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P1.02: ACTIVE PREVENTION STUDY: ATHEROSCLEROSIS CAROTID-CORONARY INVESTIGATION BY ECHOGRAPHY

C.F. Cesana, S.F. Soriano, C.P. Campadello, C.P. Canova, F.R. Facchetti, F.I. Faggiano, M.G.F. Mureddu, G.N. Gaibazzi, C.S. Carerj, M.M.L. Muiesan, R.F. Rigo, M.A. Moreo, C.G. Giannattasio

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Poster Presentation Abstracts

P1 – Epidemiology

P1.01

ASSOCIATION 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)

S. Caviezel¹, J. Dratva^{2,3}, E. Schaffner², C. Schindler^{2,3}, N. Probst-Hensch^{2,3}, N. Künzli^{2,3}, J. M. Gaspoz⁴, T. Rochat⁵, A. Schmidt-Trucksäss¹

¹Institute of Exercise and Health Sciences, Div. Sports Medicine, University of Basel, Basel, Switzerland

²Swiss Tropical- and Public Health-Institute, Basel, Switzerland

³University of Basel, Basel, Switzerland

⁴Department of Community Medicine and Primary Care, University Hospitals of Geneva, Geneva, Switzerland

⁵Division of Pulmonary Medicine, University Hospitals of Geneva, Geneva, Switzerland

Increasing carotid stiffness is associated with an ascending atherosclerotic risk and cardiovascular events. Therefore early risk detection can prevent stroke and myocardial infarction

We analyzed ultrasound clips of average strain over a standardized 1cm-segment over at least one heart cycle in 1929 participants of the SAPALDIA3 cohort study (mean 62.4(8.2) years, range 50-81 years, 41.2% men). Strain was defined as cyclic deformation of lumen diameter expressed in percent change. Furthermore we assessed the risk of cardiovascular disease with the European Systematic Coronary Risk Evaluation (SCORE) based on data from SAPALDIA2 in 2002 and divided the SCORE into three categories (G1: risk of 1% or less, G2: risk of 2 to 4%, G3: risk of more than 5%). The association between strain and this categorical risk measure was assessed using multiple linear regressions, with and without additional adjustment for sex, age and brachial pulse pressure (PP). Results are expressed as adjusted means with 95%-confidence intervals.

Mean strain was 7.22(7.13, 7.31) in G1, 6.43(6.31, 6.55) in G2 and 5.64(5.39, 5.89) in G3, these differences being statistically significant ($p < 0.001$). The difference still existed when strain was adjusted for current PP (G1: 7.27(7.17, 7.36), G2: 6.34(6.21, 6.46), G3: 5.41(5.14, 5.67)) or sex (G1: 7.24(7.14, 7.33), G2: 6.39(6.26, 6.52), G3: 5.54(5.27, 5.80)). After adjustment for age (G1: 6.97(6.88, 7.07), G2: 6.91(6.77, 7.05), G3: 6.85(6.55, 7.16)) there was no significance between the different risk groups anymore. The present data suggest that prior risk assessment can predict strain, but current age seems to be a stronger predictor.

P1.02

ACTIVE PREVENTION STUDY: ATHEROSCLEROSIS CAROTID-CORONARY INVESTIGATION BY ECHOGRAPHY

C. F. Cesana¹, S. F. Soriano¹, C. P. Campadello¹, C. P. Canova¹, F. R. Facchetti¹, F. I. Faggiano^{2,8}, M. G. F. Mureddu^{3,8}, G. N. Gaibazzi^{4,8}, C. S. Carerj^{5,8}, M. M. L. Muiesan^{6,8}, R. F. Rigo^{7,8}, M. A. Moreo^{1,8}, C. G. Giannattasio^{1,8}

¹Cardiology IV Unit, Niguarda Hospital and Milano-Bicocca University, Milano, Italy

²Cardiology Department, Spedali Civili di Brescia, Brescia, Italy

³Cardiology Department, Ospedale S. Giovanni, Roma, Italy

⁴Cardiology Department, Azienda Ospedaliera-Universitaria, Parma, Italy

⁵Internal Medicine Department, Messina University, Messina, Italy

⁶Clinical Medicine Division, Spedali Civili and Brescia University, Brescia, Italy

⁷Cardiovascular Department, Ospedale dell' Angelo, Mestre-Venezia, Italy

⁸On behalf of Apres Collaborative Group, Milano, Italy

Objective: Currently, patients are sent to coronary angiography based on clinical presentation, positive exercise testing and assessment of global cardiovascular risk with particular emphasis on early detection of organ damage. Aim of our study was to evaluate the potential of a complete vascular ultrasound examination to estimate the actual presence of plaque on coronaries.

Design and method: In 163 in-patients with a clinical indication for coronary angiography (CA), we obtained: blood pressures (BP), creatinine (Cr) and glycaemia (G) values, a complete transthoracic echocardiography with measure of Doppler velocity in proximal anterior descending coronary (vLAD), and carotid IMT and PWV (Esote gold 70). We then divided the group in G1 (N=96) (patients with at least one significant coronary stenosis), and G2 (N=67) (unaffected coronaries).

Results: G1 and G2 had similar ages (66 ± 11 vs 65 ± 10 yrs, means $\pm$ SD), BMI (26 ± 4 vs 27 ± 4 g/m²) and diastolic BP (80 ± 10 vs 78 ± 9 mmHg, $p = \text{NS}$), while G1 showed higher systolic BP (135 ± 20 vs 127 ± 17 mmHg, $p < 0.05$), blood G (119 ± 42 vs 104 ± 35 mg/dl, $p < 0.05$), Cr (1.04 ± 0.48 vs 0.85 ± 0.17 mg/dl, $p < 0.01$), carotid IMT (811 ± 163 vs 711 ± 153 μ m, $p < 0.001$), carotid PWV (10 ± 2.6 vs 8.87 ± 2.39 , $p < 0.05$), and vLAD (64 ± 38 vs 41 ± 10 cm/sec, $p < 0.0001$). The variables that showed a correlation with the number of affected vessels were: blood G ($r = 0.21$, $p < 0.01$), Cr ($r = 0.23$, $p < 0.005$), IMT ($r = 0.25$, $p < 0.01$), and vLAD ($r = 0.4$, $p < 0.0001$).

Conclusions: These preliminary results suggest that peripheral artery structure and function assessed non invasively are representative of coronary status. Moreover transthoracic Doppler flow assessed on proximal LAD is well correlated with the presence and the number of affected coronaries. A complete ultrasound and clinic evaluation help in the decision making process of the coronary patient.

P1.03

ALDOSTERONE ANTAGONISTS REVERSE EFFECTS OF CARDIOTONIC STEROIDS ON VASCULAR ELASTICITY AND COLLAGEN SYNTHESIS

A. O. Konradi¹, Y. N. Grigorova¹, K. A. Bagrov¹, A. V. Fadeev¹, I. V. Emelianov¹, O. V. Fedorova², A. Y. Bagrov²

¹Amlazov Federal Heart Blood and Endocrinology Centre, St. Petersburg, Russian Federation

²National Institute on Aging, NIH, Baltimore, United States

Endogenous cardiotonic steroids (CS), including marinobufagenin (MBG) stimulate vascular synthesis of collagen. Because aldosterone antagonists competitively antagonize effect of CS on the Na/K-ATPase (NKA) (Hypertension 2010;56:914-9), we hypothesized that aldosterone antagonists would reverse the pro-fibrotic effects of MBG.

Explants of thoracic aortae from Wistar rats were cultured for 24 hours in the presence of vehicle or MBG (100 nmol/L) with or without 1 μ mol/L canrenone, an active metabolite of spironolactone. In 8 male patients (56 $\pm$ 1 yrs) with resistant hypertension (RH) on a combined (lisinopril/amlodipine/hydrochlorothiazide) therapy we measured arterial stiffness