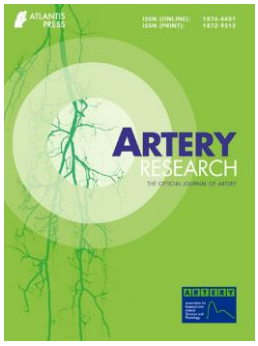

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P4.8: ASSOCIATIONS OF MID-LIFE CARDIOVASCULAR RISK FACTORS WITH LATER LIFE COGNITIVE FUNCTION

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Results: After a median of 7.7 [IQR 7.0-8.1] years of follow up, 130 CVD events and 93 deaths were recorded. CWS was 31.7, 31.5 and 34.4 kPa in NGM, IGM and T2D, respectively (Ptrend= 0.06). Greater CWS was associated with incident CVD in T2D only (hazard ratio(95%CI) per SD increase in CWS for NGM: 0.92 (0.70-1.21); IGM: 1.02 (0.66-1.58) and T2D 1.52 (1.09-2.14), after adjustment for age, sex, height and other CVD risk factors.. No associations were observed between CWS and all-cause mortality.
Conclusion: T2D is associated with greater CWS compared to NGM and IGM. Greater carotid CWS is associated with incident CVD in T2D but not in NGM or IGM.

P4.7
PLASMA COPPER AND CERULOPLASMIN IN RELATION TO CAROTID-FEMORAL PULSE WAVE VELOCITY

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Copper participates in the redox mechanisms and is a cofactor of enzymes responsible for appropriate structure of elastic fibres. The aim of the study was to assess the relationship between plasma copper as well as ceruloplasmin concentrations and carotid-femoral pulse wave velocity (cfPWV).
The study group, recruited from the population-based family study, included 138 parents (age 61.5±7.9 years, 57M/81F, 80.4% hypertensives) and 165 offspring (mean age 34.8±8.4 years, 79M/86F, 32.7% hypertensives).
Information about each participant's clinical data were collected with the use of standardized questionnaires. The cfPWV was measured by Micro-Tip pressure transducer (Model SPT-301, Millar Instruments, Houston, Texas, USA) and the SphygmoCor system (ver. 6.31 AtCor Medical Pty., Ltd., Australia). The plasma copper concentration was determined by ICP-MS (Inductively Coupled Plasma Mass Spectrometry) and plasma ceruloplasmin concentration by ELISA test. Database management and multivariate analyses were performed with SAS software (SAS Institute, Cary, NC, version 9.3).
The average values of plasma levels were: copper (male 620.4±229.7μg/l, female 740.9±339.3μg/l); ceruloplasmin (male 612.6±221.6μg/ml, female 766.7±337.0μg/ml).
With adjustments applied for age, sex, cholesterol level, fasting glucose, body height, use of antihypertensive drugs, smoking and alcohol intake, we observed a positive correlation between the cfPWV and plasma copper concentration (0.00074±0.0003, p=0.011) as well as plasma ceruloplasmin concentration (0.0007±0.0003; p=0.0095).
In our study group, higher plasma copper and ceruloplasmin concentrations were related to higher cfPWV. The excess body copper might contribute to the lower antioxidant status and arterial stiffening.

P4.8
ASSOCIATIONS OF MID-LIFE CARDIOVASCULAR RISK FACTORS WITH LATER LIFE COGNITIVE FUNCTION

Chloe Park [1,*], Therese Tillin [1], Robert Stewart [2], Nish Chaturvedi [1], Alun Hughes [1]
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Background: Mid-life cardiovascular risk factors may be detrimental to cognitive function in later life; however results are inconsistent. We investigated the impact of mid-life blood pressure, glucose, cholesterol and obesity on cognitive function.
Methods: In a community based sample aged 49.6±6years: waist-to-hip ratio (WHR), fasting blood glucose, HDL cholesterol and blood pressure were measured. 20 years later 1284 of these individuals underwent cognitive function testing to assess global function, executive function, memory and attention. Data are β±SE, *$p<0.05$, **$p<0.01$.
Results: After adjusting for age, sex, ethnicity, years of education and smoking no associations were found between cognitive function and mid-life glucose or blood pressure measures. Lower mid-life WHR and higher HDL cholesterol levels were significantly associated with better scores in all cognitive domains. Per unit increase in WHR: Global function -1.45±0.3**; Executive function -1.82±0.3**; Memory -1.27±0.3** and Attention -1.23±0.03**. Per mmol/L increase in HDL: Global function 0.19±0.06**; Executive function 0.13±0.06**; Memory 0.14±0.06** and Attention 0.17±0.05*. These associations remained after further adjustment for current concomitant risk factors: diabetes, hypertension, previous stroke, coronary artery disease and current WHR/ HDL (WHR: Global function -1.05±0.4**; Executive function -2.2±0.4**; Memory -1.1±0.4** and Attention -1.15±0.4**. HDL: Global function 0.20±0.07**; Executive function 0.15±0.07**; Memory 0.19±0.07** and Attention 0.15±0.07*).
Discussion: Elevated WHR and lower HDL cholesterol in mid-life are significant risk factors for cognitive decline 20 years later. These mid-life risk factors have effects independent of current risk factors and may be important targets for prevention of cognitive decline in later life.

P4.9
ENDOTHELIN-1 IS LINKED WITH ARTERIAL STIFFNESS AND INTERLEUKIN-6 IN BLACK SOUTH AFRICAN WOMEN: THE SABPA STUDY

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Up-regulation of ET-1 activates inflammatory cells such as macrophages that release pro-inflammatory mediators such interleukin-6 which promote vascular inflammation and endothelial dysfunction, leading to arterial stiffness.
Included in this study were 194 black and 197 white South-Africans. Cardiovascular variables were recorded using the Finometer and the Compliar. ET-1 and interleukin-6 were determined by recognized biochemical methods.
The participants were divided into black and white men and women due to significant interactions of ethnicity ($F(391) = 6.78$; $p < 0.001$) and gender ($F(391) = 2.39$; $p < 0.05$) on the association of ET-1 with systolic blood pressure.
No significant difference in ET-1 levels between black and white groups emerged. Black men and women had higher blood pressure and pulse wave velocity in comparison to white men and women ($p < 0.05$). C-reactive protein and interleukin-6 were higher in the black groups compared to the white group (all $p < 0.05$). A positive correlation (single) existed between ET-1 and interleukin-6 ($r = 0.27$; $p = 0.007$), systolic blood pressure ($r = 0.27$; $p = 0.008$), pulse pressure ($r = 0.25$; $p = 0.014$) and pulse wave velocity ($r = 0.23$; $p = 0.026$) in black women. After partial adjustments for BMI and GGT the correlation remains. With forward stepwise multiple regression ET-1 associated with interleukin-6 (adj.R^2= 0.13, β=0.278, P=0.005) and measures of arterial stiffness.
ET-1 independently associated with systolic blood pressure, pulse pressure and interleukin-6 in black women. Our results suggest that adverse endothelial function is potentially driven by pro-inflammation.

P4.10
ASSOCIATION OF ARTERIAL STIFFNESS WITH BLOOD PRESSURE VARIABILITY

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Increase of arterial stiffness is an independent predictor of cardiovascular morbidity and mortality. Short term blood pressure (BP) variability is recognised as a marker and a risk factor for cardiovascular complications. The study aims to determine the relation between arterial stiffness and short -term variability in general population.
Methods: We recruited 303 subjects (55.12% Female). Short-term BP variability was calculated as the standard deviation (SD) of 24-hour, daytime, or nighttime BP, and as weighted SD of 24-hour BP defined as the mean of daytime and nighttime BP SD weighted by the duration of each time period. Carotid — femoral pulse wave velocity (PWV) were evaluated by means of pulse wave analysis.
Results: In the study group the SD of day- and nighttime Systolic BP (SBP), SD of 24-hour SBP and weighted SD of 24-hour SBP showed an significant association with PWV ($P<0.003$). Abovementioned SBP variability indices except SD of night SBP independently predicted PWV along with age, gender, 24-hour SBP and antihypertensive treatment. None of the examined measures of diastolic BP variability had a relation with carotid-femoral PWV.