GW26-e0374
Could Central Hemodynamic Indices be the indicator of Orthostatic Hypotension in Chinese Han Nationality population?
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OBJECTIVES Orthostatic hypotension (OH) is an independent risk factor for cardiovascular morbidity. It is often unrecognized in the elderly. Given the impact of OH, it would seem important to identify it in clinical practice. The association between central hemodynamic indices (e.g. central systolic blood pressure, augmentation index and pulse wave velocity) and OH is unclear. This study evaluates whether central hemodynamic indices are correlated with OH and tests the usefulness of central hemodynamic indices to identifying OH.

METHODS A sample of 1099 participants were recruited from the general population who attended health check-ups. Questionnaire, physical examination and laboratory tests were performance by a standard protocol. To assess the correlation between central hemodynamic indices and the probability of OH, multiple logistic regression analysis was used to estimate the odds ratio in different models, and the discriminatory power of hemodynamic indices for OH was assessed by the area under the receiver operating curve (ROC).

RESULTS The prevalence of OH in this population was 5.6 %. Compared with those without OH, OH subjects had a higher age, SBP in sitting position, blood pressure in supine position, brachial-ankle pulse wave velocity (BaPWV) and central systolic blood pressure (CSBP) (all P < 0.05). After adjusting for potential confounders, both CSBP (OR = 1.039, 95% CI: 1.016-1.062, P = 0.001) and BaPWV (OR = 1.259, 95% CI: 1.130-1.402, P = 0.001) were significantly positive correlated with the probability of OH in a Chinese population. In addition, BaPWV seemed to be a better discriminatory power than CSBP (ΔAUC = 0.128, 95% CI: 0.047-0.208, P = 0.002).

CONCLUSIONS BaPWV appeared to be a better indicator of OH than CSBP in routine clinical practice. Future researches may be warranted to assess whether this phenomenon still exists in a large population.

GW26-e0732
Superior Dynamic Heart Rate Control and Non-Inferior Blood Pressure Control with Bisoprolol vs Metoprolol Sustained Release Tablet in Mild-to-Moderate Hypertension: CREATIVE Study
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OBJECTIVES Nocturnal variations of blood pressure (BP) were associated with type 2 diabetes. However, the relationship between the reverse-dipper pattern of BP and type 2 diabetes remains unknown.

METHODS In this cross-sectional study, BP variations of 531 hypertensive patients (285 men, 246 women) were evaluated with ambulatory blood pressure monitoring (ABPM). Circadian BP patterns were then divided into dipper (10% to 20% SBP fall), non-dipper (0% to 10% SBP fall), extreme dipper (>20% SBP fall) and reverse dipper (SBP nocturnal rise), according to the nocturnal reduction of systolic blood pressure (SBP). All body mass index (BMI) >27 kg/m² hypertensive patients were excluded if they (1) were <18 or >90 years old; (2) were under antihypertensive treatment; (3) had a BP over 160/100 mmHg; (4) were night workers; (5) had acute stroke or myocardial infarction within the past 6 months; (6) had sleep apnea syndrome; (7) were diagnosed as secondary hypertension; (8) could not tolerate the ABPM; (9) had other chronic diseases. Diagnosis of type 2 diabetes was made according to the 2015 Standards of medical care in diabetes. Descriptive statistics are presented as percentages for discrete variables and as means (standard deviation) for continuous variables. Multivariate logistic regression was used to examine the relationship between type 2 diabetes and ABPM results.

RESULTS In our study, a total of 133 patients (21.0%) had reverse-dipper BP pattern. Nondipper pattern was observed in 300 (47.5%) hypertensive individuals and dipper pattern in 98 patients (15.5%). Reverse dippers were older (P < 0.05), while had a higher fasting glucose (P = 0.05) and DBP-bedroom (P < 0.05). Importantly, the prevalence of diabetes (P < 0.05) in reverse dippers was the highest among the patients of all BP patterns. After analysis of multivariate logistic regression, the reverse-dipper pattern of BP was shown to be directly associated with type 2 diabetes (Odds ratio [OR] 1.630; 95%CI 1.057-2.512; P = 0.027). Moreover, fasting glucose was negatively correlated with the decline rate of nocturnal SBP (r = -0.128; p = 0.003) and DBP (r = -0.125; p = 0.004). The result of our study also suggested that type 2 diabetes (OR 1.630; 95%CI 1.049-2.553; p = 0.030), age (OR 1.030; 95% CI 1.013-1.047; p = 0.030) and triglycerides (OR 1.247; 95%CI 1.010-1.539; p = 0.040) might contribute to the reverse-dipper pattern of BP.

CONCLUSIONS The reverse-dipper pattern of BP in ABPM may serve as one of the independent risk factors for type 2 diabetes. Therefore, more personalized BP control should be administered on the patients who had an elevated nocturnal BP.

GW26-e1058
 Plasma migration inhibitory factor as biomarker in hypertension-hyperlipidemia patients
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OBJECTIVES To investigate the plasma levels of migration inhibitory factor (MIF) in hypertension-hyperlipidemia patients.

METHODS A total of 39 hypertension plus hyperlipidemia patients without any previous treatment were enrolled (HTN-HLP). Twenty-five
healthy subjects were enrolled as healthy control group (HEALTHY). The demographic, biochemical and clinical data as well as endothelial function was examined. Plasma MIF was measured using ELISA kits as described previously. In order to find the influencing factor of MIF, we performed correlation analysis between plasma MIF levels and clinical characteristics. To explore the functional significance of elevated plasma MIF in HTN-HLP patients, we treated HUVeCs with pooled plasma of HTN-HLP and HEALTHY groups. The protein levels of adhesion molecules VCAM-1 and ICAM-1 were examined 6 hours after treatment.

RESULTS We found that plasma MIF was significantly elevated in the HTN-HLP group compared with HEALTHY group (65.60±4.43 pg/ml vs 26.50±0.85 pg/ml, p<0.001). Serum NO(nitric oxide) (90.10±1.71 mmol/ml vs 33.82±2.10 mmol/ml, p=0.001) and eNOS (endothelial nitric oxide synthase) (17.68±1.85 U/ml vs 31.25±2.77 U/ml, p<0.001) levels were significantly lower in HTN-HLP group. Serum ET-1 (endothelin-1) levels were significantly higher in HTN-HLP group compared with HEALTHY group (95.44±3.18 pg/ml vs 43.15±5.09 pg/ml, p<0.001). Furthermore, in the combined population of HTN-HLP and HEALTHY groups, SBP (R²=0.19, p<0.001), DBP (R²=0.216, p<0.001), baPWV (brachial-ankle pulse wave velocity) (R²=0.122, p<0.001), right baPWV (R²=0.129, p=0.005) and ET-1 (R²=0.248, p<0.001) were significantly positively correlated with plasma MIF levels, NO(D) (R²=0.154, p<0.001) and eNOS (R²=0.230, p<0.001) were significantly negatively correlated with plasma MIF levels. Plasma from HTN-HLP significantly stimulated VCAM-1 (p<0.002) and ICAM-1 (p<0.001) protein expression on the surface of HUVeCs.

CONCLUSIONS Plasma MIF was elevated in HTN-HLP patients, and positively correlated with blood pressure and early atherosclerosis parameters. Negatively correlated with endothelial dysfunction parameters. Plasma from HTN-HLP significantly stimulated adhesion molecules expression, MIF may act as biomarker for HTN-HLP patients.

GW26-e1251 The relationship of retinal vessel diameters and fractal dimensions with blood pressure and cardiovascular risk factors Qiaowei Li,1 Pengli Zhu,2 Feng Huang,2 Fan Lin,1 Yin Yuan,1 Zhonghai Gao,1 Falin Chen1 1Department of Geriatric Medicine, Fujian Provincial Hospital; 2Department of Ophthalmology, Fujian Provincial Hospital; 3Clinical Laboratory Center, Fujian Provincial Hospital

OBJECTIVES This study aimed to investigate the correlation between quantitative retinal vascular parameters such as central retinal arteriolar equivalent (CRAE) and retinal vascular fractal dimension (D(f)) with cardiovascular risk factors in the Chinese Han population residing in the in islands of southeast China.

METHODS In this cross-sectional study, fundus photographs were collected and semi-automated analysis software was used to analyze retinal vessel diameters and fractal dimensions. Cardiovascular risk factors such as relevant medical history, blood pressure (BP), lipids, and blood glucose data were collected.

RESULTS Subjects had a mean age of 51.96±12.0 years and included 812 (37.4%) males and 1,357 (62.6%) females. Of the subjects, 726 (33.5%) were overweight, 226 (10.4%) were obese, 272 (12.5%) had diabetes, 738 (34.0%) had hypertension, and 1,156 (53.3%) had metabolic syndrome. After controlling for the effects of potential confounders, multivariate analyses found that age (β = 0.06, P = 0.008), sex (β = 1.33, P = 0.015), mean arterial blood pressure (β = -0.12, P<0.001), high-sensitivity C-reactive protein (β = -0.22, P = 0.008), and CRVE (β = -0.23, P<0.001) were significantly associated with CRAE. Age (β = -0.0012, P<0.001), BP classification (prehypertension: β = -0.00075, P = 0.0001), and hypertension (β = -0.0134, P = 0.0001) as well as homocysteine (β = -0.0007, P = 0.009) were significantly associated with D(f).

CONCLUSIONS D(f) exhibits a stronger association with BP than CRAE. Thus, D(f) may become a useful indicator of cardiovascular risk.

GW26-e1300 Decreased Neuropilin-1 Expression in Hypertensive and Hypertensive Diabetic Patients Shujie Yu,1 Hui Zhang,2 Bin Zhou,3 Min Wang,1 Lin Wu,1 Zhiming Song,1 Lin Chen,1 Xiaoxian Qian1,2 1Department of Cardiology, The Third Affiliated Hospital, Sun Yat-sen University; 2Department of ultrasonography, The Third Affiliated Hospital, Sun Yat-sen University; 3Institute for Integrated Traditional Chinese and Western Medicine, Sun Yat-sen University

OBJECTIVES To detect the changes of plasma levels of neuropilin-1 and catalase in hypertensive and hypertensive diabetic patients. And to explore the correlation between neuropilin-1 and catalase in the whole study population.

METHODS In this cross-sectional study, eighty-eight patients were enrolled, which were divided into hypertensive group (n=31), hypertensive diabetic group (n=31) and control group (n=26). Blood pressure was obtained from each participant with mercury sphygmomanometer. The expressions of neuropilin-1 and catalase were measured by ELISA. Serum lipid profile, glucose and glycosylated hemoglobin A1C (GHbA1c) levels were also detected.

RESULTS The levels of total cholesterol (TC) and body mass index (BMI) were significantly higher in the hypertensive group than those in control group (P<0.05). The levels of TC, triglyceride (TG), low density lipoprotein cholesterol (LDL-C), BMI, waist circumference were significantly higher in the hypertensive diabetic group than those in control group (P<0.05). The mean plasma levels of neuropilin-1 and catalase in both hypertensive diabetic group and hypertensive group was significantly decreased compared to that in the normal group (P<0.05). While the mean plasma levels of neuropilin-1 and catalase in hypertensive diabetic group were significantly decreased compared to the hypertensive group (P<0.05). Moreover, a significantly positive correlation between neuropilin-1 and catalase in the whole study population (P<0.05) were observed.

CONCLUSIONS Neuropilin-1 expression is decreased in both hypertensive and hypertensive diabetic patients, and more decreased in hypertensive diabetic patients. Decreased neuropilin-1 level may be associated with the reduction of catalase.

GW26-e1451 The potential risks of blood pressure variations in essential hypertensive patients under treatment: a cross-sectional survey Liyuan Peng, Bing Yan, Gang Wang Department of Emergency Medicine, the Second Affiliated Hospital, Xi’an Jiaotong University, Xi’an, China

OBJECTIVES Recent studies of our group indicated that blood pressure (BP) variation might serve as an independent risk factor for lacunar infarction and carotid atherosclerosis in non-treated essential hypertensive patients. However, the potential risk of non-dipper pattern of BP in individuals under treatment remains unclear. This study was established to investigate the relationship between 24 hours variations of BP and carotid atherosclerosis in essential hypertensive patients with normal BP under treatment.

METHODS A total of 327 hypertensive patients were continuously recruited from April 2012 to June 2013. All the individuals underwent ambulatory blood pressure monitoring (ABPM) and carotid ultrasound while in hospital. These patients were divided into “carotid plaque” group (n=199) and “non-plaque” group (n=128), based on whether the thickness of all the cross-sectional areas of each plaque ≥1 mm in diameter found in all carotid vessels or not. According to the nocturnal fall of systolic and/or diastolic BP (SBP and/or DBP), circadian BP pattern was divided as dipper (10-20% nocturnal fall of BP in SBP and DBP) and non-dipper (<10% or >20% nocturnal fall of BP in SBP or DBP). Additionally, average levels and nocturnal BP falls of SBP and DBP, as well as blood cholesterol, diabetes mellitus and smoking status were examined as risk factors for carotid plaque. Logistic regression was used to analyze the relationship between these risk factors and carotid plaque.

RESULTS Patients with carotid plaque were older (p<0.001) and had higher SBP in night-time (p<0.001), but less nocturnal BP falls of SBP (p<0.001) and DBP (p<0.01) than patients without carotid plaque. Moreover, the plaque group were found to have more non-dipper and diabetes patients (p<0.05). Except age (p<0.01) and sex (p<0.05), non-dipper pattern of BP (OR=1.727, 95%CI 1.015-2.940, p<0.05), circadian decline rate of SBP (OR=0.938, 95%CI 0.925-0.993, P<0.05) and the level of SBP at nighttime (OR=1.027, 95%CI 1.006-1.048, P<0.05) was associated with carotid plaque separately.

CONCLUSIONS The non-dipper pattern of BP, as well as circadian decline rate of SBP and the level of SBP at nighttime may serve as independent risk factors for carotid plaque in essential hypertensive patients under treatment, respectively. Therefore, other than target BP level, BP dipper pattern should also be considered in antihypertensive treatment in future clinical practice.

GW26-e1547 Relationship between blood pressure variability and ankle brachial index in people aged 80 and over Mingxia Gu, Xiaorong Ying Nanjing Municipal Organ Hospital

OBJECTIVES Objective To investigate the relationship between pressure variability and ankle brachial index in people aged 80 and over