome seems to modulate the impact of antihypertensive drugs on systolic BP and PP.

P10.07 PERINDOPRIL THERAPY IMPROVES ENDOTHELIAL FUNCTION AND ARTERIAL STIFFNESS IN HEART FAILURE WITH PRESERVED SYSTOLIC FUNCTION

Y. Osmolovskaya 1, V. Mareev 1, T. Balakhonova 1, A. Glechan 1

1Russian Cardiology Research and Production Complex, Moscow, Russia

Objective: Calcium channel blockers possess vasodilating action but there is no evidence to our knowledge about vasodilating effect on different arterial vessels. The aim of this investigation was to ascertain the reactions of large arteries and precapillary resistance vessels during treatment with sustained-release Verapamil (Flamun-240 SR, Megha Ltd).

Design and methods: 30 essential hypertensives (WHO II) aged between 40-65 yrs received 2 months’ treatment with Flamun-240 SR 1-2 tablets daily. Blood pressure was determined auscultatory. Cardiac output (CO) and systemic vascular resistance (SVR) were derived from