# P.009: ATORVASTATIN ABROGATES THE DETERIORATION OF ENDOTHELIAL FUNCTION INDUCED BY ACUTE INFLAMMATION IN DYSLIPIDEMIC PATIENTS

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were also decreased with ramipril and valsartan (PWV by $0.5\pm0.3$ and $0.6\pm0.6$ m/s, $P<0.005$ and $<0.01$ respectively; AIx by $5.2\pm4$ and $5.8\pm4$ respectively, $P<0.005$ for both). When the effect of ramipril on systolic and diastolic pressure, PWV, and AIx was compared to that of valsartan, no difference was observed in any parameter.

**Conclusions:** Ramipril reduce aortic stiffness and wave reflections to the same degree as valsartan in patients after SCR. Their beneficial effects should be taken into account when treatment in SCR patients is considered.
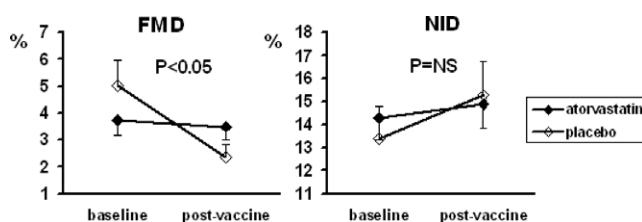
## P.009
### ATORVASTATIN ABROGATES THE DETERIORATION OF ENDOTHELIAL FUNCTION INDUCED BY ACUTE INFLAMMATION IN DYSLIPIDEMIC PATIENTS

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**Introduction:** Acute inflammation is associated with a deterioration of endothelial function. Statins reduce cardiovascular risk by lipid lowering and non-lipid pleiotropic effects. It has not been defined whether atorvastatin modifies the effects of acute inflammation on endothelial function in dyslipidemic patients.

**Methods:** We generated a transient systemic inflammation by Salmonella Typhi vaccination in 30 volunteers with mild dyslipidemia. They were studied 4 days after randomly taking atorvastatin 40 mg or placebo once daily at bedtime. Conduit artery endothelial performance was assessed before and 8 hours after vaccination. Flow-mediated dilation (FMD) of the brachial artery, an index of endothelial function, and the endothelium-independent nitrate-induced dilation (NID) were measured by using high resolution ultrasonography.

**Results:** There were no differences in all baseline characteristics among the two groups. In the placebo group, vaccination caused a significant decrease of FMD at 8 hours (by $2.65\pm1.08\%$, $P<0.05$, left figure), indicating an unfavourable effect of inflammation on endothelial function. In contrast, in the pretreated with atorvastatin group, the decrease of FMD after vaccination (by $0.22\pm0.53\%$) was significantly smaller compared with placebo ($P<0.05$ by 2-way repeated-measures ANOVA, left figure), denoting that the adverse effect of inflammation on endothelial function is abrogated by atorvastatin. We did not observe any significant change of NID after vaccination in any group (P=NS, right figure).



**Conclusion:** In dyslipidemic patients, atorvastatin abrogates the deterioration of endothelial function caused by an acute inflammatory stimulus. This finding provides valuable insights into the protective effect of atorvastatin on arterial function and on the cardiovascular system overall.

## P.010
### DO PULSE WAVE VELOCITY AND AUGMENTATION INDEX MEASURE DIFFERENT MODES OF AORTIC STIFFNESS?

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**Introduction:** Aortic pulse wave velocity (aPWV) and augmentation index (AIx) are tools to assess aortic stiffness. This study examined the relationship between aPWV using a validated, direct method, results from pulse wave analysis (PWA), using the indirect method from tonometry at the radial artery (via the SphygmoCor).

**Methods:** aPWV was measured as the speed of aortic waveforms between a) the junctions of left subclavian and aortic arch and b) bifurcation of the abdominal aorta, using Doppler probes. PWA was undertaken immediately after aPWV measurement in all participants.

**Results:** High quality data were obtained from 33 postnatal, healthy women aged 22–44y, with mean systolic/diastolic blood pressure (SBP/DBP) of 109.9/66.2 mmHg (95% CI: 105.8–114/63.4–69.1). Correlation coefficients for aPWV and AIx (Augmentation Index), AP (augmentation pressure) were only 0.18 and 0.09, not 'significant'. Factors affecting these parameters were as follows: age (both), 2-hour glucose levels from the glucose tolerance

test (GTT) influenced AP ($r=0.67$, $p=0.047$) and SBP for aPWV ($r=0.39$, $p=0.027$).

**Conclusions:** Different factors affect aortic stiffness as assessed by these methods, young, healthy women in our study group.

## P.011
### EFFECT OF GLUCOSE FLUX DURING OGTT ON AORTIC FUNCTION

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**Introduction:** Hyperglycaemia or related factors lead to micro and macrovascular complications. Our aim was to relate changes in aortic pulse wave velocity (aPWV) with glucose flux during a 75 g oral glucose tolerance test (OGTT). Our null hypothesis was that aPWV does not change significantly during the OGTT.

**Methods:** 72 pre-menopausal women (age 35.0, 33.5–36.5 years) underwent anthropometry and aPWV measurements at 0, 30 and 120 min of an OGTT. aPWV was measured as speed of the aortic flow waveform between the (a) junction of the left subclavian artery and arch of the aorta and (b) bifurcation of the abdominal aorta by using Doppler probes.
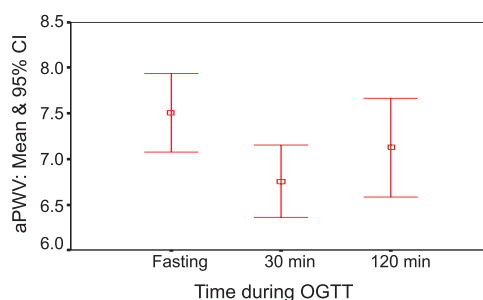


**Results:** aPWV decreased by 30 min during an OGTT by 8.6% (95% CI: 3.3–14.0%), $p<0.0001$, but reverted by 2 hr ($p=0.16$). In regression analysis, 30 min aPWV was affected by age (beta-0.13, $p=0.03$), day in cycle (beta- -0.09, $p=0.008$) and body fat percentage (beta - 0.1, $p=0.01$) but not independently by other variables below nor fasting or 2 hour glucose; the 120 min aPWV was affected by brachial pulse pressure (beta - 0.91, $p=0.03$) and smoking exposure (beta- -0.24, $p=0.045$), and the fall in aPWV between fasting and 30 min by age (beta- 1.6, $p=0.05$) and body fat percentage (beta - 1.8, $p=0.008$).

**Conclusions:** Aortic function as assessed by aPWV changes during an OGTT, and its degree of change is primarily affected by age and adiposity, but not glycaemia.

## P.012
### COMPARISON OF OSCILLOMETRIC AND TONOMETRIC DERIVED PULSE WAVE VELOCITY

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**Objective:** Measurements of the aortic pulse wave velocity (PWV) with applanation tonometry is broadly accepted, but investigator-dependent, time-consuming, and expensive. Recently a new method to determine PWV derived from oscillometric pressure curves with a simple upper arm cuff has been developed. The aim of the present study was to compare the PWV derived from two well established and clinically validated tonometric methods (SphygmoCor, Complior) with the oscillometric one (Arteriograph).

**Design and Method:** PWV was measured in 51 patients up to 5 times with SphygmoCor, Complior and Arteriograph, respectively. 36 patients we measured in a second session following the same protocol. We then compared the means of the PWVs for each patient per session (n = 87).

**Results:** The correlations of the PWV assessed by Arteriograph compared to SphygmoCor was $r=0.67$ ($p<0.001$) and to Complior $r=0.069$ ($p<0.001$). SphygmoCor- and Complior-assessed PWVs showed a correlation of $r=0.87$.

**Conclusions:** The new oscillometric method of assessing PWV is highly correlated to the tonometrically derived PWV. Further studies are necessary to define the clinical use of the oscillometrically derived PWV.