



## Artery Research

ISSN (Online): 1876-4401

ISSN (Print): 1872-9312

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

---

### **P3.05: UNFAVORABLE EFFECT OF ANDROGEN DEFICIENCY ON AORTIC STIFFNESS IN HYPERTENSIVE MALES AT LOW AND MODERATE CARDIOVASCULAR RISK**

C. Vlachopoulos, N. Ioakeimidis, A. Aggelis, P. Xaplanteris, D. Terentes-Printzios, M. Abdelrasoul, P. Pietri, C. Stefanadis

**To cite this article:** C. Vlachopoulos, N. Ioakeimidis, A. Aggelis, P. Xaplanteris, D. Terentes-Printzios, M. Abdelrasoul, P. Pietri, C. Stefanadis (2013) P3.05: UNFAVORABLE EFFECT OF ANDROGEN DEFICIENCY ON AORTIC STIFFNESS IN HYPERTENSIVE MALES AT LOW AND MODERATE CARDIOVASCULAR RISK, Artery Research 7:3\_4, 128–128, DOI: <https://doi.org/10.1016/j.artres.2013.10.093>

**To link to this article:** <https://doi.org/10.1016/j.artres.2013.10.093>

Published online: 14 December 2019

### P3.05 UNFAVORABLE EFFECT OF ANDROGEN DEFICIENCY ON AORTIC STIFFNESS IN HYPERTENSIVE MALES AT LOW AND MODERATE CARDIOVASCULAR RISK

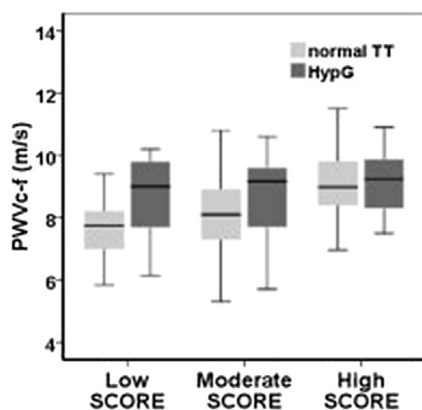
C. Vlachopoulos, N. Ioakeimidis, A. Aggelis, P. Xaplanteris, D. Terentes-Printzos, M. Abdelrasoul, P. Pietri, C. Stefanadis  
1st Cardiology Department, Athens, Greece

**Objectives:** Increased carotid-femoral Pulse Wave Velocity (PWVc-f) identify hypertensive patients at high CV risk, independently of systematic coronary risk evaluation (SCORE). Testosterone is associated with aortic stiffness, however whether this association is different in hypertensive patients with low or intermediate SCORE compared to high SCORE subjects is unknown.

**Methods:** Total testosterone (TT) and PWVc-f were measured in 311 non-diabetic hypertensive men with no evidence of clinical atherosclerosis. Hypogonadism (HypG) was defined when TT levels were below 3.4 ng/ml.

**Results:** The prevalence of HypG in hypertensive patients with low, moderate and high SCORE was 12.5, 15.2 and 28.2%, respectively. PWVc-f was significantly associated with TT in low ( $r=-0.289$ ,  $P<0.001$ ) and moderate SCORE ( $r=-0.274$ ,  $P<0.001$ ) patients but not in patients with high SCORE ( $r=-0.092$ ,  $P=0.33$ ). Subjects were then categorized by SCORE and further subdivided according to presence/absence of HypG. PWVc-f values of each SCORE/testosterone category are shown in figure. In low and moderate SCORE categories, patients with HypG had higher PWVc-f (by 0.92 m/s,  $P<0.01$  and 0.55 m/s,  $P<0.05$ , respectively) compared to subjects with TT above the cut off level for biochemical definition of HypG. On the contrary, in high SCORE category, PWVc-f between patients with HypG and men with normal levels did not differ. It can be noted that low and moderate SCORE hypertensive patients with HypG had already elevated PWVc-f as compared to high SCORE men with normal TT.

**Conclusions:** The effect of low testosterone concentration on aortic stiffness is emphasized in hypertensive patients with low and moderate SCORE.



### P3.06 ASSESSMENT OF ARTERIAL STIFFNESS DURING A FIVE-YEARS FOLLOW UP IN A GENERAL POPULATION IN NORTHERN ITALY

A. Paini, M. Salvetti, C. Aggiusti, F. Bertacchini, C. Agabiti Rosei, D. Stassaldi, G. Rubagotti, G. Maruelli, E. Agabiti Rosei, M. L. Muesan  
University of Brescia, Brescia, Italy

**Background:** Carotid-femoral pulse wave velocity (cfPWV) is an independent predictor of cardiovascular events and its measurement is recommended by current hypertension guidelines. Few data are available on the progression of PWV over time. The aim of the present study was to assess the progression of aortic stiffness over a 5-year period in a general population in Northern Italy (Vobarno Study).

**Methods:** 227 subjects, 42% males (age  $50\pm 4$  years, hypertension in 51% at baseline visit, BL), underwent a BL and a follow up (FU) visit, after  $5.1\pm 0.4$  years. In all subjects laboratory examinations, measurement of clinic and 24 hours blood pressure (BP) and of cfPWV were performed at BL and at FU.

**Results:** In the overall population cfPWV increased from  $8.28\pm 1.27$  at BL to  $8.51\pm 3.2$  m/s at FU ( $p<0.05$ ), change:  $0.22\pm 1.25$ . cfPWV significantly

increased from BL to FU in hypertensive subjects (HT) (from  $8.61\pm 1.41$  to  $8.90\pm 1.40$ ,  $p<0.01$ ) but not in normotensives (NT) (from  $7.97\pm 1.03$  to  $8.11\pm 1.11$ ,  $p$  n.s.). The absolute change in cfPWV from BL to FU progressively increased from  $-0.052\pm 0.108$  in NT, to  $0.480\pm 0.163$  in treated HT and to  $0.483\pm 0.138$  in untreated HT ( $p$  for trend  $<0.01$ ); after adjustment for possible confounders (age, gender, BMI, baseline cfPWV and change in mean BP) the difference remained statistically significant. At multivariate analysis the variables independently related to the progression of cfPWV were cfPWV and mean BP at BL (beta  $-0.55$ ,  $p<0.01$ , and beta  $0.18$ ,  $p<0.01$ , respectively) and the change in mean BP during follow-up (beta  $0.20$ ,  $p=0.001$ ).

**Conclusions:** In a general population sample in Northern Italy the main determinants of the increase in arterial stiffness during a 5 years FU were cfPWV and mean BP at BL and change in mean BP over time.

### P3.07 THE ASSOCIATION BETWEEN LOW BODY MASS INDEX AND ARTERIAL STIFFNESS IN AFRICANS: THE PURE STUDY

H. W. Huisman, J. M. Van Rooyen, H. L. Venter, A. E. Schutte, R. Schutte, C. M. T. Fourie, C. M. C. Mels, W. Smith, N. T. Malan, L. Malan  
North-West University Potchefstroom Campus, Potchefstroom, South Africa

**Objectives:** In developing countries, urbanization leads to changes in behavioural lifestyle and malnutrition which may lead to higher rates of cardiovascular disease.<sup>1,2</sup> We aimed to assess the association between low body mass index and markers of cardiovascular function like pulse wave velocity in Africans.

**Methods:** We included 496 Africans, aged between 35-65 years, with a low socio-economic status. They were stratified into a low BMI group with BMI  $\leq 20$  kg/m<sup>2</sup> and a normal BMI group with BMI  $\leq 20$  kg/m<sup>2</sup> and  $\leq 25$  kg/m<sup>2</sup>. Blood pressure (OMRON HEM-757) and PWV (Complior SP) were recorded.

**Results:** African men with low BMI revealed significantly higher DBP ( $88.0 \pm 13.4$  mm/Hg) compared to the normal BMI group ( $84.2 \pm 12.2$  mm/Hg) and an increased arterial stiffness with significantly higher PWV ( $12.6 \pm 2.47$  m/s) compared to the normal BMI group ( $11.6 \pm 2.00$  m/s). The significant higher DBP and PWV remained after adjusting for confounders. The BMI scatter plot illustrated a negative tendency towards PWV in Africans ( $r = -0.28$ ;  $p<0.001$ ). This negative association between PWV and BMI in African men was confirmed with regression analysis. When adjusting for age, smoking, alcohol intake, BP and heart rate a J-curve was evident between PWV and BMI.

**Conclusion:** This indicates a detrimental effect of low BMI on vascular function which may contribute to the high prevalence of CVD and mortality in Africans.

#### References

Pangiotakos DB et al. Public Health Nutr 2008, 11:1342-1349.  
Hamer M et al. Nutrition, Met & Cardio Diseases 2010, 20:491-497.

### P3.08 C-REACTIVE PROTEIN BUT NOT ADVANCED GLYCATION END-PRODUCTS ARE RELATED TO ALTERED GLUCOSE METABOLISM AND ARTERIAL STIFFENING IN THE MIDDLE AGED METABOLIC SYNDROME SUBJECTS: DATA FROM A CROSS SECTIONAL STUDY

L. Ryliskyte<sup>1,2</sup>, A. Laucevicius<sup>1,2</sup>, J. Badariene<sup>1,2</sup>, R. Navickas<sup>2</sup>, S. Solovjova<sup>2</sup>

<sup>1</sup>Vilnius University, Medical Faculty, Heart Clinic, Center of Cardiology and Angiology, Vilnius, Lithuania

<sup>2</sup>Vilnius University Hospital Santariskiu Klinikos, Vilnius, Lithuania

**Objectives:** The aim of our study was to investigate the relationship between glucose metabolism, high sensitivity C-reactive protein (hsCRP), advanced glycation end-products (AGEs) and aortic stiffness in non-diabetic middle aged metabolic syndrome (MetS) subjects.

**Methods:** We studied a total of 486 non-diabetic subjects (aged 40-65, 61% women) with MetS but without overt atherosclerotic disease. AGEs were measured by skin autofluorescence while aortic stiffness was assessed as carotid to femoral pulse wave velocity (PWV) by applanation tonometry. Glucose metabolism was evaluated by oral glucose tolerance test.

**Results:** In univariate analysis, log transformed hsCRP were significantly associated with various indices of insulin resistance ( $r_{\text{HOMA-IR}} = 0.20$ ,  $r_{\text{QUICKI}} = -0.20$ ,  $p<0.01$ ) and PWV ( $r = 0.17$ ,  $p<0.01$ ). This association remained significant in a separate analysis of men and women subgroups. The multivariate analysis showed that impact of hsCRP on PWV remains significant after adjustment for age, heart rate, mean blood pressure, insulin resistance