P107: RENAL DENERVATION IMPROVES 24-HOUR CENTRAL AND PERIPHERAL BLOOD PRESSURES, ARTERIAL STIFFNESS AND PERIPHERAL RESISTANCE

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Background and Objectives: It is known that physical activity is inversely associated with arterial stiffness in healthy adults. Data regarding the effect of physical activity on PPA is limited. The aim of this study was to determine the relationship between physical activity and arterial stiffness in a young, healthy black and white South African cohort.

Methods: The sub-study was embedded in the African Prospective study on the Early Detection and Identification of Cardiovascular disease and Hypertension (African-PREDICT) and included 591 white and 604 black participants aged 20–30 years. Systolic, diastolic and central blood pressures were determined with the Sphygmocor apparatus. Biochemical variables were analysed with known methods.

Results: The SBP (124 vs. 121 mmHg, p < 0.001), DBP (76 vs. 71 mmHg, p < 0.001) and central SBP (110 vs. 105 mmHg, p < 0.001) were significant higher in the black compared to white participants. No differences were encountered in c-TPPW and PPA. The physical activity levels did not differ but the total energy expenditure was significant lower in the blacks compared to whites (2205.5 vs. 2373.6 Kcal, p < 0.001). After multiple regression analysis only in black participants the PPA showed an independent and significant negative association with age (β = −0.282, p < 0.001) and a positive association with height (β = 0.247, P < 0.001). In whites the PPA only associated positively with sex (β = 0.180, p = 0.032).

Conclusion: No association was encountered between arterial stiffness (PPA) and physical activity markers.

References
4. Sphygmocor apparatus. Biochemical variables were analysed with known methods.

Poster Session II – Hypertension III

P107

Renal Denervation Improves 24-Hour Central and Peripheral Blood Pressures, Arterial Stiffness and Peripheral Resistance

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Background: Ambulatory Blood Pressure (BP) as well as central BP are better predictors for overall cardiovascular risk and mortality than brachial BP. Renal Denervation (RDN) has been shown to reduce office blood and central BP as well as ambulatory brachial BP, but data on central ambulatory BP is limited. We therefore aimed to study the effect of RDN also on central hemodynamics assessed under ambulatory conditions.

Methods: In total 94 patients with treatment resistant hypertension (TRH) (office BP ≥140/90 mmHg, and diagnosis confirmed by mean daytime brachial ambulatory BP ≥135/85 mmHg) who underwent RDN (using Medtronic Symplicity™ RDN radiofrequency ablation catheter system) were included. Ambulatory BP, including central pressures, hemodynamics and arterial stiffness, were measured at baseline and 3, 6, 12 months after RDN by an oscillometric device (MobiloGraph™, I.E.M., Nurnberg, Erlangen, Germany).

Results: Office BP was significantly reduced at all time points (p for all <0.001). At 3, 6 and 12 months follow-up, brachial ambulatory BP was reduced by 6 ± 13/4 ± 7 mmHg, 8 ± 15/4 ± 10 mmHg, 9 ± 16/4 ± 9 mmHg, respectively (p for all <0.001). Consistently, central ambulatory BP was reduced by 6 ± 12/3 ± 8 mmHg, 7 ± 15/4 ± 9 mmHg, 9 ± 15/5 ± 9 mmHg, respectively (p for all <0.001). In addition, ambulatory assessed averaged daytime pulse wave velocity improved after RDN (p < 0.05). Total vascular resistance decreased by 4.0 %/5.5%/6.7% (p for all <0.01). In contrast, cardiac output was not altered during follow-up.

Conclusion: In patients with TRH, RDN improves brachial and central ambulatory BP, arterial stiffness and total vascular resistance, indicating an improvement of cardiovascular outcome.