Methods: This study included 95 PIH patients, 95 hypertensive patients (HT) and 95 normotensive pregnancy subjects (Con), which were diagnosed by clinical and laboratory findings. The general data were compared between the two groups including age, body mass index (BMI), systolic and diastolic blood pressures (BP) and other risk factors. The cholesterol, triglycerin, plasma albumin, and urine routine were examined within 24 hours before administration. Uric acid was measured using spectrophotometric method. TNF-α and sICAM-1 levels were measured by an enzyme immunoassay. TNF-α and ICAM-1 expressions in maternal vessels and leukocytes from PIH patients and controls were investigated by immunohistochemistry (IHC).

Results: The change of blood pressure in the PIH group was more striking than that in the Con group (P<0.001). Compared with the Con group, TNF-α and sICAM-1 levels in patients with PIH were high (P<0.05, respectively). In the PIH vessels, ICAM-1 and TNF-α antibodies in six of ten fat tissues demonstrated a clear positive lining, two stained middle, and two stained least high; however, ICAM-1 and TNF-α antibodies in eight tissues were slight and two were middle. Uric acid levels were also higher in PIH patients (5.4±1.3mg/dl) than that in the Con subjects (3.9±0.9mg/dl) (P<0.02). There was a positive correlation between uric acid and TNF-α (r=0.40, P=0.001) or ICAM-1 (r=0.55, P=0.0001). By Kruskal-Wallis H test on the above parameters, the results showed that elevated UA, TNF-α and ICAM-1 were the most important factors during PIH development. Different patterns for TNF-α and ICAM-1 expressions were also found between the two groups.

Conclusions: Elevated uric acid exacerbates TNF-α induced ICAM expression and vascular dysfunction in the patients with PIH, and then the patients with PIH prone to cause atherosclerosis development.

GW25-e4255
Upregulation of CXCR7 Expression Contributes to Increased Reendothelialization Capacity of Early Endothelial Progenitor Cells from Patients with Essential Hypertension
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Objectives: Dysfunction of early endothelial progenitor cells (EPCs) is responsible for impaired endothelial repair capacity after arterial injury in patients with hypertension. Here we hypothesized that diminished signaling of CXC chemokine receptor seven (CXCR7) contributes to the reduced EPC functions and enhanced CXCR7 expression restores the capacities of EPCs from hypertensive patients.

Methods: To test these assumptions, CXCR7 signaling and its relation to endothelial repair capacity of early EPCs were examined in hypertensive patients and normal subjects. EPCs from hypertensive patients were treated with CXCR7 gene transfer. Human EPCs were tested in vitro for the ability to affect CXCR7 signaling as well as migration and adhesion functions. We also assessed the effect of transplantation of in vitro CXCR7 gene transferred EPCs from hypertensive patients on in vivo reendothelialization after wire-mediated injury of the carotid artery in nude mice. Furthermore, we investigated the effects of EPCs treated with lercanidipine, a dihydropyridine calcium channel antagonist, on the change in CXCR7 signaling and reendothelialization capacity of EPCs from hypertensive patients.

Results: Compared with healthy subjects, CXCR7 expression of EPCs from hypertensive patients was significantly reduced. Meanwhile, the phosphorylation of p38 mitogen-activated protein kinase (p38 MAPK), a downstream signaling of CXCR7, was elevated, which increased cleaved casease-3 level of EPCs. CXCR7 gene transfer augmented CXCR7 expression and decreased the phosphorylation of p38 MAPK, which was paralleled to EPC functional upregulation of in vitro adhesion, anti-apoptosis activities and in vivo reendothelialization capacity in a nude mouse model of carotid artery injury. The enhanced in vitro and in vivo functions of EPCs were achieved by neutralizing monoclonal antibody against CXCR7, which was blocked by p38 MAPK inhibitor SB203580. Downregulation of cleaved casease-3 level induced by CXCR7 gene transfer or SB203580 pretreatment improved EPC functions. Moreover, we found that lercanidipine also facilitates CXCR7 expression of EPCs from hypertensive patients, and this alteration is correlated with accelerated in vitro and in vivo functions of EPCs.

Conclusions: Our study demonstrated for the first time that diminished CXCR7 signal at least partially contributes to the reduced in vitro functions and in vivo reendothelialization capacity from hypertensive patients. Upregulation of CXCR7 expression induced by gene transfer may be a novel therapeutic target for increased endothelial repair capacity in hypertension.

GW25-e4412
Clinical characteristics of 195 Central Chinese patients with pulmonary hypertension
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Objectives: To explore the characteristics of WHO Class I pulmonary hypertension in Central China.

Methods: Data was collected as a part of prospective registry of pulmonary hypertension in Central China. (Act. Oct. 2013 in Wuhan City). Three hundred and ninety-five patients were recruited, including one hundred and forty-four cases with congenital heart disease and forty-one cases with idiopathic pulmonary hypertension.

Results: The age of all patients ranged from 1 to 68 years (mean 27.45±13.21 years), and the mean BMI was 17.39±2.44. The median time at the treatment was twenty-two months and mean time was 25.84±18.98 months. Of all the recruited patients, one hundred and twenty-one patients (62.05%) accepted the treatment of targeted drugs, 33.3% patients with idiopathic pulmonary hypertension and 39.6% patients with congenital heart disease refused to the specificity treatment; 32.31% patients (n=155) diagnosed pulmonary hypertension classification have been deteriorated to Class IV in the coming and the mean 6MWD was 397±173.6 meters. Borg dyspnea index was 1.55±1.72 (n=181). Fifty-seven patients (29.23%) combined with other diseases which may aggravate pulmonary hypertension, and 48 patients combined with systemic blood hypertension. The pulmonary systolic pressure and mean pulmonary and aorta press measured by the right heart catheterization were more lower in idiopathic pulmonary hypertension group than that in pulmonary hypertension associated with congenital heart disease group (P<0.01). There was no significant difference between the two groups in the mean right atrial pressure, PCWP, CO and PVR. None of patients with acute pulmonary vasodilator testing were positive. Compared with those patients without targeted drug treatment, the patients who accepted the targeted drug treatment gained better cardiac function (P<0.00), longer 6MWD (P<0.00), lower PVR (P<0.00).

Conclusions: In Central China, class I pulmonary hypertension patients almost were young and middle age women and it is difficult to diagnose early. The WHO functional classification and hemodynamic variables often have significantly impaired for diagnosed. Only 62.05% patients receive specific treatment of pulmonary hypertension, which was much lower compared with foreign countries.

GW25-e4447
Renal denervation procedure attenuates myocardial fibrosis via suppression of cardiac renin-angiotensin system activity in Spontaneously Hypertensive Rats
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Objectives: To validate the effect of renal denervation procedure (RDN) on cardiac renin-angiotensin system (RAS) activity and anti-myocardial Fibrosis in spontaneously hypertensive rats (SHR).

Methods: 12-week-old male SHRs were randomly divided into three groups (n=10, respectively): RDN group, sham group and control group. Another age and sex matched Wistar-Kyoto (WKY) rats were served as normotensive control (n=10). RDN group underwent renal denervation procedure with solution of 10% phenol and 90% ethanol. Blood pressure was recorded every 2 weeks after the surgery, and rats were sacrificed after 10 weeks. The left ventricular mass index (LVMI) were measured at the end of angiotensin II (AngII) in myocardium were determined. The myocardial morphology and myocardial collagen fibers were detected by pathological staining.

Results: Compared with sham group and control group, blood pressure, LVMI (mg/g 7.42 vs 170.02 vs170.02 P<0.05), AngII (pg/g 375.50±3.03 vs 421.52±36.84 P<0.05), NE (80.26±7.42 ng/g VS 170.02±11.75mg/g P<0.05) in myocardium in RDN group were much lower. Picric acid-sirius red staining study demonstrated that myocardial collagen fibers content (pixel 1807.9±919.3 vs 6744.8±8.75P<0.05) in RDN group was significantly reduced. In angiotensin II (AngII) in myocardium were determined.

Conclusions: RDN can significantly lower blood pressure and reduce the content of myocardial collagen fibers in SHR, which may be partly attributed to the suppression of RAS activity in the tissue.

GW25-e0255
Acute effects of the YaAn earthquake on blood pressure among hospitalized patients in the department of cardiology
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Objectives: YaAn, a city in Sichuan province, China, was struck by a major earthquake measuring 7.0 on the Richter scale on Apr 20, 2013. Although earthquake was reported to increase the mortality of cardiovascular disease, little is exactly known about the extent of influence on blood pressure caused by earthquake and which kind of hypertensive medicine is best candidate to control the disaster hypertension. The aim of the study was to investigate the impact of YaAn earthquake on the blood pressure among hospitalized patients in the department of cardiology.

Methods: We enrolled 70 hospitalized patients who were admitted to our hospital at least two days before the day of earthquake in 2013 (disaster group) as compared with 28 patients during the corresponding period in 2014 (non-disaster group). We analyzed the blood pressure and medicine prescription records during the earthquake.

Results: The earthquake induced a significant rise in the mean post-disaster systolic blood pressure among in-hospital patients admitted at the disaster Hospital (125±15.6 mmHg vs. 125±15.4 mmHg) as compared with the non-disaster group. β-blockers use are the only independent influencing factors to elevated SBP (OR=0.212, 95% CI 0.054-0.838). Patients who were taking β-blockers at the time of earthquake represent a blunt response to disaster induced pressor effects.
Other anti-hypertensive agents, demographic or chronic health features, were excluded in group logistic regression analysis.

Conclusions: The YaAn earthquake induced rapid rise in systolic blood pressure even at a distance from the epicenter among patients with CAD. β-blockers might be better in controlling the disaster induced hypertension. The acute medical intervention strategies should be extended to the nearby area disturbed by the earthquake wave.

GW25-e3351
The 24 hours variation of blood pressure may predict carotid plaque in patients with essential hypertension: a cross-sectional study
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Objectives: As carotid plaque is superior to intima-media thickness (IMT) in the prediction of the risk of cardiovascular events, we aimed to assess the association between the variation of blood pressure (BP) and carotid atherosclerosis in patients with essential hypertension.

Methods: A total of 519 hypertensive patients were continuously recruited from April 2012 to June 2013 and underwent ambulatory blood pressure monitoring (ABPM) plus carotid ultrasound. The patients were divided into “plaque” group (n=317, male 177) and “non-plaque” group (n=202, male 104), based on whether the thickness of the carotid plaque was ≥1 mm in diameter in found in all carotid vessels or not. According to the nocturnal fall of systolic and/or diastolic BP (SBP and/or DBP), carotid plaque BP pattern was divided into dipper (10-20% nocturnal fall of BP in SBP and DBP), non-dipper (≤0% 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, smoking and menopause status were examined as risk factors for 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 and DBP (P<0.01) than patients without carotid plaque. Moreover, the plaque group were found to have more males (P<0.001) and the level of soapt (P<0.01), plasma total cholesterol (P<0.001), triglycerides (P<0.002) and HDL (P<0.001) were all higher than those in non-plaque group. No significant difference was found in BMI (P=0.05), diastolic BP (P=0.05), mean arterial pressure (P=0.05), SBP or DBP. Additionally, average levels and nocturnal BP falls of SBP and DBP, as well as blood cholesterol, diabetes mellitus, smoking and menopause status were examined as risk factors for carotid plaque. Logistic regression was used to analyze the relationship between those risk factors and carotid plaque.

Conclusions: The risk of carotid plaque was lower in men, and negatively correlated with age, BMI, smoking status, and positive correlated with systolic blood pressure (SBP), diastolic blood pressure (DBP) and nocturnal fall of DBP. The risk of carotid plaque was higher in patients with hypertension, high blood cholesterol, high blood triglycerides, high blood glucose, high blood glucose, smoking, menopause status.

GW25-e3319
Epidermal adipose thickness of hypertension patients correlated with left ventricular diastolic dysfunction
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Objectives: Epidermal adipose tissue (EAT) was a kind of viscous adipose tissue and currently considered as an endocrine organ secreting a lot of inflammatory cytokines. This study was to explore relationship between EAT thickness and left ventricular diastolic dysfunction (LVDD) in patients with hypertension.

Methods: A total of 175 consecutive hypertensive patients were included. The baseline characteristics of participants including age, sex, weight, and waist circumference (WC) were noted. Serum levels of high-sensitivity C-reactive protein (hsCRP), fasting blood glucose, fasting serum lipid status including TC, LDL, HDL, and TG were also recorded. LVM was evaluated on the parasternal long-axis view at end-diastole. The parasternal diastolic mitral annular velocity (Em), peak velocities of the early phase (A) and late phase (A') of the transmural inflow, Interventricular septum (IVS), posterior wall (PW), left ventricular end-diastolic diameter (LVEDD), and left ventricular end-systolic diameter (LVESD), left atrium dimension (LAD) were measured. Left ventricular diastolic function (LVDF) was assessed according to ESC guidelines for diagnosis of chronic heart failure in 2012 (based on E/A Em/1.80 Em, E/A Em/A Em). All hypertensive patients were classified into one of 3 groups: low hypertensive (n=122), mild hypertensive (n=177), and moderate to severe hypertensive patients (n=123).

Results: Compared those in hypertensive patients with normal LVDF, EAT thickness (5.14±1.59 mm) was positively correlated with LVM (OR=1.57, 95% CI 1.16-2.10, P=0.001), hsCRP (OR=3.02, 95% CI 1.64-5.57, P=0.001), fasting blood glucose (OR=2.10, 95% CI 1.19-3.78, P=0.01), and LVESD (OR=2.84, 95% CI 1.54-5.28, P=0.001). Additionally, EAT thickness was positively independently correlated with RHI which implied that endogenous testosterone played an important role in controlling the disaster induced hypertension.

Conclusions: EAT thickness and left ventricular diastolic function (LVDF) are independent factors for hypertension. EAT thickness is the independent risk factors for LVDD and LVDF. EAT thickness is positively and independently correlated with LVDD and LVDF. EAT thickness might be a new risk factor for LVDD and LVDF.

GW25-e4316
Plasma total testosterone levels in male hypertensive patients and the influence on vascular endothelial function
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Objectives: To observe the change of plasma total testosterone (PTT) concentrations in male hypertensive patients and explore the effect of different PTT levels on endothelial function evaluated by Endo- PAT 2000 reactive hyperemia index (RHI).

Methods: 188 male consecutive hypertensive patients and 31 healthy men were enroled between May, 2013 and Dec, 2013. All candidates were divided into three hypertensive groups of class 1 (n=24, 58.83±12.14ys), class 2 (n=42, 59.64±11.21ys), class 3 (n=122, 59.39±11.32ys) and control healthy (n=31, 58.19±11.24ys).

Results: Meanwhile, 188 male hypertensive patients were divided into low and high concentrations groups of 1:1 proportion by classifying age, body mass index (BMI), and history of smoking, diabetes cardiovascular diseases and medications were recorded. PTT, estradiol, fasting glucose, glycated hemoglobin, blood lipid, homocysteine, high-sensitivity C-reactive protein (hsCRP) were detected. Vascular endothelial function was evaluated by Endo-PAT2000 noninvasive testing equipment of measuring RHI.

Conclusions: (1) PTT and estradiol concentration in male hypertensive were significantly lower than those in healthy [13.72±4.9±9.3mmol/L vs 18.39±3.02mmol/L, P<0.01], [121.88±48.41pmol/L vs 158.29±58.24pmol/L, P<0.01]. PTT gradually decreased [18.39±3.02pmol/L vs 13.72±4.9±9.3mmol/L vs 121.88±48.41pmol/L vs 13.02±4.9±9.3mmol/L, P<0.01] with the classification of blood pressure (control, class 1, class 2, class 3).

GW25-e4344
Baise new characteristics of the different subtypes of hypertension illness diagnosis and the analysis of the relationship between metabolic syndrome
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Objectives: To explore prevalence of hypertension patients each subtype and their relationship with metabolic syndrome (MS) in Baise city.

Methods: Andom sampling, 14236 cases in baise city residents living ≥18 years old, testing their height, weight, blood pressure, blood sugar, fat and Blood uric acid. Results: 2472 cases in 14236 subjects are suffering from the new diagnosed hypertension, the morbidity rate is 17.4 percent, in which there are 1696 cases of male (the morbidity rate is 22.7 percent), and 776 cases of female (the morbidity is 11.5 percent), the morbidity rate of male is higher than female (P<0.01), There are 546 cases of isolated systolic hypertension (ISH) (which account for 22.1 percent) and its morbidity rate is 3.8 percent. There are 1357 cases of isolated diastolic hypertension (IDH) (which account for 54.9 percent) and its morbidity is 9.5 percent. There are 569 cases of systolic-diastolic hypertension (SDH) (which account for 23.0 percent) and its morbidity rate is 4.0 percent. The morbidity rate of male IDH is highest (12.8 percent), it is highest of SDH and female (2.1 percent). Mean pulse pressure of every subtype in groups of SDH and ISH is higher than which in control group, which in IDH is lower than control group (P<0.01), mean systolic pressure and diastolic pressure in every subtype are all higher than which in control group (P<0.01), in