P.073: LONGITUDINAL DEVELOPMENT OF WAIST AND HIP CIRCUMFERENCES: INDEPENDENT AND OPPOSITE ASSOCIATIONS WITH PRE-CLINICAL ATHEROSCLEROSIS. THE AMSTERDAM GROWTH AND HEALTH LONGITUDINAL STUDY

I. Ferreira, J.W. Twisk, C.D. Stehouwer

Teaching Hospital, Budapest, Hungary, [2]1st Department of Medicine, Semmelweis University, Budapest, Hungary

Arterial stiffness is an independent predictor of cardiovascular morbidity and mortality in hemodialysis (HD) patients. Determinants of arterial stiffness and its change during HD are not well characterized, and it is not known if parameters of calcium-phosphate metabolism predict arterial wall properties.

We measured carotid-femoral pulse wave velocity (PWV) and carotid augmentation index (AI) before and after HD in 96 chronic HD patients using the PulsePen device. Detailed medical history was taken and blood drawn for routine biochemistry before and after HD. Determinants of PWV and AI and their corresponding changes during HD were assessed by stepwise forward multivariate linear regression models.

Mean pre- and postdialysis PWV was 11.0 ± 2.9 and 11.6 ± 2.9 m/s (P=0.004) respectively. Mean pre- and postdialysis AI was 23.5 ± 12.2 and $22.1 \pm 12.4\%$ (P=NS). Significant and independent predictors of predialysis PWV (R for the whole model =0.79) were higher age, systolic blood pressure and CRP level, lower serum sodium level, and the presence of peripheral artery disease. Predictors of predialysis AI (R=0.42) were higher systolic blood pressure and higher time averaged creatinine value. The increase in PWV during dialysis was independently associated (R=0.53) with lower predialysis PWV, higher baseline heart rate, higher urea level and systolic blood pressure change during dialysis. Change in AI during dialysis was significantly and negatively associated (R=0.55) with predialysis AI and the heart rate change during dialysis.

Our results confirm previously described predictors of PWV and AI. Parameters of calcium-phosphate metabolism do not seem to influence arterial stiffness before or after dialysis. The relation of serum sodium level to predialysis PWV may imply volume overload that is to be explored.

P.071
METABOLIC SYNDROME DEFINITIONS AND VASCULAR PHENOTYPE

E.A. Ellins [1], A.E. Donald [1], E. Brunner [2], D. Witte [2], M. Shipley [2], S. O'Meagher [1], J.E. Deanfield [1], J.P. Halcox [1]. *[1]Institute of Child Health, UCL, London, United Kingdom, [2]Department of Epidemiology and Public Health, UCL, London, United Kingdom*

Background: The increasing prevalence of obesity has recently become a major public health concern. Controversy has arisen regarding how best to characterise this risk with several definitions of a ''metabolic syndrome'' (MS) proposed to identify those at greatest risk. Controversy has arisen regarding the ability of these definitions to predict cardiovascular risk. We assessed the relationship between MS criteria and arterial phenotype in a large population based cohort.
Methods: 3437 British civil servants aged 51-74 who were free from clinical cardiovascular disease and diabetes mellitus were studied (Whitehall II study). RFs were measured and carotid intima-media thickness (cIMT) assessed. Participants were categorised into 3 groups according to IDF and ATP_{III} criteria; Groups 1 (no MS; n=2712); 2 (MS by IDF criteria only; n=349); 3 (MS by ATP_{III} only or both ATP_{III} and IDF criteria; n=376).
Results: cIMT was increased in groups 2 and 3 compared to controls (both p<0.001). These differences remained after adjusting for other RFs. Groups 2 and 3 had similar cIMT. In addition, non obese participants with one or more MS risk factors (defined by IDF criteria) had significantly greater cIMT compared to controls (p<0.001), an association that remained after further adjustment for RFs.
Conclusion: MS, defined by both ATP_{III} and the recent IDF criteria, identifies a population with increased cIMT. However, we also show that restricting the diagnosis of MS to those with abdominal obesity, as recommended by the IDF, may miss an important population with MS risk factors who have an adverse vascular phenotype.

P.072
PARENTAL SMOKING AND VASCULAR DAMAGE IN YOUNG ADULT OFFSPRING: IS EARLY LIFE EXPOSURE CRITICAL? THE ATHEROSCLEROSIS RISK IN YOUNG ADULTS STUDY

C.C. Geerts, D.E. Grobbee, M.L. Bots, C.S.P. Uiterwaal. *University Medical Center Utrecht, Utrecht, Netherlands*

Background: little is known of the consequences of tobacco smoking in pregnancy for cardiovascular risk in offspring.

Objectives: To estimate the association between foetal tobacco smoke exposure and vascular damage in young adulthood.
Participants: A birth cohort of 732 young adults born between 1970-1973.
Measures: Registered pregnancy and birth data, anthropometry and cardiovascular risk profiles in young adulthood, including ultrasound measurement of common carotid artery intima-media thickness (CIMT). Pregnancy and current smoking habits data of parents were obtained by standardized questionnaires.
Results: Twenty nine percent of the mothers reported to have smoked during their pregnancy. Adult offspring of mothers who smoked had 13.4 μm thicker CIMT (95% CI: 5.5, 21.3; p=0.001) than offspring of mothers who did not smoke in pregnancy. Adjustment for known CIMT risk factors (participant's age, gender, BMI, pulse pressure, and LDL-cholesterol) did not abolish this estimate (9,4 μm, 95% CI: 1.9, 16.3; p=0.01). Similarly, adjustment for current smoking of parents did not change the association (10.6 μm, 95% CI: 0.4, 20.8; p=0.04) nor did adjustment for participants' current smoking (yes/no) and pack-years (11.5 μm, 95% CI: 3.5, 19.4; p=0.004). Offspring of parents who both smoked in pregnancy had thicker CIMT than offspring with one or no smoking parent (p linear trend <0.0001), and offspring of particularly mothers who smoked an above median number of cigarettes in pregnancy had thicker CIMT than those smoking less than median or no cigarettes (p linear trend <0.0001).
Conclusion: Permanent vascular damage due to tobacco smoke exposure is initiated in gestation.

P.073
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I. Ferreira [1], J.W. Twisk [2], C.D. Stehouwer [1]. *[1]Dept. Internal Medicine, University Hospital Maastricht, Maastricht, Netherlands, [2]Dept. Clinical Epidemiology and Biostatistics, VU University Medical Centre, Amsterdam, Netherlands*

Introduction: Anthropometric measures of body fat distribution have shown that waist (WC) and hip (HC) circumferences have opposite and independent associations with atherosclerotic risk factors and disease. However, this evidence is confined to cross-sectional studies only. How the development over time of these anthropometric measures impact on pre-clinical atherosclerosis is not known.
Methods: Longitudinal data on WC and HC were derived from the Amsterdam Growth and Health Longitudinal Study (n=372, 197 women; 3 follow-up measures at the ages of 27, 32 and 36 yrs). Carotid intima-media thickness (IMT), a marker of pre-clinical atherosclerosis, was assessed by non-invasive ultrasonography when subjects were 36-yrs-old. We used generalized estimating equations to compare the patterns of development of WC and HC (adjusted for each other and for potential confounders − i.e. physical fitness, alcohol and smoking habits) over the 9-yr follow-up period between those subjects with 'high' (highest sex-specific quartile) vs. 'normal' (lower 3 quartiles) of carotid IMT at the age of 36 yrs.
Results: In men, WC increased and HC decreased significantly between the ages of 27 and 36 (p<0.001), but no differences in these longitudinal patterns of development were found between those with 'high' vs. normal carotid IMT at age 36. In women, however, the increase in WC was 3.47 cm (0.98 to 5.96) greater in those with 'high' vs. 'normal' IMT; in addition, the HC decreased considerably more in those with 'high' vs. 'normal' IMT [-3.60 cm (-6.54 to -0.65].
Conclusion: The development of broader waist (possibly reflecting accumulation of abdominal fat throughout the years) and narrower hip circumferences (reflecting loss of peripheral fat and/or muscular mass) during young adulthood are independent determinants of pre-clinical atherosclerosis, particularly in women.

P.074
EFFECT OF SMOKING ON ARTERIAL STIFFNESS IN PATIENTS WITH WHITE COAT HYPERTENSION

S-M. Kyvelou, C. Vlachopoulos, G. Vyssoulis, P. Pietri, P. Spanos, K. Baou, P. Xaplanteris, C. Stefanadis. *Athens Medical School, Hippokration Hospital, Athens, Greece*

Background: Patients with essential hypertension have higher arterial stiffness indices, while smoking is related to a stiff vascular tree. However,