**HYPERTENSION**

**GW26-e1335**

siRNA Inhibits AT2 Receptor in decreasing NO Generation by Recombinant Human Angiotensin Converting Enzyme 2 in Cardiac Microvascular Endothelial Cells

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**OBJECTIVES**

SiRNA was used to silence AT2 receptor to explore the effect of Ang (1-9) -ACE2-AT2 pathway on NO formation after the impact of recombinant human Angiotensin Converting Enzyme 2 (rhACE2) on the cardiac microvascular endothelial cells (CMVEC).

**METHODS**

Human cardiac microvascular endothelial cells (CMVEC) were cultured in vitro and grouped as follows: ① The control group: normal CMVEC; ② AngII intervention group: on the basis of the control group, AngII (1×10-6mol / L) was added and incubated 24h; ③ On the basis of AngII intervention, rhACE2 was added for incubation 5, 10, 15, 30, and 60 min respectively; ④ AT2 receptor inhibitor group: based on AngII intervention, AT2 receptor inhibitor (10umol / L) was added for incubation 30min, and then rhACE2 (100 umol / L) was added for incubation 30min.⑤ AT2 siRNA transfection group: siRNA was used to transfet CMVEC, and Western blot to detect protein expression of AT2 receptor and the transfent efficiency after its transfent, and the highest transfent efficiency group was elected and given AngII intervention for 30min, and then rhACE2 (100 umol / L) was added for incubation 30min. Also a negative siRNA control group (negative control, NCsiRNA) was set up: after NCsiRNA transfent, it was treated as described above. Griess reagent measurement was applied to detect NO content in cell culture supernatant, RT-PCR to detect the expression of eNOS mRNA in HUVEC, Western blot to detect the expression of phosho-eNOS. NO fluorescent probe DAF-FM DA was loaded to detect intracellular NO formation and the activity of endothelial nitric oxide synthase (eNOS).

**RESULTS**

The content of NO in AngII treatment group (3.495 ± 0.362 nmol / L) was significantly lower than that in the control group (11.513 ± 0.392) (P <0.05). After rhACE2 treatment, the NO contents and the phosphor-eNOS expression levels of cultured cell liquid in subgroups were significantly higher than those in AngII intervention group (P <0.05). However the protein expression levels of eNOSmRNA and non-phosphor-eNOS showed no significant difference compared with AngII intervention group (P > 0.05). And after CMVEC was intervened by AT2 pathway inhibitor(PD123319), the expression levels of phosho-eNOS were significantly lower than those in rhACE2 30min treated group (P <0.05). After the successful transfent of siRNA into CMVEC, Western blot test results showed that 48 h after transfent, the protein expression of AT2 receptor decreased (P <0.05). Compared with non-transfent control group and negative control group, eNOS activity and NO levels of the AT2 siRNA transfent group were significantly reduced.

**CONCLUSIONS**

Ang (1-9) -ACE2-AT2 signaling pathway is important in rhACE2’s promotion of the activity of human cardiac microvascular endothelial cell eNOS and the NO formation. 2. We compared the differences of office blood pressure, 24 hour ambulatory blood pressure and left ventricular hypertrophy, vascular stiffness and urine protein among groups of different sodium intake.

**RESULTS**

24 hour sodium excretion formulas was obtained using SMU and PMU respectively, which have good consistence. The difference between the estimated and measured values in sodium excretion is 12.66 mmol/day (SMU) and 9.41 mmol/day (PMU), to be equal to 0.7 (SMU) and 0.6 g (PMU) salt intake. Comparing with Kawasaki and Tanaka method, the new formula shows the lower degree of deviaion, and higher accuracy and precision. Blood pressure of high urina sodium group is higher than that in low urina sodium group (P <0.05). Left ventricular hypertrophy and urinary albumin / creatiine aggravated with the salt intake increase, this has eliminated the influence of other factors. All of morphologies of the relationship between ambulatory arterial stiffness index, pulse wave velocity and carotid intima-media thickness with quartiles of sodium intake was a J-shaped curve.

**GW26-e0487**

Relationship between Blood Pressure Circadian Rhythm and Early Renal damage in the patients with Primary Hypertension

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**OBJECTIVES**

To investigate the relationship between blood pressure circadian rhythm and early renal injury for the patients with primary hypertension.

**METHODS**

A total of 235 hypertensive patients were divided into two groups according to nocturnal blood pressure decline rate (<10% into non-dippers and >10% into dippers). The nocturnal blood pressure decline rate, 24 h blood pressure (24h-PP) and blood pressure index (PPI) were determined according to the data from ambulatory blood pressure monitoring. The glomerular filtration rate (eGFR) was calculated by the MDRD and Cockroft-Gault equations respectively. Fasting plasma glucose, BUN, Scr, Cys-C, TG, TC, LDL-C, HDL-C, UA and MAU were dynamically monitored and body mass index (BMI) was measured. The relationship between blood pressure circadian rhythm and early renal damage in the patients with primary hypertension was analyzed by using the univariate and multivariate regression methods. For all tests, P<0.05 was considered to be statistically significant.

**RESULTS**

The non-dipper group (n=149) has significantly lower eGFR level (80.6±21.8 v.s. 97.3±24.2 mL/min by MDRD equation, P<0.001; 70.4 v.s. 91.2 mL/min by Cockroft-Gault equation, P<0.001), but significantly higher MAU (5.6 v.s. 11.8 mg/L, P=0.012) and Cys-C levels (1.0 v.s. 0.9 mg/L, P=0.006) than the dippers (n=76). Moreover, comparing to the dippers, the non-dippers with higher 24h-PP (56 v.s. 50 mm Hg, P=0.008) and PPI (0.42±0.07 v.s. 0.39±0.06, P=0.001) were inclined to arteriosclerosis. The multivariate correlation and logistic regression analyses demonstrated that the N-SBP was correlated to MAU; BUN, Cys-C and PPI were correlated to eGFR based on the calculation with MDRD equation; and the Cys-C, D-DBP, 24-DBP, UA and BUN were correlated to eGFR based on the calculation with Cockroft-Gault equation.

**CONCLUSIONS**

The behavior of the early renal injury was significantly different between the non-dipper and dipper groups, which indicates the abnormal circadian rhythm of blood pressure could increase the renal target organ damage.

**GW26-e1287**

Aortic stiffness is associated with the central retinal arteriolar equivalent and retinal vascular fractal dimension in a population along the southeastern coast of China

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**OBJECTIVES**

The objective of this study was to evaluate the association of the central retinal arteriolar equivalent (CRAE) and the retinal