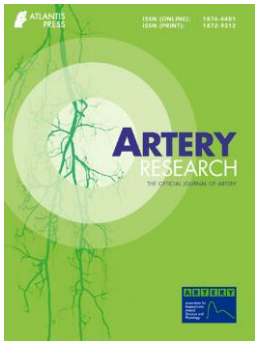

Artery Research

ISSN (Online): 1876-4401 **ISSN (Print): 1872-9312**
Journal Home Page: https://www.atlantis-press.com/journals/artres

P.052: AN INTERLEUKIN-6 POLYMORPHISM DETERMINES CHANGES IN ARTERIAL STIFFNESS CAUSED BY ACUTE INFLAMMATION

I. Dima, C. Vlachopoulos, C. Vasiliadou, N. Ioakeimidis, P. Xaplanteris, D. Kardara, K. Baou, C. Stefanadis

To cite this article: I. Dima, C. Vlachopoulos, C. Vasiliadou, N. Ioakeimidis, P. Xaplanteris, D. Kardara, K. Baou, C. Stefanadis (2007) P.052: AN INTERLEUKIN-6 POLYMORPHISM DETERMINES CHANGES IN ARTERIAL STIFFNESS CAUSED BY ACUTE INFLAMMATION, Artery Research 1:2, 65–65, DOI: https://doi.org/10.1016/j.artres.2007.07.109

To link to this article: https://doi.org/10.1016/j.artres.2007.07.109

Published online: 21 December 2019

Conclusions: Patients with HCV have impaired aortic elastic properties, whereas HBV does not influence aortic stiffness. These findings are important to further characterize the increase of cardiovascular risk in patients with hepatitis C virus seropositivity and to specify the linking role of the adipose tissue-related hormones.

P.052
AN INTERLEUKIN-6 POLYMORPHISM DETERMINES CHANGES IN ARTERIAL STIFFNESS CAUSED BY ACUTE INFLAMMATION

I. Dima, C. Vlachopoulos, C. Vasiliadou, N. Ioakeimidis, P. Xaplanteris, D. Kardara, K. Baou, C. Stefanadis. *Athens Medical School, Hippokration Hospital, Athens, Greece*

Purpose: A promoter polymorphism (-174G>C) of interleukin-6 has been linked with increased cardiovascular risk Arterial stiffness is an important predictor of cardiovascular risk. Recent data suggest that acute inflammation leads to an increase of aortic stiffness. The effect of this polymorphism on arterial stiffness has not been defined yet.
Methods: Nineteen healthy adults (mean age 34.7 ± 2.2 years old, 11 men) participated in the study (randomised, double-blind design). Salmonella Typhi vaccine was used as an inflammatory stimulus. RLFPs were performed by standard methods for IL-6 and three genotypes were determined, GG, GC and CC. Pulse wave velocity (CF-PWV) was measured as an index of aortic stiffness using a non-invasive device (Complior®). Arterial stiffness expressed by wave reflection was studied using a validated system (SphygmoCor©). Augmentation index (AIx) was measured as an index of wave reflection. Arterial stiffness was assessed before and 8 hours after vaccination as well as in 11 non-vaccinated matched volunteers.
Results: Eight hours after vaccination, the G allele was associated with a more prominent change of pulse wave velocity (for GG and GC, 5.70 to 5.92m/sec, $p<0.05$, for CC group, p=NS) and a significant decrease in AIx (GG and GC, 18.31% to 12.22%, $p<0.05$ and CC 23% to 14.7%, p=NS), indicating increased aortic stiffness and decreased wave reflection. There were no changes in the control group.
Conclusions: Acute inflammation results in changes of arterial stiffness to a different degree, depending on interleukin-6 genotype. These findings underscore the genetic significance of IL-6 gene on the pathophysiology of cardiovascular system.

P.053
AN INTERLEUKIN-6 POLYMORPHISM DETERMINES CHANGES IN ARTERIAL STIFFNESS CAUSED BY ACUTE INFLAMMATION

I. Dima, C. Vlachopoulos, C. Vasiliadou, P. Xaplanteris, N. Iokeimidis, K. Aznaouridis, K. Baou, C. Stefanadis. *Athens Medical School, Hippokration Hospital, Athens, Greece*

Purpose: Arterial stiffness is an important predictor of cardiovascular events. A polymorphism in the promoter region of il-6 (-174G>C) has been associated with cardiovascular risk. However, the relationship between this polymorphism and arterial stiffness has not been investigated yet.
Methods: Two hundred and forty-five individuals participated in the study (mean age 40.8 ± 0.5 years old, 164 males). RFLP was performed and three genotypes were determined, GG, GC and CC. Arterial stiffness as expressed by wave reflection was studied using a validated system (SphygmoCor©) that employs high-fidelity arterial tonometry and appropriate computer software for pulse wave analysis. Augmentation index (AIx) was measured as an index of wave reflection. Higher values of augmentation index indicate increased wave reflection and arterial stiffness.
Results: The distribution of genotype was GG/GC/CC: 125/107/13, respectively. After adjustment for age and sex, multinomial logistic regression analysis revealed that GC genotype is associated with higher values of AIx compared to GG homozygocity (22.56% versus19.6%, $p<0.1$). Moreover, further analysis showed that the presence of C allele (GC or CC genotype) was linked to increased AIx compared to GG genotype (22.37% versus 19.6%, $p<0.1$), which indicates impaired elastic properties. The values of aortic and peripheral blood pressures did not differ among three groups (p=NS).
Conclusions: In healthy individuals, a polymorphism of the promoter region of interleukin-6 gene is associated with wave reflection and impaired arterial elastic properties. This finding provides evidence of a possible genetic link between the inflammatory cascade, arterial stiffness and the cardiovascular system.

P.054
RELATIONSHIP BETWEEN, BLOOD VISCOSITY, SHEAR STRESS AND ARTERIAL STIFFNESS IN PATIENTS WITH ARTERIAL HYPERTENSION

M.W. Rajzer, M. Klocek, W. Wojciechowska, I. Palka, K.L. Kawecka-Jaszcz. *Department of Cardiology and Hypertension, Medical College Jagiellonian University, Krakow, Poland*

The aim of the study was to investigate relationships between whole blood viscosity (WBW), ascending aorta shear stress (AASS) and carotid- femoral pulse wave velocity (PWV) in patients with arterial hypertension (HT).
Material and methods: Study group (G1): 43 pts. with primary HT - (age 53 ± 6.4 yrs.) was compared with control group (G2): 15 normotensives (age - 55 ± 5.9 yrs.) Blood pressure using ''Omron M5 I'', PWV using Complior® device, WBV using ''Brookfield DV III+pro'', aortic diameter and flow velocity (required for AASS calculation) using VIVID 7 GE ultrasonograph were measured.
Results: SBP (152 ± 11.3 vs 124 ± 9.7 mmHg, $p< 0.001$), DBP (92 ± 6.1 vs 83 ± 5.2 mmHg, $p< 0.001$), WBV at shear rate 100-400/ s^{-1}(5.1 ± 1.2 vs 4.3 ± 0.9 cP, $p< 0.05$) and, PWV (11.8 ± 1.7 vs 8.8 ± 1.6 m/s, $p< 0.05$) were higher in G1 than in G2 group. Mean AASS was higher (27.7 ± 5.3 vs 21 ± 4.3 dyne/cm^2, $p< 0.05$) in G1 than in G2 group. In G1 group PWV correlated positively with age: ($r = 0.37$, $p< 0.39$), SBP: ($r = 0.45$, $p <0.05$) and WBV: ($r = 0.41$, $p<0.05$), and negatively with AASS: ($r = - 0.29$, $p< 0.05$).
Conclusions: Hypertensive patients are characterized by stiffer aorta and higher WBW, as well as lower AASS. Low shear stress seems to be one of the factors responsible for aortic stiffness in hypertensive patients.

P.055
COMMON CAROTID ARTERY STIFFNESS: MORE SENSITIVE TO AGE AND GENDER RELATED LARGE ARTERY STIFFENING THAN AORTIC PULSE WAVE VELOCITY?

S.J. Vermeersch [1], E.R. Rietzschel [2], M.L. De Buyzere [2], D. De Bacquer [3], G. De Backer [3], L.M. Van Bortel [4], T.C. Gillebert [2], P.R. Verdonck [1], P. Segers [1]. *[1]Cardiovascular Mechanics and Biofluid Dynamics, IBiTech, Ghent University, Ghent, Belgium, [2]Department of Cardiovascular Diseases, Ghent University Hospital, Ghent, Belgium, [3]Department of Public Health, Ghent University Hospital, Ghent, Belgium, [4]Heymans Institute of Pharmacology, Ghent, Belgium*

Background: The relationship between global arterial stiffness measures and measures based on local diameter and pressure readings is not yet fully understood.
Methods: We compared the changes with age and gender of aortic stiffness parameters — pulse wave velocity (PWV) and total arterial compliance (TAC) — to stiffness indices at the common carotid and femoral arteries — compliance (CC) and distensibility coefficient (DC); β-stiffness index — in a subset of 1026 women and 938 men, all apparently healthy subjects aged 35-55 participating in the Asklepios study.
Results: At the carotid artery, DC and β gradually increased with age with more pronounced stiffening in women, yielding a significant age-gender interaction. A similar trend was observed for CC. Femoral arterial stiffness did not change with age and no age-gender interaction was found. PWV indicated gradual stiffening with age occurring at an equal pace in men and women with no age-gender effect. TAC on the other hand did show a significant age-gender effect next to a change with age: it decreased in women, while remaining constant in men.
Discussion: In healthy middle-aged subjects, the age-related evolution of carotid stiffness and TAC indicates a more rapid increase in large artery stiffness in women than in men. This evolution, however, is not reflected in PWV. We speculate that PWV, integrating the properties of a large arterial segment that gradually varies from a large elastic to a more muscular vessel, might lack the sensitivity to pick up subtle age and gender effects primarily affecting the large, elastic arties.

P.056
HERITABILITY OF ARTERIAL WALL INTIMA MEDIA THICKNESS IN DIFFERENT VASCULAR BEDS

V. Dzenkeviciute, L. Ryliskyte, A. Laucevicius, Z. Petrulioniene. *Vilnius University Hospital, Vilnius, Lithuania*

Background and purpose: Genetic and environment factors have been linked to the cause of atherosclerosis. Carotid and femoral intima media