



## Artery Research

ISSN (Online): 1876-4401

ISSN (Print): 1872-9312

Journal Home Page: <https://www.atlantis-press.com/journals/artres>

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### **P4.43: ACUTE, INDUCED INFLAMMATION AFFECTS ARTERIAL LOAD**

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**To cite this article:** A.D. Lane, R.M. Kappus, K. Bunsawat, S. Phillips, R. Motl, J.A. Woods, T. Baynard, B. Fernhall (2012) P4.43: ACUTE, INDUCED INFLAMMATION AFFECTS ARTERIAL LOAD, Artery Research6:4, 195–195, DOI: <https://doi.org/10.1016/j.artres.2012.09.190>

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

Published online: 21 December 2019

320-row CT scanner, and compared them with 101 Caucasians matched for age, gender and coronary risk factors.

**Results:** CAC prevalence was similar in the two groups (56.4% SA, 47.5% CA;  $p=0.25$ ) but mean CAC score (CACS) ( $p<0.0001$ ) and mean number of affected segments ( $p=0.0001$ ) were significantly higher in S.Asians, in whom also 3 vessel disease (VSD) (25.7% SA, 5.9% CA;  $p=0.0004$ ) and obstructive CAD (stenosis  $>50\%$  in any branch) were more common (19.8% SA, 5.76% CA;  $p=0.0041$ ). In patients  $\leq 50$  years old ( $n=37$ ), no significant difference was found between the two groups in mean CAC score ( $p=0.28$ ), affected segments number ( $p=0.12$ ) or CAD severity ( $p=0.684$ ) and extent ( $p=0.514$ ). In individuals  $>50$  years old, the CAC severity was higher in S.Asians (Table 1) as was the number of affected segments ( $p=0.001$ ).

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

#### P4.43

##### ACUTE, INDUCED INFLAMMATION AFFECTS ARTERIAL LOAD

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Acute, systemic inflammation may contribute to a shift in ventricular-vascular coupling (VVC), quantified by the ratio of arterial load (Ea) to ventricular elastance (Elv). Fitness is 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 = 2.05m<sup>2</sup>) 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 Elv was calculated as ESP/end-systolic volume (ESV). Treadmill VO<sub>2</sub> max was used to quantify fitness. A repeated measures (1 x 3) ANOVA was used with VO<sub>2</sub> max as a covariate, and Spearman's correlation used to assess relationships between variables. Ea increased at 48 hr post-vaccination (from 1.19 to 1.13 to 1.32 mmHg/ml),  $p<0.05$ , but Elv did not change at either time point ( $p>0.05$ ), resulting in an increase in VVC from 0.49 to 0.53 to 0.52,  $p<0.05$ , at 24 and 48 hr post vaccination. At 48 hr post-vaccination, the change in Ea was ( $r=0.45$ ,  $p<0.05$ ) related to VO<sub>2</sub> max. There were no significant changes in blood pressure. Thus, acute inflammation increased arterial load but not ventricular elastance, independent of changes in blood pressure. This increased VVC, and higher fitness was associated with greater inflammation induced changes in arterial load.

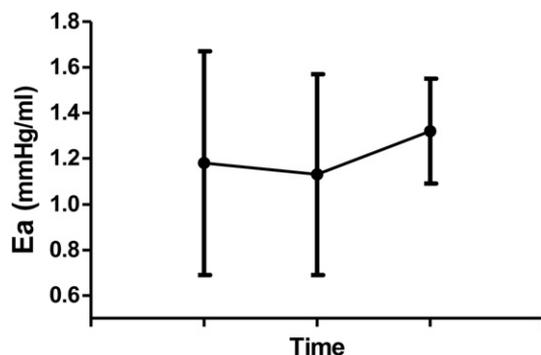


Figure 1 Ea (mmHg/ml) at baseline and at 24 and 48 hr post-inflammation. \* indicates  $p<0.05$  from baseline value

#### P4.44

##### REGIONAL ARTERIAL STIFFNESS ASSESSED BY POPMETRE® IN PATIENTS WITH CAROTID PLAQUES

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**Purpose:** To date, regional arterial stiffness can be easily evaluated using pOpmetre® (Axelife SAS – France), a new device measuring the pulse wave transit time (TT) between the finger (TTf) and the toe (TTt). The aim was to evaluate the relationship between the pOpmetre® indices and the presence of carotid plaques.

**Methods:** In 66 consecutive patients with risk factors (40 men aged  $54 \pm 2$  years; 26 women aged  $49 \pm 3$  years), the difference between TTt and TTf (Dt-f) and the pulse wave velocity (PWVt = Constant\*Height\_Patient / Dt-f in m/s) were measured by pOpmetre®. 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 patients for Ankle-Brachial Index (ABI:  $1.13 \pm 0.02$  vs  $1.17 \pm 0.03$ ), systolic and diastolic blood pressure ( $83.8 \pm 2.1$  vs  $86.2 \pm 2.9$ ;  $131.2 \pm 2.7$  vs  $137.3 \pm 3.7$ ). The first group was older than the second one ( $59 \pm 2$  yrs vs  $49 \pm 2$  yrs,  $p<0.002$ ) with a larger intima media thickness ( $0.70 \pm 0.02$  vs  $0.63 \pm 0.01$ ,  $p=0.003$ ), a higher AoStiff and PWVt ( $10 \pm 1.0$  vs  $8 \pm 1.0$  m/s,  $p<0.03$ ;  $10.97 \pm 0.97$  vs  $8.84 \pm 0.43$  m/s,  $p<0.02$ ) and a shorter Dt-f ( $57.9 \pm 6.2$  vs  $70.4 \pm 3.2$  ms,  $p<0.02$ ). PWVt ( $r=0.49$ ,  $p<0.0001$ ) 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 (pOpmetre®) for patients with carotid plaques.

#### P4.45

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

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**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  $\beta$ -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  $91.5 \pm 15.6\%$ , while PWV and  $\beta$ -stiffness improved by  $6.2 \pm 1.1\%$  and  $10.7 \pm 1.5\%$ , 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, DIASTOLIC FUNCTION AND GLYCEMIC CONTROL IN HEALTHY SUBJECTS

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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 glycemic indices and early vascular dysfunction in healthy subjects.