GW26-e1494  
The effect of sRAGE improvement on cardiac systolic dysfunction and inhibition on myocardial apoptosis induced by ischemia/reperfusion  
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OBJECTIVES  Ischemia/reperfusion (I/R) is a pathological process that results in extensive cell death. However, ischemic tissue of the myocardium is susceptible to be further injured deriving from reperfusion. Although the mechanism of I/R injury involves multiple cellular processes, apoptosis is an important pathogenesis of myocardial I/R injury. soluble receptor for advanced glycation end products (sRAGE), the N-terminal extracellular domain of the receptor for advanced glycation end products (RAGE), can be derived either from enzymatic cleavage of full-length cell-surface receptor or endogenous secretion of splice variants of RAGE. RAGE, expressed in many tissues, is a transmembrane protein member of the immunoglobulin superfamily. Activation of RAGE induces a number of cell processes, including inflammation, apoptosis, proliferation and autophagy. sRAGE may counteract RAGE-mediated pathogenesis by acting as a decoy. Previous studies have shown that sRAGE has a protective effect on coronary artery disease. However, the therapeutic effects of sRAGE in heart injury after I/R remain unclear. We hypothesized that sRAGE inhibits apoptosis induced by I/R in cardiomyocytes in vivo.

METHODS  C57BL/6J mice exposure to left anterior descending coronary artery ligation were used as in vivo models. At the end of reperfusion, cardiac function was evaluated with echocardiography, the myocardial infarct size was determined by the Evans blue/2, 3, 5-triphenyltetrazolium chloride (TTC) double staining, myocardial infarct area (I/R,36.3%) increased Left ventricular inside diameter (LVID) [(3.17±0.4)% vs (2.3±0.18)mm, P < 0.05], and Left ventricular posterior wall (LVPW) [(0.80±0.07)mm vs (1.8±0.07)mm, P < 0.05]. Compared to sham group, I/R decreased the cardiac systolic function in mice: lowered the Left ventricular anterior wall (LVAW) [(0.80±0.07)mm vs (1.18±0.07)mm, P < 0.05], and Left ventricular posterior wall (LVPW) [(1.8±0.03)mm] vs (1.8±0.01)mm, P < 0.05], increased left ventricular inside diameter (LVID) [(10.3±0.15)mm vs (2.13±0.18)mm, P < 0.05], and Left ventricular volume (LV vol) [(40.33±1.67)ml vs (15.52±3.47)ml, P < 0.05], decreased left ventricular ejection fractions (EF) [(30.9±3.2)% vs (72.4±2.1)%; P < 0.05], and left ventricular fractional shortening (FS) [(15.1±2.0)% vs (40.7±1.6)%; P < 0.05]. Compared to sham, 0% of AAR, P < 0.05), TUNEL-positive myocytes [(20.0±1.6)% vs (1.0±0.2)%; P < 0.05], and caspase-3 activity [2.64±0.4) vs (1.00±0.29); P < 0.05]. Compared to I/R group, sRAGE pre treatment significantly improved EF [66.5±2.0% vs (72.4±2.1)%, P < 0.05], and FS [(22.0±1.1)% vs (15.1±2.0)%; P < 0.05], lowered the myocardial infarct area (18.0%±1.1% of AAR vs 36.3%±2.3% of AAR), diminished TUNEL-positive myocytes [(9.2±1.0)% vs (20.0±1.6)%; P < 0.05], and caspase-3 activity [0.94±0.10% vs (2.34±0.49); P < 0.05]. There were rare TUNEL-positive nuclei both in sham and sham-sRAGE group (P > 0.05). There were no differences in LVAW, LVPW, LVID and LV vol between I/R and I/R-sRAGE groups.

CONCLUSIONS  These results suggest that sRAGE protects against I/R-induced myocardial injury via inhibiting apoptosis.

GW26-e2266  
Relation of Birth Weight to Infancy Growth on Body Fat Composition in Childhood  
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OBJECTIVES  To investigate the relation of birth weight to infancy growth on body fat composition in children.

METHODS  This cross-sectional study included 382 children aged 5 to 7 years old in Guangzhou. Birth weight and length was obtained from medical records as recorded in the delivery room. Weight and length during infancy (birth to 2 years old) were available from routinely collected from the individual health book. Physical examination included body weight, body height and body fat composition indexes (BMI, percentage of body fat (PBF), waist circumference (WC) to height ratio (WHR). BPF were assessed by bioelectric impedance analysis (BIA). PBF of 120 children 5–6 years old were assessed by multi-frequency bioelectrical impedance (Bio-space, InBody 3.0). According to birth weight tertile from low to high the children were divided into three groups: BW-I, BW-II, BW-III group.

RESULTS  Change in weight SDS between birth and 2 years was higher in BW-I group than in the BW-II group and BW-III group with the medical team, the ratio of prophylactic use of antibiotics in 3 cardiac surgeries, including permanent pacemaker implantation and coronary artery intervention (180 cases) and cardiac radiofrequency ablation (90 cases).

CONCLUSIONS  Based on this study, antimicrobial prophylaxis may not be routine for percutaneous coronary intervention and cardiac radiofrequency ablation. However, antimicrobial prophylaxis is recommended for permanent pacemaker implantation, and the course of antimicrobial prophylaxis should be adjusted to <48h. First generation cephalosporins have been shown to be effective for the prevention of SSIs in patients without being colonized with methicillin resistant Staphylococcus aureus.

GW26-e2424  
The role of mutant Plzf in metabolic and hemodynamic disturbances in spontaneously hypertensive rats  
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OBJECTIVES  The spontaneously hypertensive rat (SHR) is the most widely used model of essential hypertension and is predisposed to left
ventricular hypertrophy, myocardial fibrosis, and metabolic disturbances. Recently, a quantitative trait locus (QTL) influencing blood pressure, left ventricular mass and heart interstitial fibrosis was genetically isolated within 788 kb on chromosome 8 segment of SHR-PD5 congenic strain that contains only 7 genes, including mutant Plzf (Promyelocytic leukemia zinc finger protein) gene.

METHODS To identify Plzf as a quantitative trait gene (QTG), we targeted Plzf in the SHR using the TALEN technique and obtained SHR line harboring mutant Plzf gene with a premature stop codon at position of amino acid 58. The Plzf mutant allele is semi-lethal since approximately 95% of newborn homozygous animals die perinatally due to a caudal regression syndrome. Heterozygous rats were grossly normal and were used for metabolic and hemodynamic analyses.

RESULTS SHR-Plzf+/− versus SHR wild type controls exhibited reduced body weight and relative weight of epididymal fat, lower serum triglycerides and liver triglycerides, as well as lower serum cholesterol and liver cholesterol. In addition, SHR-Plzf+/− rats exhibited significantly increased sensitivity of adipose and muscle tissue to insulin action when compared to wild type controls. The SHR-Plzf+/− heterozygous rats vs. wild type controls showed significant amelioration of cardiomyocyte hypertrophy and fibrosis. Gene expression profiles revealed differential expression of genes with the role in cell cycle.

CONCLUSIONS These results provide evidence for important role of Plzf in regulation of metabolic and hemodynamic traits in the rat and suggest cross-talk between cell cycle regulators, metabolism, cardiac hypertrophy and fibrosis.

GW26-e0388
Adult Common Diseases Computer Diagnostic System
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OBJECTIVES Digital medical treatment is a new medical model which uses information technology through the entire medical process. In this study, we combined clinical medicine and information technology to construct “Adult Common Diseases Computer Diagnostic System” and evaluate its clinical diagnostic value on coronary artery disease, gastroduodenal ulcers and hypertension portal.

METHODS First, we selected some symptoms and their relative common diseases. Second, we edited diagnostic key points (cause, exciting cause, clinical manifestation, past history, personal history and family history) and chose knowledge-based diagnosis system according to questionnaires, guidelines and expertise, and stored them to the question database. And we stored diagnostic results (preliminary diagnosis, sign of disease, auxiliary examination and clinical departments to visit) to the answer database. Then we linked the two databases using metadata-base technology through special logic rules. After that, we evaluated diagnostic value on coronary artery disease of the diagnostic system (symptom: chest pain) in cardiovascular department and diagnostic value on gastroduodenal ulcers as well as hypertension portal of the diagnostic system (symptom: hematemesis) in digestive system department.

RESULTS “Adult Common Diseases Computer Diagnostic System” consists of four main interfaces. They are symptom selection interface (choose one’s own symptoms), symptomatic question interface (answer questions according to the patient’s symptoms), and diagnosis interface (review diagnostic results), and sign and auxiliary examination interface (review sign and auxiliary examination). 1310 patients with chest pain in cardiovascular department were included. Among the total, 1025 patients underwent coronary angiography (CAG). Compared with results of CAG for diagnosis of coronary artery disease, diagnostic value for system was a sensitivity of 97.4% and a specificity of 46.3% for angina pectoris; and a sensitivity of 58.1% and a specificity of 83.8% for myocardial infarction. 170 patients with hematemesis in digestive system department were included, 127 among them underwent gastroscopy. Compared with results of gastroscopy for diagnosis of gastroduodenal ulcer, diagnostic value for system was a sensitivity of 50% and a specificity of 85.9%. Compared with clinical diagnosis for portal hypertension, diagnostic value for system was a sensitivity of 54.3% and a specificity of 90.8%.

CONCLUSIONS We succeed to create “Adult Common Diseases Computer Diagnostic System”. In view of preliminary clinical evaluation, the system had a good clinical diagnostic value for being widely used.

GW26-e0382
Myocardial ischemia due to pegylated interferon alpha-2a treatment in a patient with chronic hepatitis B
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OBJECTIVES Many undesirable effects may appear during interferon alpha treatment for chronic hepatitis B. However, only a few cardiovascular adverse effects associated with interferon alpha have been reported. This paper provides a rare case report regarding cardiac toxicity of interferon alpha for chronic hepatitis B treatment.

METHODS After 4 months of pegylated interferon alpha-2a treatment, a 38-year-old male patient with chronic viral hepatitis B developed mild chest tightness and chest pain accompanied by nausea, vomiting. Dynamic electrocardiogram showed paroxysmal tachycardia and abnormal ST-T wave inversion.

RESULTS After withdrawal of interferon alpha, symptoms such as chest tightness, chest pain and T wave inversion were gradually relieved. The patient had no history of coronary heart disease before medication, so myocardial ischemia due to interferon alpha-2a treatment was considered.

CONCLUSIONS Although interferon-induced myocardial ischemia is rare, it will likely to occur, especially in patients with history of coronary artery disease, and such patients should be treated timely. Prescribers should be alert to the possibility of this severe adverse drug reaction associated with interferon use.

GW26-e1591
Impact of blood glucose variability on cardiac structure and function in patients with type 2 diabetes mellitus
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OBJECTIVES Hyperglycemia is a risk factor for cardiovascular diseases. However, the relationship between blood glucose variability and cardiac structure and function remains unclear. The present study aimed to explore the impact of glucose variability on cardiac structure and function in patients with type 2 diabetes mellitus (T2DM).

METHODS According to glucose variability, which was assessed by mean amplitude of glycemic excursions (MAGE), 63 consecutive type 2 diabetic patients under glycemic control without any coronary artery disease and hypertension were divided into two groups: subjects with non-glucose fluctuation (MAGE<3.9mmol/l, n=31) and subjects with glucose fluctuation (MAGE>3.9mmol/l, n=32). Thirty healthy controls (NC) were also enrolled. Myocardial structural and functional changes were evaluated by echocardiography including left ventricle end diastolic diameter (LVDD), left ventricle end systolic diameter (LVEDS), left ventricle end diastolic volume (LVEDV), left ventricular end systolic volume (LVESV), interventricular septal thickness (IVST), left ventricular posterior wall thickness (LVPW), ejection fraction (EF), Mitral E wave, Mitral A wave, E/A ratio, and Tei index.

RESULTS LVDD, LVEDS, IVST, LVPW and LVEF had no significant differences among all groups (p>0.05). However, when compared to non-glucose fluctuation subjects and NC group, LVDD (51.2±4.49mm vs. 46.14±4.65mm, p=0.05 vs. 0.05) and LVEDV (101.32±4.93mm vs. 87.83±6.19mm vs. 90.51±5.34mm, p=0.05 vs. 0.05) were significant higher in patients with glucose fluctuation, while E/A ratio was significant lower (6.77±0.38 vs. 9.85±0.46 vs. 12.85±0.23, p<0.05). Furthermore, the Tei index was higher in T2DM patients than in the NC group (0.49±0.1, 0.40±0.05, p<0.05, respectively), and was further increase in T2DM patients with glucose fluctuation than that in patients with non-glucose fluctuation (0.52±0.01 vs. 0.48±0.11, p<0.05).

CONCLUSIONS Blood glucose variability might impair myocardial performances of T2DM patients, especially for diastolic function, which contributes to the risk of cardiomyopathy among diabetic individuals.