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### **P3.15: ARTERIAL STIFFNESS IN NON-HYPERTENSIVE GHANAIAN SUBJECTS WITH TYPE 2 DIABETES**

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after adjustment for age, sex and BMI (Table). Other ethnic differences in arterial waveform parameters and morphologies will be reported, including those derived from reservoir wave analysis. In conclusion, arterial function varies across ethnic groups. Longitudinal analyses will be carried out after 4 years follow-up to determine if arterial waveform measures predict cardiovascular disease incidence.

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### P3.12 PULSE WAVE VELOCITY AND DIABETES DURATION IN TYPE 2 DIABETES MELLITUS

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Type 2 diabetes mellitus (T2DM) duration is related to early vascular aging and diabetic complications. Aortic stiffness is considered an integrated marker of the combined effect of cardiovascular risk factors, and could represent one of the links between diabetes and cardiovascular disease. To our knowledge, no study has been carried out to specially look at the relationship between aortic stiffness and T2DM duration. 618 patients (259 men) attending the Department of Internal Medicine of Tizi Ouzou Hospital (Algeria) underwent medical examination. Anthropometric, clinical and biological data were sampled; brachial blood pressure was measured, and aortic stiffness assessed from pulse wave velocity (PWV) was obtained. Diabetes duration collected from date of 1<sup>st</sup> diagnostic and analyzed by tertiles (<2 years; 2-9 years; >9 years). From lower to higher tertile of diabetes duration, age, brachial blood pressure and PWV increased, while diabetes control and renal function worsened (all  $p < 0.01$ ). After adjustment for age and blood pressure, microalbuminuria or insulin therapy, PWV was still higher in the higher duration tertile compare to the other 2. However the difference in PWV was negligible after adjustment between the 2 lowest duration tertile. Diabetes duration is an important and independent determinant of PWV in type 2 diabetics. This is mainly true for higher durations, reflecting diabetes specific contributions to accelerated vascular stiffening. Furthermore, with aging, physiopathology of arterial stiffness involves other mechanisms that overwhelm diabetes duration.

### P3.13 ASSOCIATIONS OF CENTRAL AND PERIPHERAL PULSE PRESSURE WITH HEART STRUCTURE, SYSTOLIC AND DIASTOLIC FUNCTION IN ADOLESCENCE: FINDINGS FROM A GENERAL POPULATION COHORT

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**Background:** In adults central blood pressure has stronger associations with cardiovascular outcomes than peripheral blood pressure, with some evidence that this difference is greater in mid- than older-aged adults. The relationship of central blood pressure to cardiovascular structure and function in adolescence is unclear.

**Aim:** To compare associations of central and peripheral pulse pressure (PP) with cardiac structure and left ventricular function in a general population of adolescents.

**Methods:** 1,421 (17y; 45% males) participants in the Avon Longitudinal Study of Parents and Children had measurements of peripheral and central blood pressure using Omron705 IT and Sphygmocor devices and echocardiography using a HDI 5000 ultrasound system.

**Results:** Central to peripheral amplification was 21 mmHg (95% CI: 20, 21). Central and peripheral PP were positively associated with left ventricular mass index (LVMI), mitral E/A ratio, left atrial size and inversely associated with  $s'$  even when adjusting for age, sex, DEXA determined fat mass and physical activity (Table 1); with consistently greater associations noted

for cPP. Neither central nor peripheral PP were associated with relative wall thickness, midwall fractional shortening, ejection fraction  $e'$  or  $E/e'$ . **Conclusions:** Central PP is more strongly associated with measures of cardiac structure and function than peripheral PP in adolescence. Previous studies are likely to have underestimated the effect of PP on cardiac structure and function in children and adolescents based on peripheral measurements.

### P3.14 Withdrawn by author

### P3.15 ARTERIAL STIFFNESS IN NON-HYPERTENSIVE GHANAIA SUBJECTS WITH TYPE 2 DIABETES

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**Background:** Limited data exists on arterial stiffness in sub-Saharan Africa where diabetes and cardiovascular diseases are increasing rapidly. We aimed to compare the indices of arterial stiffness among type 2 diabetes (T2DM) and non-diabetes subjects (NDM), without hypertension, in Ghana. **Method:** Thirty eight T2DM patients and 34 NDM volunteers (as screened by OGTT), between the ages of 40-70 years, were randomly recruited, with no history of antihypertensive medication and supine blood pressure (BP) < 140/90 mmHg. Weight, height and waist circumference (WC) were measured. Indices of arterial stiffness, pulse wave velocity (PWV), aortic systolic blood pressure (ASBP), and aortic augmentation index (AAIx) were measured with Arteriograph (Tensiomed, Hungary). The Cardio-Ankle Vascular Index (CAVI) & derived PWV were measured with the 4-cuff Vasera 1500 (Fukuda-Denshi, Tokyo, Japan) supine after 10 minutes rest in a temperature-controlled room.

**Results:** There was no difference in the gender distribution ( $p=0.6$ ), mean age ( $p=0.2$ ), BMI ( $p=0.07$ ) and WC ( $p=0.4$ ) between T2DM and NDM subjects. Also, mean ( $\pm$ SD) brachial systolic (124.9 $\pm$ 9.6 vs. 121.9 $\pm$ 10.0,  $p=0.3$ ) and diastolic (74.3 $\pm$ 7.6 vs. 71.22 $\pm$ 9.7,  $p=0.6$ ) BP did not differ between T2DM and NDM, respectively. However, T2DM subjects had slightly higher PWV (8.2 $\pm$ 1.1 vs 7.1 $\pm$ 0.98,  $p=0.048$ ), CAVI (7.76 $\pm$ 1.12 vs. 6.73 $\pm$ 0.66,  $p=0.042$ , but lower AAIx (19.3 $\pm$ 10.4 vs. 27.7 $\pm$ 15.1,  $p=0.02$ ), respectively. There was no difference in ASBP between T2DM and NDM subjects (116.7 $\pm$ 11.7 vs. 117.5 $\pm$ 12,  $p=0.8$ ).

**Conclusion:** In the Ghanaian setting, T2DM may have a greater impact on indices of arterial stiffness in the absence of overt arterial hypertension.

### P3.16 CARDIO ANKLE VASCULAR INDEX (CAVI) IS AN INDEPENDENT PREDICTOR OF CARDIOVASCULAR EVENTS IN 1000 PATIENTS

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**Objects:** Recently, a novel arterial stiffness parameter called cardio-ankle vascular index (CAVI) has been developed. This study was conducted in order to elucidate the predictive value of CAVI for future cardiovascular events in 1000 persons.

**Subjects and methods:** A total of 1,000 outpatients (513 males and 487 females, mean age 63 $\pm$ 11 years), who had the examination of CAVI between 2004 and 2006 at the center of diabetes, endocrinology and metabolism, Sakura hospital were included and followed up for 6.7 $\pm$ 1.6 years. Those had diabetes mellitus (51.0%), hypertension (52.4%) or/and dyslipidemia (62.5%). CAVI was measured using Vasela1500 (Fukuda Denshi. Co.LTD).

**Results:** New-onset cardiovascular events were observed in 9.0%. In subjects with cardiovascular events, lower HDL-C and higher CAVI (9.9 $\pm$ 2.0 vs. 9.2 $\pm$ 1.6), mean age, prevalence of hypertension, diabetes and smoking were observed. COX regression model revealed that CAVI independently increased the risk of cardio vascular events with OR of 1.13 (95% CI 1.007-