P4.43: ACUTE, INDUCED INFLAMMATION AFFECTS ARTERIAL LOAD

A.D. Lane, R.M. Kappus, K. Bunsawat, S. Phillips, R. Motl, J.A. Woods, T. Baynard, B. Fernhall


To link to this article: https://doi.org/10.1016/j.artres.2012.09.190

Published online: 21 December 2019
ACUTE, INDUCED INFLAMMATION AFFECTS ARTERIAL LOAD

P4.43

Calcification, age plays an important role in this difference.

Conclusions: Symptomatic S.Asians have more diffused coronary artery calcification, age plays an important role in this difference.

P4.44

ACUTE, INDUCED INFLAMMATION AFFECTS ARTERIAL LOAD

A. D. Lane 1, R. M. Kagpos 1, K. Bunsawat 1, S. Phillips 1, R. Motl 2, J. A. Woods 2, T. Baynard 1, B. Fernhall 1

1University of Illinois at Chicago, Chicago, United States
2University of Illinois at Urbana-Champaign, Urbana, United States

Acute, systemic inflammation may contribute to a shift in ventricular-vascular coupling (VVC), quantified by the ratio of arterial load (Ea) to ventricular elastance (Etv). Fitness associated with reduced systemic inflammation which may affect VVC. We determined the effect of acute systemic inflammation on VVC in young, healthy adults and evaluated the impact of fitness on this outcome. We tested 21 adults (m = 15, mean age = 25 yr, mean body surface area = 2.05 m²) before and at 24 and 48 hr post influenza vaccination (inflammatory stimulus). Ventricular volumes were measured by ultrasound from the 4-chamber apical view. Applanation tonometry was used to measure end-systolic pressure (ESP). Arterial load was calculated as ESP/stroke volume (SV) and Etv was calculated as ESP/end-systolic volume (ESV).

In 66 consecutive patients with risk factors (40 men aged 54 ± 2 years; 26 women aged 49 ± 3 years), the difference between TTV and TTF (DT-f) and the pulse wave velocity (PwVf = Constant/Height/Patient; DT-f in m/s) was measured by popmêtre®. Doppler ultrasound imaging assessed presence of carotid plaques. The local aortic stiffness (AoStiff) was evaluated by the Physioflow® system.

Results: No statistical difference was found between the group of patients with carotid plaques (n = 23) and the rest of the patients for Abl-Brachial Index (ABI; 1.13 ± 0.02 vs 1.17 ± 0.01), systolic and diastolic blood pressure (83.8 ± 2.1 vs 86.2 ± 2.9; 131.2 ± 2.7 vs 137.3 ± 3.7). The first group was older than the second one (59 ± 2 yrs vs 49 ± 2 yrs, p < 0.002) with a larger intima media thickness (0.70 ± 0.02 vs 0.63 ± 0.01, p = 0.003), a higher AoStiff and PwVf (10 ± 1.0 vs 8 ± 1.0 m/s, p < 0.03; 10.97 ± 0.97 vs 8.84 ± 0.43 m/s, p = 0.02) and a shorter DT-f (57.9 ± 6.2 vs 70.4 ± 3.2 ms, p = 0.02). PWVf (r = 0.49, p = 0.001) and DT-f (r = 0.54, p = 0.0001) were correlated with age.

Conclusion: Although we found no difference in ABI and arterial pressure, the data reveals an increased in local and peripheral arterial stiffness (pOpme`tre®) for patients with carotid plaques.

P4.45

SUBTHERAPEUTIC, LOW-DOSE FLUVASTATIN IMPROVES FUNCTIONAL AND MORPHOLOGICAL ARTERIAL WALL PROPERTIES IN APPARENTLY HEALTHY, MIDDLE-AGED MALES

M. Lunder 1,2, M. Janic 1, M. Sabovic 1

1Department of Vascular Disease, University of Ljubljana Medical Centre, Zaloska 7, SI-1000 Ljubljana, Slovenia
2Institute of Pharmacology and Experimental Toxicology, Faculty of Medicine, University of Ljubljana, Korytkova 2, SI-1000 Ljubljana, Slovenia

Objective: Early arterial wall changes are already present in the apparently healthy, middle-aged population and continuously progress with age. The aim of our study was to investigate whether 30 days low-dose fluvastatin treatment could improve and reverse these arterial changes that are primarily associated with ageing, in otherwise healthy middle-aged males.

Methods: In a double blind, randomized study, 50 middle-aged males received either placebo or fluvastatin (10mg) for 30 days. Brachial artery flow-mediated dilation (FMD), pulse wave velocity (PWV) and β-stiffness of the common carotid artery were measured on the 1st, 14th and 30th day of the study using an Aloka instrument by integrated eTracking.

Results: In 77% of subjects, impaired endothelial function was revealed at inclusion in the study. All the parameters were improved already after 14 days, and after 30 days of treatment FMD improved by 91.5 ± 15.6%, while PWV and β-stiffness improved by 6.2 ± 1.1% and 10.7 ± 1.5%, respectively (all P < 0.001). After therapy discontinuation, the beneficial effects progressively decreased, but were still detectable after 5 months. During the study the lipid profile remained unchanged, thus the beneficial effects obtained were attributed to the pleiotropic effects of fluvastatin.

Conclusions: We found that subtherapeutic low-dose fluvastatin (10mg daily; 30 days) considerably improves and reverses early functional and morphological arterial wall impairments that are present in apparently healthy, middle-aged males. It might be supposed that such a new and original approach could be valuable in cardiovascular prevention.

P4.46

RELATIONSHIP BETWEEN ARTERIAL STIFFNESS, DIABETIC FUNCTION AND GLYCEMIC CONTROL IN HEALTHY SUBJECTS

O. Mac Ananey 1, P. Gaffney 1, G. Boran 2, V. Maher 1

1Dept Cardiology, Adelaide & Meath Hospital Incorporating the National Children's Hospital, Dublin, Ireland
2Dept Laboratory Medicine, Adelaide & Meath Hospital Incorporating the National Children's Hospital, Dublin, Ireland

Insulin resistance with its associated metabolic derangements is associated with cardiovascular disease. It is unknown if lesser degrees of this metabolic derangement are associated with early vascular functional or structural changes. Our aim is to examine the relationship between glycemc indices and early vascular dysfunction in healthy subjects.