P.062: WHITE BLOOD CELL COUNT PREDICTS WAVE REFLECTIONS IN PATIENTS WITH ESSENTIAL HYPERTENSION


To cite this article: P. Pietri*, C. Vlachopoulos, G. Vyssoulis, K. Aznaouridis, A. Zervoudaki, T.H. Gialernios, D. Adamopoulos, P. Spanos, C. Stefanadis (2006) P.062: WHITE BLOOD CELL COUNT PREDICTS WAVE REFLECTIONS IN PATIENTS WITH ESSENTIAL HYPERTENSION, Artery Research 1:S1, S42–S42, DOI: https://doi.org/10.1016/S1872-9312(07)70085-6

To link to this article: https://doi.org/10.1016/S1872-9312(07)70085-6

Published online: 21 December 2019
arterial stiffness in patients with essential or white coat hypertension (WCH) and the effects of previous antihypertensive medication.

Methods: We studied 850 patients, untreated or after a 15 days wash-out period, in our outpatient clinic. All patients underwent 24-h ambulatory blood pressure monitoring (ABPM) and full biochemical assay. Large-artery stiffness and arterial wave reflections were evaluated by measuring carotid-femoral pulse wave velocity (PWVc-f) and augmentation index (Alx) respectively.

Results: Patients were classified in four groups, according to the ABPM results: 294 never treated patients with essential hypertension (group 1), 322 patients with essential hypertension after the wash-out period (group 2), 112 never-treated patients with WCH (group 3) and 322 patients with WCH after the wash-out period (group 4). Univariate analysis showed a significant correlation of age with PWVc-f in groups 1, 2 and 3 (r = 0.43, 0.46 and 0.38 respectively, p < 0.001) and with diastolic blood pressure in group 2 (r = 0.37, p < 0.0001). Age was positively correlated with Alx in all groups (r = 0.53, 0.38, 0.47 and 0.67 respectively, p < 0.0001). Finally, significant correlation of age with systolic blood pressure was found in groups 1 and 4 (r = 0.20 and 0.30 respectively, p < 0.001) but not in group 4 (r = 0.17, p = NS). Furthermore, age was positively correlated with Alx in all groups (r = 0.53, 0.38, 0.47 and 0.67 respectively, p < 0.0001).

Conclusion: Age affects arterial stiffness differentiating in PWV or Alx. In patients with essential hypertension as well as in patients with WCH, the age effect is of similar magnitude whereas the effect of previous medication use is minimal.

P.061 RELATIONSHIP BETWEEN FIBRINOGEN AND ARTERIAL STIFFNESS IN PATIENTS WITH ESSENTIAL HYPERTENSION

C. Vlachopoulos1*, P. Pietri, K. Aznaouridis, G. Vyssoulis, D. Adamopoulos, S.M. Kyvelou, P. Tapinis, C. Liakos, C. Stefanadis. Hypertension Unit, 1st Department of Cardiology, Athens Medical School, Hippokration Hospital, Athens, Greece

Introduction: Increased levels of prothrombotic markers such as fibrinogen and plasminogen activator-inhibitor-1 (PAI-1) have been related to target organ damage and cardiovascular outcomes in hypertensive population. Arterial stiffness is an important determinant of cardiovascular performance and a predictor of the corresponding risk. The association of fibrinogen and PAI-1 with arterial stiffness in hypertensive patients has not been defined.

Methods: We studied 293 consecutive patients with uncomplicated, never treated essential hypertension (mean age 50 years, 184 males).

Results: Across the tertiles of fibrinogen, we found a significant decrease in PWVc-f (7.36 ± 7.52 vs 7.17 ± 7.87 m/s at tertiles 1 to 3, p = 0.001) but not in PAI-1 as well (8.73 vs 8.70 vs 8.68 m/s, p = NS). Across the tertiles of logPAI-1 was also a gradual increase in PWVc-f (7.43 ± 7.73 vs 7.93 ± 8.17 m/s, p = 0.02) but no significant difference was observed in PWVc-r levels (8.57 ± 8.82 vs 8.74 ± 9.04 m/s, p = NS). In multivariate analysis, the association of fibrinogen with PWVc-f remained significant (β = 0.12, p = 0.05) after adjustment for age, gender, systolic blood pressure, smoking, body mass index, HbA1c and serum cholesterol. However, the associations of PAI-1 with PWVc-f and PWVc-r disappeared once the above confounding factors were taken into account.

Conclusion: The present study shows that in hypertensive subjects increased aortic stiffness is related to increased plasma levels of fibrinogen. This finding may have important implications for hypertensive patients.

P.062 WHITE BLOOD CELL COUNT PREDICTS WAVE REFLECTIONS IN PATIENTS WITH ESSENTIAL HYPERTENSION

P. Pietri1*, C. Vlachopoulos, G. Vyssoulis, K. Aznaouridis, S.M. Kyvelou, P. Tapinis, P. Spanos, C. Stefanadis. Hypertension Unit, 1st Department of Cardiology, Athens Medical School, Hippokration Hospital, Athens, Greece

Background: Arterial stiffness and wave reflections are independent markers and predictors for cardiovascular events in patients with hypertension. White blood cell count (WBC) count has been associated with high incidence of cardiovascular events. The aim of the present study was to assess the relationship between WBC count and augmentation index (Alx), a composite measure of arterial stiffness and wave reflections, in patients with essential hypertension.

Methods: We studied 235 consecutive patients with uncomplicated, never treated essential hypertension (mean age 51 years, 63% males). WBC count was measured in all patients. White blood cell (WBC) level cut-off was 10.000/mm3.

Results: In univariate analysis, Alx was significantly reduced with increasing WBC level tertiles (28.48±11.45, 27.26±12.11 and 23.98±13.60% respectively, p = 0.02). There was also a gradual reduction of PWVc-f from the lower to the higher tertiles (7.36, 7.52 and 7.73 m/s, respectively, p = 0.05). Having Alx as a dependent variable, ANOVA demonstrated no significant interaction between WBC count and PWVc-f (P=0.07). Using the ANOVA statistical analysis, Alx was significantly reduced with increasing WBC count tertiles (28.48±11.45, 27.26±12.11 and 23.98±13.60% respectively, p = 0.02). We also observed a significant increase in PWVc-f from the lower to the higher tertiles (8.02±1.17 vs 8.26±1.21 vs 8.59±1.36 m/s, p = 0.05). Arterial stiffness was evaluated by the measurement of carotid-femoral Pulse Wave Velocity (PWVc-f) and Augmentation Index (Alx).

Conclusion: Increased WBC levels are associated with increased arterial stiffness and wave reflections in patients with essential hypertension. Although no independent association was observed, the present finding reinforces the notion of a protective effect of bilirubin.