

PP.3.117 TREATMENT-INDUCED CHANGES IN CLINIC VS. HOME VS. AMBULATORY BLOOD PRESSURE AND CHANGES IN TARGET ORGAN DAMAGE: AN INTERIM ANALYSIS

G. Stergiou¹, N. Karpettas¹, A. Protogerou¹, E. Nasothimiou¹, I. Moysakakis².
¹Hypertension Center, Third University Department of Medicine, Sotiria Hospital, Athens, Greece, ²Department of Cardiology Laikon Hospital, Athens, Greece

Objective: To assess the relationship of treatment-induced changes in clinic (CBP), home (HBP) and ambulatory blood pressure (ABP) with the changes in target organ damage.

Methods: In the context of an ongoing prospective study, 39 untreated subjects with elevated blood pressure (BP) (mean age, 50.2 ± 10.1 years, 21 men) had CBP (3 visits, oscillometric device Microlife WatchBP Office), HBP (7 days, oscillometric device Microlife WatchBP Home) and ABP measurements (24-hours, oscillometric devices SpaceLabs 90207/90217 or Microlife WatchBP O3). Target organ damage was assessed by echocardiographic left-ventricular mass index (LVMI), microalbuminuria (MAU) (two first-morning spots) and carotid-femoral pulse-wave velocity (PWV; Complior) at baseline (untreated) and after 12 months of antihypertensive drug treatment.

Results: The correlation coefficients of the treatment-induced changes in MAU (Δ MAU: baseline vs. after 12 months of treatment) with the respective treatment-induced BP changes (Δ BP) were superior for ABP (systolic/diastolic, 24 h $r=0.30/0.32$, $p=0.08/0.06$; awake $r=0.29/0.26$, $p=0.09/0.13$; asleep $r=0.27/0.37$, $p=0.13/0.03$) than for HBP or CBP (all $p=NS$). On the other hand, Δ PWV was more closely associated with Δ HBP ($r=0.34/0.28$, $p=0.07/0.14$) or Δ CBP ($r=0.21/0.31$, $p=0.26/0.10$) than with Δ ABP (all $p=NS$). Finally, Δ LVMI was correlated with Δ HBP ($r=0.32/0.33$, $p=0.06/0.05$), Δ CBP ($r=0.51/0.25$, $p=0.002/0.15$), and awake Δ ABP ($r=0.22/0.40$, $p=0.20/0.02$), but not with 24-hour or nighttime Δ ABP.

Conclusion: Treatment-induced changes in different indices of target organ damage are not equally predicted by the BP change assessed by different measurement methods. These data suggest that CBP, HBP and ABP measurements are complementary rather than competitive methods in the assessment of the effects of antihypertensive treatment on target organ damage.

PP.3.118 CLINICAL IMPLICATIONS FOR TREATMENT DECISIONS OF REPLACING THE MERCURY SPHYGMOMANOMETER WITH A PROFESSIONAL OSCILLOMETRIC DEVICE IN A HYPERTENSION CLINIC

G. Stergiou, P. Lourida, D. Tzamouranis. Hypertension Center, Third University Dept of Medicine, Sotiria Hospital, Athens, Greece

Objective: Oscillometric devices are being widely used for ambulatory, home and office blood pressure (BP) measurement and several of them have been validated using established protocols. This cross-sectional study assessed the impact on antihypertensive treatment decisions of replacing the mercury sphygmomanometer by a validated professional oscillometric device in a hypertension clinic.

Methods: Consecutive subjects attending an Outpatient Hypertension Clinic had simultaneous same arm BP measurements (Y connector) using a standard mercury sphygmomanometer and a validated professional oscillometric device (BpTRU). For each device the average systolic BP of triplicate measurements ≥ 140 mmHg and/or diastolic ≥ 90 mmHg was used to define uncontrolled hypertension.

Results: A total of 5,070 simultaneous BP measurements were obtained from 755 subjects (mean age 58.1 ± 12.9 years) in 1,706 clinic visits within 14 months. In 285 visits (16.7%) the mercury and the oscillometric BP measurements led to different conclusion regarding the diagnosis of uncontrolled hypertension. In 5.3% of the visits the diagnostic disagreement was considered as "clinically important" (BP exceeding the diagnostic threshold by ≥ 5 mmHg) and in 0.8% as "large" (BP exceeding the threshold by ≥ 10 mmHg).

Conclusion: These data suggest that the replacement of the mercury sphygmomanometer by a validated professional oscillometric device in a hypertension clinic will result into different treatment decisions in about 5% of the cases. Therefore, and because of the known problems when using mercury devices and the auscultatory technique in clinical practice, the oscillometric devices are regarded as reliable alternatives to the mercury sphygmomanometer for office BP measurement.

PP.3.119 REFERENCE VALUES OF CENTRAL BLOOD PRESSURE AND PULSE WAVE VELOCITY IN RELATION WITH 24 HOURS AMBULATORY BLOOD PRESSURE MONITORING IN BELGIAN NORMOTENSIVE YOUNG SUBJECTS

A. Saint-Remy, J.M. Krzesinski. University Hospital of Liege, Liege, Belgium

Aim: The present study aimed to define reference values of central blood pressure (cBP) and Pulse Wave Velocity (PWV) together with 24H ABPM in healthy normotensive young adults before starting a follow-up of their CV profile modifications over time.

Method: Office BP (OBP), heart rate (HR), cBP and PWV (SphygmoCor) and 24h ABPM (Spacelabs 90207) were measured in 94 healthy young caucasian (mean age: 22.5 ± 2.8 y, range: 19–30; M/W: 47/47). Height, weight, family and personal medical history, smoking and physical activity were recorded. None were under antihypertensive medications; 86% of women were on pill.

Results: Mean BMI was 21.6 ± 3 Kg/m². Twelve % were smokers, 26% and 21% had a family history of HT and Diabetes, respectively. Mean OBP in men was 123–74 mmHg with 95th P at 139–87 and mean cBP was 103–73 with the 95th P at 116–85, mean 24hABPM was 120–69 with a 95th P at 131–78 mmHg. In women the mean BP and 95th P were for OBP: 116–71, 132–88; for cBP: 99–72, 119–88; and for 24hABPM: 113–70, 127–80. Boys, taller and heavier, had significantly higher OBP, cBP, Pulse Pressure (PP) and Systolic ABPM than girls. Mean PWV was 5.8 ± 0.9 m/s with a P90th at 7 m/s. PWV was moderately related to cBP ($r=0.27$, $P=0.01$). Girls had systematically higher HR than boys. cSBP was correlated to 24 h ABP (0.44, $P < 0.0001$), to 24 h MAP (0.51, $P < 0.0001$). Interestingly, participants with a family history of HT and/or diabetes, had a higher PWV ($P=0.07$) than those with no family history.

Conclusions: Observed in a healthy population, our data provide reference values of central BP and PWV for a 20–30 y. range of age. OBP and Daytime ABPM were very close while Central Systolic BP were significantly lower. These data give opportunity to follow up this population regarding the BP evolution with age and cardiovascular risk factors appearance according to these three ways of measurement and to compare these relations in different pathologies and treatment related to high blood pressure.

PP.3.120 EFFECT OF DOSING TIME OF ANGIOTENSIN II RECEPTOR BLOCKADE TITRATED BY SELF-MEASURED BP ON CARDIORENAL PROTECTION IN HYPERTENSIVES: J-TOP STUDY

K. Kario, S. Hoshida, M. Shimizu, Y. Yano, K. Eguchi, J. Ishikawa, S. Ishikawa, K. Shimada. Jichi Medical University School of Medicine, Shimotsuke, Japan

Objectives: To study the impact of the dosing time of an angiotensin II receptor blocker (ARB) titrated by self-measured home blood pressure (HBP) on cardiorenal damage in hypertensives.

Methods: We conducted an open-label multicenter trial, the J-TOP study, that enrolled 450 hypertensives with self-measured systolic HBP > 135 mmHg. The study patients were stratified into 3 groups according to the difference between their morning and evening SBPs (ME) difference: a morning hypertension group (ME difference > 15 mmHg; $n=170$), an ME hypertension group (0 mmHg $<$ ME difference < 15 mmHg; $n=198$), and an evening hypertension group (ME difference < 0 mmHg; $n=82$). Subjects were then randomly allocated to receive bedtime-dosing or awakening-dosing of candesartan (+diuretic as needed) titrated to achieve a target systolic HBP < 135 mmHg. The 6-month change in the urinary albumin/creatinine ratio (UACR) was assessed.

Results: In total patients, the UACR was more markedly reduced in the bedtime-dosing group than in the awakening-dosing group (-45.7 vs. -34.5% , $p=0.02$), while there were no differences in the reduction of any of the HBPs including the sleep BPs between the 2 groups. Among the 3 subgroups stratified by the ME difference, the difference in the UACR reduction between the bedtime-dosing and awakening-dosing groups was only significant in the morning hypertension group (-50.6 vs. -31.3% , $p=0.02$).

Conclusion: In HBP-guided antihypertensive treatment in hypertensives, bedtime dosing of an ARB was superior to awakening-dosing for reducing microalbuminuria.