pressure in real time. Baroreflex sensitivity, sympathetic and parasympathetic activity were then estimated by solving the personalized mathematical model through nonlinear optimization. Experiments were carried out with 42 healthy subjects and 17 subjects with cardiovascular disease (CVD). Each subject wearing the equipment was asked to stay calm for a moment, and perform sit-to-stand 3 times, with long enough break in between. Baroreflex sensitivity is estimated as the slope of the curve of baroreflex firing rate vs blood pressure, sympathetic activity and parasympathetic activity are defined as the peak of the sympathetic and parasympathetic outflow vs time curve respectively.

RESULTS Baroreflex sensitivity estimated for healthy subjects and CVD subjects are 0.39 ± 0.10 and 0.71 ± 0.12, with P value of 0.006. Sympathetic activity estimated for healthy subjects and CVD subjects are 0.24 ± 0.07 and 0.11 ± 0.07, with P value of 0.001. Parasympathetic activity estimated for healthy subjects and CVD subjects are 0.39 ± 0.12 and 0.71 ± 0.12, with P value of 0.000.

CONCLUSIONS The proposed model-based evaluation of autonomic nervous system provides a quantitative, effective and transportable tool for quantitative measurement of baroreflex sensitivity, sympathetic and parasympathetic activity. Preliminary experiments have shown the specificity of these three measures in discriminant between healthy subjects and CVD subjects with P value all under 0.05.

GW26-e5384
The Relationship Between Polymorphism of The Angiotensin Converting Enzyme Gene and Essential Hypertension in Buyi and Han population in Guizhou
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OBJECTIVES This study aims to investigate the association of the polymorphism of angiotensin converting enzyme gene (ACE) gene with essential hypertension (EH) in Guizhou Qianan Buyi and Han isolated population

METHODS The method of polymerase chain reaction-restriction fragment length polymorphism (PCR-RFLP) was used to detect the frequency of each genotype and allele from 250 hypertension patients (EH group, 123 Buyi patients and 127 Han patients) and 204 normotensive subjects (control group, 155 Buyi controls and 149 Han controls) in Guizhou Qianan region.

RESULTS In ACE the frequency distribution of each genotype and allele and the EH group and control group accorded with Hardy-Weinbery genetic equilibrium law (P>0.05). There was significant difference in the frequency distribution of ID genotype and D allele of ACE gene between EH group and control group (P<0.01). There was significant difference in the frequency distribution of ID genotype and D allele of ACE gene between Buyi patients and Buyi controls (P<0.05). There was significant difference in the distribution of D allele of ACE gene between Han patients and Han controls (P<0.05)

CONCLUSIONS Our results indicated that the ID genotype and D allele polymorphism of ACE gene may have a relationship with Buyi EH patients, while the D allele polymorphism may be related to the Han EH patients in Guizhou Qianan region. It's more likely to suffer from essential hypertension for Buyi nationality who carry the ID genotype and D allele of ACE gene than that with no these genotypes, but it's more possible to suffer from essential hypertension for Han people who carry the D allele of ACE gene than that with no D allele. The polymorphism of ACE gene may be one of pathogenic factors of essential hypertension among Buyi population and Han population in Guizhou province.

GW26-e5773
Hemodynamics analysis of local carotid artery plaques and implication to plaque rupture
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OBJECTIVES The aim of the study was to investigate the hemodynamics of in vivo carotid artery using computational dynamics (CFD) and magnetic resonance angiography (MRA). Analyze the relationship between hemodynamics changes and atherosclerosis formation and progression.

METHODS (1) Acquire DICOM (Digital Imaging and Communications in Medicine) format image data from patients who has received carotid magnetic resonance angiography. These patients were divided into normal group and stenosed group.
(2) Import the DICOM format image data into MIMICS software and reconstruct patient-specific three Dimensional (3D) carotid artery models.
(3) Import the 3D carotid artery models into ANSYS software. Apply the ANSYS software for post-processing—ICEM (Integrated Computer Engineering and Manufacturing) to create infinite element grids.
(4) Hemodynamics parameters were obtained with a finite volume method by FLUENT software.
(5) Use the post-processing module of ANSYS software to obtain visualized pictures of parameter distributions.

RESULTS (1) Blood flow in normal straight artery was laminar, turbulence flow with low velocity occurred at the outer walls of bifurcation. However, velocity in local stenosis artery was fast.
(2) The distributions of wall pressure (WP) were uneven around bifurcations: the apices of bifurcation showed high WP while the outer walls of bifurcation showed low WP. WP appeared lower in stenosed region.
(3) The apices of bifurcation showed high WSS while the outer walls of bifurcation showed low WSS. However, high WSS were observed in stenosed region.

CONCLUSIONS (1) Changes of flow velocity and the appearance of turbulence flow are related to atherosclerosis. (2) Low WSS is related to the formation of atherosclerosis. (3) High velocity, Low WP and high WSS are related to the rupture of atherosclerosis plaques. (4) CFD provides an effective method to obtain accurate visualized hemodynamics parameters.

GW26-e4465
Internet-Based Approach in the Control of Hypertension among Working Adults Using Mixed Quantitative-Qualitative Methods: A Case of Non-Medical University Teachers
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OBJECTIVES This study developed a nurse and physician directed hypertension control programme using information technology, which helps to shift towards a more appropriate individualized interventions on lifestyle amongst non-medical universities teachers and students.

METHODS This study used a mixed method approach, with an integration of quantitative and qualitative research. The study was sequential; the qualitative phase was followed by the quantitative phase.

RESULTS In the qualitative study: 1) fearless of health changes as a result of without any awareness of hypertension; 2) confused with meaning of blood pressure control and getting angry; 3) seek to help from others; 4) focus on the health changes with actions.
In the quantitative study during the intervention, 24SDP significantly decreased by 2.98 mmHg 3 months later and 3.78 mmHg 6 months later, as compared with 24SDP before interventions (p = 0.029); 2) 24DBP significantly decreased by 3.18 mmHg and 4.02 mmHg for 3 months and 6 months later respectively than that before interventions (p = 0.008);
2) BMI did not statistically significantly decline after 3 months’ interventions (0.76 kg/m²), whilst it decreased by 1.49 kg/m² at the end of interventions (p = 0.033);
3) In terms of blood lipid and lipoprotein, HDL increased by 0.03 mmol/L at the end of interventions (p = 0.097); TC declined by 0.27 mmol/L and 0.61 mmol/L for 3 months and 6 months later respectively than that before interventions (p < 0.001); TG lowered by 0.28 mmol/L 3 months later and 0.33 mmol/L 6 months later compared to that before interventions (p = 0.019); LDL decreased