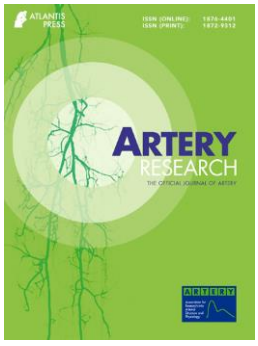

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P105: PULSE PRESSURE AMPLIFICATION AND PHYSICAL ACTIVITY IN YOUNG BLACK AND WHITE ADULTS: THE AFRICAN-PREDICT STUDY

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Background: Difference between sex, age, ethnias etc. have been described for every parameter of vascular structure and function. It is of outmost importance to know their reference values for using non invasive vascular evaluations (NIVE) in a certain population to detect subclinical aterosclerosis.
Objective: Analize the values of the main vascular structure and functional parameters used for NIVE in a significative reference sample of a country.
Methods: A retrospective cohort study from a database of 7355 p. first ever Non Invasive Vascular Evaluations (NIVE) (IMT, plaques, PWV and Endothelial Function (EF)). We analyzed 667 p. 40—45 y.o. (9.1%) referent healthy patients without CV risk factors, heredofamilial history, CV events and CV drugs. The whole group, men (392) and female (275) data divided in deciles (from 70 y.o.) are described.
Results: The higher proportion of the sample is concentrated between 30 and 60 y.o. in both sexes. IMT ranged from 0,49 to 0,8 mm, % of CF Plaques from 1,2% to 78,6%, Athero.Burden 16 to 68mm2, Endothelial Function from 9,8 to 8,8% and PWV from 6,8 + 1.9 to 10.3 + 2 m/sec. Comparison between sex showed higher values in males and with other reference antional and international series, quite similar values except in some groups.
Conclusion: This is a significative sample of "healthy patients" coming from a mixed urban and rural population of our country, offering a set of reference values for the main NIVE parameters, ready for clinical application.

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Barry McDonnell [7], Carmel McEniery [8], Maria Lorenza Muiesan [9], Janos Nemcsik [10], Anna Paini [9], Enrique Rodilla [11], Ian Wilkinson [8], Robert Zweiker [12], James Sharman [13]
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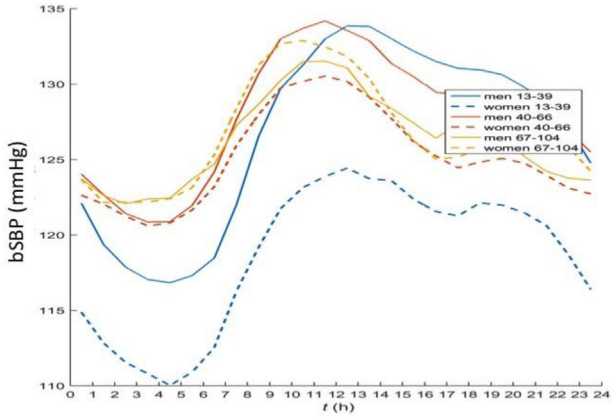
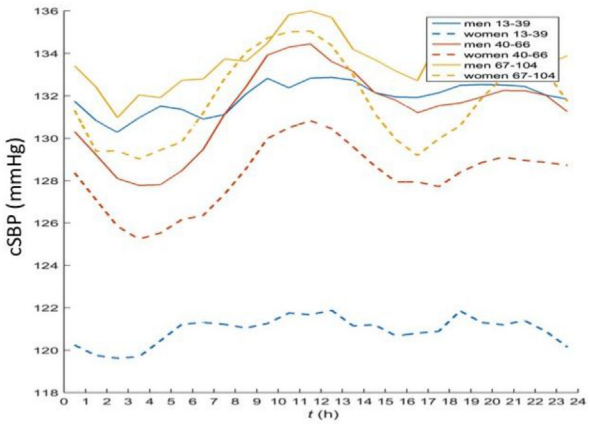
Background: Conventional brachial cuff BP is known to vary according to age and gender, but the influence of these factors on 24-hour ambulatory central BP is unknown. We sought to determine this in a large healthy population from 11 centers in Europe and Asia.
Methods: 24-hour ambulatory BP using a validated oscillometric device (Mobilograph, I.E.M, Stolberg, Germany) was performed in 1645 individuals free from antihypertensive drugs. Participants were categorized as young (Y: 13—39 years; M/F:219/112), middle-aged (MA: 40—66 years; M/F:545/553), and older (O: 67—104 years; M/F:86/130). Nighttime/daytime difference (N/D) was defined as nighttime (01.00—06.00) minus daytime (09.00—21.00) values / daytime values.
Results: Averaged 24-hour brachial BP was 125/79 (Y), 128/83 (MA), and 127/77 (O) mmHg. N/D for brachial SBP was -10.3% (Y), -6.4% (MA), and -4.7% (O), but was significantly less pronounced for central SBP: -1% (Y), -3.1% (MA), and -1.9% (O). Men, compared to women, had higher brachial and central SBPs, mainly in younger participants. Brachial pulse pressure (PP) displayed limited and age-dependent circadian variations, whereas central PP was substantially higher at nighttime: N/D was 24% (Y), 9% (MA), and 5.9% (O). Brachial and central PPs were higher in men in the younger group, but higher in women in middle-aged and older groups.
Conclusion: Both age and gender each have a significant influence on 24-hour variability of central BP, but is different than variability in brachial BP. These data have potential implications for refining hypertension diagnosis and management.





P104

INFLUENCE OF AGE AND GENDER ON 24-HOUR VARIABILITY OF CENTRAL BLOOD PRESSURE: FINDINGS FROM THE INTERNATIONAL 24-HOUR AMBULATORY AORTIC BLOOD PRESSURE CONSORTIUM (I24ABC)

Thomas Weber [1], Athanase Protogerou [2], Siegfried Wassertheurer [3], Cristina Giannatasio [4], Piotr Jankowski [5], Yan Li [6], Alessandro Maloberti [4],

P105

PULSE PRESSURE AMPLIFICATION AND PHYSICAL ACTIVITY IN YOUNG BLACK AND WHITE ADULTS: THE AFRICAN-PREDICT STUDY

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Background and Objectives: It is known that physical activity is inversely associated with arterial stiffness in healthy adults1. Data regarding the effect of physical activity on PPA is limited. Such data is of importance especially in South Africa, where alarming rates of physical inactivity have been reported 2,3. The aim of this study was to determine the relationship between pulse pressure amplification (PPA) and physical activity in a young, healthy black and white South African cohort.
Methods: The sub-study was embedded in the African Prospective study on the Early Detection and Identification of Cardiovascular disease and Hypertension (African-PREDICT) and included 591 white and 604 black participants aged 20—30 years. Systolic, diastolic and central blood pressures were determined with the SphygmoCor apparatus. Biochemical variables were analysed with known methods.
Results: The SBP (124 vs. 121 mmHg, $p < 0.001$), DBP (76 vs. 71 mmHg, $p < 0.001$) and central SBP (110 vs. 105 mmHg, $p < 0.001$) were significant higher in the black compared to white participants. No differences were encountered in c-fPWV and PPA. The physical activity levels did not differ but the total energy expenditure was significant lower in the blacks compared to whites (2205.5 vs. 2373.6 kCal, $p < 0.001$). After multiple regression analysis only in black participants the PPA showed an independent and significant negative association with age (ß $= -0.282$, $p < 0.001$) and a positive association with height (ß $= 0.247$, $p < 0.001$). In whites the PPA only associated positively with sex (ß $= 0.180$, $p = 0.032$).
Conclusion: No association was encountered between arterial stiffness (PPA) and physical activity markers.

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RELATIONSHIP BETWEEN CENTRAL PULSE PRESSURE AND URINARY SODIUM EXCRETION IN A POPULATION-BASED STUDY IN SALVADOR, BRAZIL, PRELIMINARY RESULTS

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Introduction: Central Pressure (PC) has shown to be more reliable in cardiovascular (CV) mortality (1); Salt intake and excretion seems to lead to an increase in this pulsatile component of the arterial flow (2, 3). C entral Pulse Pressure (PPc) data is very few.
Methods: A population-based cross-sectional study representative of a poor and mixed-race neighborhood of Salvador-B A, Brazil, distributed in 12 census tracts according to the Brazilian Institute of Geography and Statistics. The overall sample is randomized in adults from the assigned area, from December 2016 to May 2018 comprise 110 people. Individual and household records are filled out. The central pressure, measured in the radial artery, obtained through aplanation tonometry, using the SphygmoCor® (XCEL, AtCor Medical, Sydney, Australia (2), with operation index $\geq$85%. PP c measured by systolic central pressure minus diastolic central pressure. 24-hour urine samples were collected. Urinary sodium (US) measured by the selective ion electrode, ADVIA1800® (SiemensHealthcare Japan/Canada). The committee for research on human subjects of the FTC approved the protocol (No1827621). Median, interquartile range, Spearman's linear correlation coefficient between PPc and sodium stratified by sex, using STATA v.12 software for data base management and statistical analysis. The level of statistical significance was set at 5%.
Results: 71,8% female, mean age 49,7 $\pm$ 16y. Median excretion rate of sodium was, in male,133,2 $\pm$ 82 mEq/l (In general 126,4 $\pm$ 84). In male was a significance negative correlation ($r = -0{,}43$;$p = 0{,}01$)between PPC and US excretion.
Conclusion: There was a correlation between the values of PPc and UR in men (fig.1). These results need future best understanding.

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Poster Session II — Hypertension III
P107

RENAL DENERVATION IMPROVES 24-HOUR CENTRAL AND PERIPHERAL BLOOD PRESSURES, ARTERIAL STIFFNESS AND PERIPHERAL RESISTANCE

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Background: Ambulatory Blood Pressure (BP) as well as central BP are better predictors for overall cardiovascular risk and mortality than brachial BP. Renal Denervation (RDN) has been shown to reduce office brachial and central BP as well as ambulatory brachial BP, but data on central ambulatory BP are limited. We therefore aimed to study the effect of RDN also on central hemodynamics assessed under ambulatory conditions.
Methods: In total 94 patients with treatment resistant hypertension (TRH) (office BP $\geq$140/90 mmHg, and diagnosis confirmed by mean daytime brachial ambulatory BP $\geq$135/85 mmHg) who underwent RDN (using Medtronic Symplicity™ RDN radiofrequency ablation catheter system) were included. Ambulatory BP, including central pressures, hemodynamics and arterial stiffness, were measured at baseline and 3, 6, 12 months after RDN by an oscillometric device (MobiloGraph™, I.E.M., Germany).
Results: Office BP was significantly reduced at all time points (p for all $<$0.001). At 3, 6 and 12 months follow-up, brachial ambulatory BP was reduced by 6 $\pm$ 13/4 $\pm$ 7 mmHg, 8 $\pm$ 15/4 $\pm$ 10 mmHg, 9 $\pm$ 16/4 $\pm$ 9 mmHg, respectively (p for all $<$0.001). Consistently, central ambulatory BP was reduced by 6 $\pm$ 12/3 $\pm$ 8 mmHg, 7 $\pm$ 15/4 $\pm$ 9 mmHg, 9 $\pm$ 15/5 $\pm$ 9 mmHg, respectively (p for all $<$0.001). In addition, ambulatory assessed averaged daytime pulse wave velocity improved after RDN ($p < 0.05$). Total vascular resistance decreased by 4.0 %/5.5 %/6.7 % (p for all $<$0.01). In contrast, cardiac output was not altered during follow-up.
Conclusion: In patients with TRH, RDN improves brachial and central ambulatory BP, arterial stiffness and total vascular resistance, indicating an improvement of cardiovascular outcome.