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P1.20: ASSOCIATION OF THE CARDIO-ANKLE VASCULAR INDEX WITH AGE AND SEX IN THE SAPALDIA 3 COHORT STUDY

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almost statistically significant differences (p values ranging from 0.07 and 0.13) could only be recorded consistently in the 40-49 age class concerning PWV/ cSBP/ cPP / AI. Authors discuss the relevance of these findings concerning risk stratification in a Portuguese population with high incidence of stroke.

P1.20

ASSOCIATION OF THE CARDIO-ANKLE VASCULAR INDEX WITH AGE AND SEX IN THE SAPALDIA 3 COHORT STUDY

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Background: The ability to reflect age and sex specific alterations of the vascular system is an essential criterion of an arterial stiffness marker such as the cardio-ankle vascular index (CAVI). So far, there have been few systematic examinations of CAVI in Caucasian populations. Therefore, the association of CAVI with age and sex was studied within the second follow up of the Swiss Cohort Study on Air Pollution and Lung and Heart Diseases in Adults (SAPALDIA 3).

Methods: CAVI was measured using a VaseraVS-1500 vascular screening system (Fukuda Denshi, Tokyo, Japan) in supine position after 15 min of rest. The analysis involved t-tests, correlations and regression models and included 2971 persons aged 50-80 years (1488 males (M), 1483 females (F), 63.4±7.9 yrs) with an ankle brachial index equal to or greater than 0.9.

Results: In both sexes, CAVI increased significantly with age (M: $r=0.65$, $F: r=0.63$; each $p<0.001$) with a mean increment of 0.9 units per decade. CAVI values were higher in males than in females in every age group, statistically significant from 60 years upwards (mean CAVI±SD 50-59yrs M: 7.88±0.89, F: 7.81±0.82, $p=0.19$; 60-69yrs M: 8.84±0.94, F: 8.59±0.91, $p<0.001$; 70-80yrs M: 9.80±1.04, F: 9.47±0.97, $p<0.001$). The sex differences in mean CAVI values increased significantly with age ($p=0.005$).

Conclusion: Our results are consistent with existing findings in Asian study populations and suggest that CAVI represents an age and sex-sensitive measure of atherosclerotic risk also among Caucasians. Further analyses of CAVI will additionally include cardiovascular risk factors such as physical inactivity.

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ARTERIAL DISTENSIBILITY IN YOUNG INDIVIDUALS – COMPARISON OF ARTERIAL DISTENSIBILITY THROUGH THE MEASUREMENT OF PULSE WAVE VELOCITY IN YOUNG SPORTSMEN VERSUS NON-SPORTSMEN

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Withdrawn by the author

P1.22

NON-INVASIVE HAEMODYNAMIC CHARACTERIZATION BY MEANS OF IMPEDANCE CARDIOGRAPHY IN PRIMARY PREVENTION

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Background: Impedance Cardiography (ICG) is a non-invasive method to assess the main haemodynamic parameters: cardiac output, peripheral resistance, cardiac work, and thoracic fluid content. It provides critical information on a wide range of CV conditions, particularly hypertension and heart failure.

Objective: To study haemodynamic patterns in a defined group of patients, according to age and in a non-invasive manner.

Methods: In an observational study we analyzed haemodynamic data of 523 males out of 810 p. on primary prevention studied from DEC2010 to JAN2011. We used an Impedance Cardiograph (Z Logic (R)) following standard procedures. Data were analyzed in three groups: under 40, 40 to 59 and over 60 yrs, using boundaries for Cardiac Index (CI 2,5–4,2 l/min/m²) and Peripheral Vascular Resistance Index (PVRI 1700–2600 dyn.seg.cm⁵.m²).

Results: Baseline data: Age 51 ± 13, SBP 137 ± 22, DBP 82 ± 11 mmHg, HR 62 ± 11 bpm, BMI 27,7 ± 4 kg/m², 63% Hypertensives, 56% Dyslipaemia.

A normal CI/normal or low PVR ratio was observed in 40% of young males, it halved in the 40-60 yrs group and was below 10% in the eldest.

The normal CI/high PVRI ratio was relatively stable, from 15% to 23%.

Finally, the low CI/high PVRI ratio rose from 27% in the young to 59% in adults and 74% in the elder, an indicator of Ventriculo-Arterial uncoupling. (see table)

Conclusion: Impedance cardiography is a non-invasive, cheap, easy-to-use and reproducible method that could provide useful information to take therapeutic decisions with CV patients.

HEMODYNAMIC GROUP	MALES < 40 N= 81	MALES 40 – 59 N= 307	MALES > 60 N= 134
NORMAL CI	33 (40,7 %)	57 (18,6 %)	12 (8,9 %)
NORMAL PVRI OR LOW PVRI			
NORMAL CI HIGH PVRI	19 (23,5 %)	64 (20,8 %)	21 (15,5 %)
LOW CI	22 (27,2 %)	180 (58,7 %)	100 (74,1 %)
HIGH PVRI			
HIGH CI	7 (8,6%)	5 (1,6%)	2 (1,5%)
NORMAL OR LOW PVRI			
LOW CI	0	1 (0,3%)	0
NORMAL PVRI			
Ref: CI: Cardiac Index PVRI: Peripheral Vascular Resistance Index Boundaries: CI: 2,5 – 4,2 l/min/m ² PVRI: 1700 – 2600 dyn.seg.cm ⁵ .m ²			

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CENTRAL AORTIC PRESSURE AND ARTERIAL STIFFNESS PATTERNS ACCORDING TO DRUGS AND GENDER IN HYPERTENSIVE PATIENTS

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Background: Previously we described differences in central pressures and arterial stiffening according to gender and age, which are related to increased risk in elder women (W) and different responses to treatment.

Objectives: To study different arterial stiffness patterns in essential hypertensives (H) according to gender and different antihypertensives.

Methods: We included 564 H from JAN2007 to DIC2010. Inclusion criteria: age >40 and <70, at least 2 CV risk factors and 6 mo. under stable monotherapy with atenolol (ATEN)n:114, amlodipine (AML)n:113, enalapril: (ENL)n:195 or losartan (LOS)n:142. A Control group (C) was also included (131p). All with a rate males/women (M/W) 2/1. Evaluations: BP, cIMT, Plaques, cf PWV, Endothelial Function (EF), Central/Peripheral Pulse Pressure (PPc/PPp) and Augmentation Indexes (Aix c /Aix p). (Hemodyn 4/Arteriograph ®). Statistics: t test, ANOVA, Dunnett $p<0,05$.

Results: (only signif.) Peripheral BP, PP and PWV were higher in H than C. PPc and Aix c were higher in H than in C and in W than in M in every group. Aix p in H, were higher and positive in W and lower and negative in M. PWV was higher in M than W only in H. (table attached)

Conclusion: According to PP and Aix, two patterns: In M a "central stiffness pattern" with lower PPc than PPp, negative Aix p and higher PWV.

In W a "peripheral stiffness pattern" with higher PPc, positive Aix p and lower PWV. This last pattern could be related with the increased risk in elder W and was not corrected by treatment.