



## Artery Research

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### **P3.25: THE EFFECT OF DIASTOLIC ASYMPTOTIC PRESSURE ON THE RESERVOIR PRESSURE IN HUMAN**

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Africans, albumin excretion from spot urine samples predicts all-cause and stroke mortality.

### P3.24

#### SEX-SPECIFIC ASSOCIATIONS BETWEEN CAROTID DISTENSIBILITY AND PRIOR BLOOD PRESSURE CATEGORIES – RESULTS FROM THE SAPALDIA COHORT

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**Objective:** Hypertension is a major risk factor of cardiovascular events. To identify potential sex specific differences in the association of prior blood pressure (BP) to arterial stiffness, we studied the relative change of lumen diameter for a given pulse pressure (distensibility) in participants of the SAPALDIA cohort study.

**Methods:** In the first follow up in 2002 brachial systolic and diastolic BP were examined in 6456 participants. They were divided into five BP categories (systolicBP/diastolicBP mmHg): 'optimal' <120/<80; 'normal' 120-129/80-84; 'high normal' 130-139/85-89; 'grade1 hypertension' 140-159/90-99 and 'grade 2+3 hypertension'  $\geq 160/\geq 100$ . Participants were assigned to the higher category, if systolic and diastolic BP belonged to different categories. In the second follow up in 2010/2011, carotid lumen diameter of ultrasound images were analysed in 3489 subjects. BP was measured oscillometrically directly after the ultrasound examination. The analytic sample included 2576 participants with complete data. The sex-specific associations of distensibility and prior assessed BP categories were analysed using mixed regression models with fixed effects for sex, BP categories and their interactions, anthropometric parameters, classical risk factors, heart rate with random effects for study centres.

**Results:** Descriptive characteristics are shown in table1. The sex-specific adjusted average distensibility results are shown in figure1. A significant decline in distensibility with increasing BP category was observed compared to optimal BP category. A significant sex-specific difference was found for optimal BP category ( $p = 0.001$ ).

**Conclusions:** Based on the assessment of carotid stiffness, BP control should be considered as an important therapeutic target both for men and women.

### P3.25

#### THE EFFECT OF DIASTOLIC ASYMPTOTIC PRESSURE ON THE RESERVOIR PRESSURE IN HUMAN

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**Background:** Arterial diastolic asymptotic pressure ( $P_\infty$ ) is the pressure reached when the heart stops beating. Determination of the reservoir pressure ( $P_r$ ) requires a value of  $P_\infty$  which was previously assumed (1), calculated (2) and measured (3, 4) as 0, 35, 14, 24 mmHg respectively. The effects of varying  $P_\infty$  on the determination of  $P_r$  is the primary objective of this study. **Methods:**  $P_r$  was calculated from the carotid pressure of 2003 subjects of the Asklepios study (a) using a free fitting algorithm for the determination of  $P_\infty$  and (b) setting  $P_\infty$  to the average of the experimental values (19 mmHg).

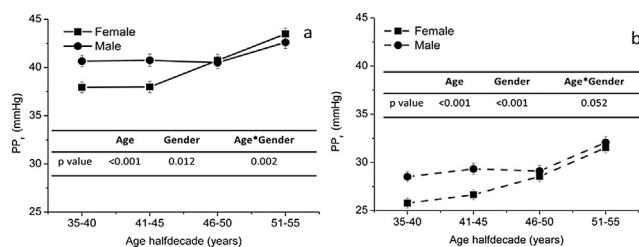


Figure 1. Changes of PP, with age and gender using the free fitting algorithm (a) and 19mmHg (b).

**Results:** The reservoir pulse pressure ( $PP_r$ ) is higher using the free fitting method than setting  $P_\infty$  (Fig1).  $PP_r$  increases significantly with age and is higher in male than female in both cases.

**Conclusions:**  $PP_r$  is generally higher in male than female and its absolute value is dependant on the value of  $P_\infty$ . Higher values of  $PP_r$  suggests deterioration of the arterial buffering function with age.

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### P3.26

#### ARTERIAL DISPENSABILITY IN STAGE 1 HYPERTENSION: COMPARISON BETWEEN PREMENOPAUSAL WOMEN AND MEN OF THE SAME AGE

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**Objective:** To investigate whether arterial distensibility in hypertensive premenopausal women differs from that observed in men and whether these differences may vary according to age.

**Methods:** We studied 385 young stage 1 hypertensives from the HARVEST study. Arterial distensibility predictors were included in regression analyses. Patients were divided into 3 age classes and differences in arterial distensibility parameters were examined with a 2-way ANCOVA using sex and age-class as factors.

**Results:** Despite better metabolic profile and lower systolic BP, women showed lower large artery (C1) and small artery (C2) compliance, higher augmentation index (Alx) and total peripheral resistances (TPR) than men (all age-adjusted  $p < 0.0001$ ). When data were adjusted for BP and heart rate (HR), lifestyle habits and metabolic parameters, differences remained highly significant (all  $p < 0.0001$ ). However, when height was included in the models only differences in C2 and Alx remained significant ( $p = 0.033$  and  $p = 0.001$ , respectively). Systolic BP and HR (for C1 and C2), BMI and age (for C2 and Alx), sedentary (for Alx), were significant determinants of distensibility parameters. In both genders C2 and Alx were closely correlated with TPR ( $p < 0.001$ ). The gender-related differences in distensibility parameters did not vary across the age classes with no significant interaction between age and sex.

**Conclusions:** The height accounts for most of the sex-related differences in arterial distensibility parameters. However, for C2 and Alx the differences persists after adjustment for height indicating that in premenopausal women hypertension is due to a high TPR condition which is accompanied by impairment of C2 and Alx.

### P3.27

#### ASSOCIATION STUDY OF APOE POLYMORPHISMS WITH ESSENTIAL HYPERTENSION IN BULGARIAN PATIENTS

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Apolipoprotein E (ApoE) polymorphism influences lipid metabolism, but its association with essential hypertension (EH) is controversial.

The objective of this study was to examine the association between ApoE polymorphisms and EH in Bulgarian population.

We carried out a case-control association study involving 490 healthy Bulgarian individuals and 211 Bulgarian patients with EH (average of three measurements  $\geq 140$  mmHg in systolic and/or  $\geq 90$  mmHg in diastolic blood pressure). Genomic DNA was extracted from venous blood using Chemagic