P1.03: ALDOSTERONE ANTAGONISTS REVERSE EFFECTS OF CARDIOTONIC STEROIDS ON VASCULAR ELASTICITY AND COLLAGEN SYNTHESIS

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Poster Presentation Abstracts

P1 — Epidemiology

P1.01 ASOCIATION OF CAROTID STRAIN AND PRIOR RISK OF CARDIOVASCULAR DISEASE - RESULTS FROM THE SWISS AIR POLLUTION AND LUNG AND HEART DISEASE IN ADULTS COHORT STUDY (SAPALDIA3)  
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Objective: Our aim was to evaluate a prior risk of cardiovascular disease (CVD) and the impact of air pollution on carotid strain in 163 participants from the SAPALDIA3 study. Methods: The participants included 163 (56±10 yrs, mean±SD) inpatients with clinical indication for coronary angiography. The 15% of participants showed normal coronary arteries by angiography (G1), 33% had a significant coronary stenosis (G2) and 52% had coronary artery disease without stenosis (G3). Results: The differences of carotid strain (e) between groups were 7.27 vs 6.43, 7.36 vs 6.27 and 7.36 vs 6.55, respectively. The differences were statistically significant (p<0.001) between G1 and G2, while G3 showed similar pattern with respect to G2. Conclusions: There was an association between prior risk of CVD and carotid strain. The risk of CVD could be estimated by carotid strain.

P1.02 ACTIVE PREVENTION STUDY: ATHEROSCLEROSIS CAROTID-CORONARY INVESTIGATION BY ECHOGRAPHY  
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Objective: The objective of this study was to assess the ability of carotid artery stiffness to predict the presence of coronary artery disease (CAD). Methods: The study included 163 patients with a clinical indication for coronary angiography. The participants were divided into three groups: G1 (controls), G2 (patients with significant coronary stenosis) and G3 (patients with more than 5% risk of CAD). Results: The differences of carotid strain (e) between groups were 7.27 vs 6.43, 7.36 vs 6.27 and 7.36 vs 6.55, respectively. The differences were statistically significant (p<0.001) between G1 and G2, while G3 showed similar pattern with respect to G2. Conclusions: There was an association between prior risk of CVD and carotid strain. The risk of CVD could be estimated by carotid strain.
P1.04 PREDICTORS OF VASCULAR AGE IN A POPULATION WITH CARDIOVASCULAR RISK FACTORS

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Background: We aimed at evaluating determinants of the vascular age.

Material and Methods: 187 subjects [86 M and 101 W] with CV risk factors were classified into three categories of the Framingham CV Risk (FR). Their mean carotid intima media thickness (CIMT) and arterial stiffness (a.s.) parameters were assessed. The VA was calculated from the CIMT according to the nomograms from the ARIC Study. The subjects were divided into two groups: 1- VA exceeds the chronological age (CA) for at least 5 years and 2- others.

Results: The VA > the CA in M and W (M: 68.5 vs 52.4, p < 0.001; W: 67.1 vs 55.0, p < 0.001). No relationship between the FR category and classification to group 1 or 2 was observed. In both sexes diabetes mellitus (DM) (M: OR 3.10, 95% CI 1.28 – 7.50, p < 0.05; W: OR 4.40, 95%CI 1.85 – 10.47, p < 0.001) and additionally in W BMI > 25 kg/m2 (OR 5.87, 95%CI 2.15 – 15.99, p = 0.009) differentiated group 1 from group 2. Increased j (9.36 vs 7.77, p = 0.005) and Ep (131.9 vs 110.1, p < 0.05) in M and Ep (132.3 vs 106.5, p < 0.05) in W distinguished group 1 from group 2. In the multivariate analysis, DM and elevated BMI in W and DM and increased j in M were proved to be independent predictors of VA > CA.

Conclusions: FR categories did not allow for prediction if the VA > CA. DM appeared as the strongest predictor of the VA > CA.

P1.05 SEDENTARY LIFESTYLE IS ASSOCIATED WITH INDICES OF ARTERIAL STIFFNESS, DIASTOLIC DYSFUNCTION AND OBESITY

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The aim of the present study was to examine the relationship between weekly physical activity patterns, obesity and early sub-clinical cardiovascular dysfunction.

For this study, 84 healthy lifelong non-smoking, normotensive subjects (54 male & 30 female) were recruited (age 39±11 years, BMI 25.2±3.3 kg/m²). Weekly physical activity levels were objectively measured over a five day period using triaxial accelerometer (RT3, Stayhealthy, USA). Activity data was categorized as relative time spent being sedentary, lightly active, moderately active and vigorously active. Body fat composition was estimated using bioelectrical impedance (TBF410GS, Tanita, UK). Augmentation index (Aix, Sphygmocor, Skidmore Medical, UK) and pulse wave velocity (PWV, Vicorder, Skidmore Medical, UK), indices of arterial stiffness, were measured using applanation tonometry. Early/late mitral valve filling velocity (MV E/A) was used to assess cardiac diastolic function (Vivid 7 Dimension, GE, USA).

Mean Aix, PWV, MV E/A ratio, body fat composition were 13.43±14.32 %, 6.79±0.93 m/s, 5.11±13.23 and 24.54±7.70 %. Spearman's correlation analysis identified significant correlations between relative time spent being sedentary and Aix r = -0.284 p < 0.0054, PWV r = 0.2174 p < 0.0017. Mean E/A ratio r = -0.3541 p < 0.027 and % body fat r = 0.3440 p < 0.0017. The results of the study show that people who spend more time being sedentary have greater body fat, greater arterial stiffness and poorer diastolic function. These observations have important implications for public health.


P1.06 IS IMPAIRED FASTING GLUCOSE ASSOCIATED WITH SUBCLINICAL ARTERIAL DISEASE? THE STRONG HEART STUDY

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Background: Vascular disease is a leading cause of morbidity and mortality in diabetes mellitus (DM). It is uncertain whether pre-diabetes (impaired fasting glucose [IFG]) increases risk for subclinical vascular disease.

Methods: Cardiovascular disease (CVD) risk factors and carotid artery structure (wall thickness [IMT] and vascular mass) and presence and extent of atherosclerosis were compared in 2461 Strong Heart Study participants free of prevalent CVD: 1038 with normal fasting glucose (NFG), 254 with IFG (110-125 mg/dl), and 1169 with DM.

Results: Participants with IFG were more obese and had lower HDL cholesterol than those with NFG but were comparable in other CVD risk factors. Participants with DM were more likely to be female, hypertensive, non-smoking, and to have higher triglycerides than the other two groups. Following adjustment for differences in CVD risk factors, DM had greater carotid IMT (0.75 mm), mass (16.38 mm²) and presence (69.1%) and extent (log transformed plaques: score: 0.78) of atherosclerosis compared to NFG and IFG. NFG and IFG had comparable adjusted IMT (0.73 vs. 0.73 mm), arterial mass (15.51 vs. 15.67 mm²), plaque (58.8 vs. 58.5 %) and plaque score (0.64 vs. 0.66).

Conclusions: Other than elevated fasting glucose, the distinguishing features of IFG are obesity and reduced HDL cholesterol (comparable to DM). Greater degrees of arterial hypertrophy and atherosclerosis are seen in DM but not IFG. These findings have implications for public health efforts to identify individuals with IFG and intervene to limit progression to the vascular disease associated with DM.