

**GW26-e4495****A study of the association of plasma irisin levels and coronary artery diseases**

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**OBJECTIVES** Irisin is a newly discovered myokine, which is involved in energy metabolism and associated with 'browning' of the white adipose tissue, obesity, diabetes mellitus and metabolic syndrome. It's still uncertain that whether plasma irisin level is associated with coronary artery diseases (CAD). The purpose of this study is to explore the relationship between circulating irisin levels and CAD.

**METHODS** A total of 209 patients complained with 'chest discomfort' undergone coronary angiography were enrolled in this study. They were divided into non-CAD (n=74) and CAD (n=135) groups. The CAD group was further divided into three groups: SAP (n=52), UAP (n=30), AMI (n=53). The levels of plasma irisin, clinical parameters, lipid profile and C reactive protein (CRP) were measured. and echocardiography was performed on enrolled subjects.

**RESULTS** The levels of plasma irisin were significantly higher in the CAD group (124.10±58.56 ng/ml) than those in the non-CAD group (95.66±59.8 ng/ml), p=0.001. And positively associated with aortic root diameter (0.181, p=0.046), left ventricular posterior wall thickness (0.191, p=0.035), interventricular septum thickness (0.207, p=0.022), and multiple linear regression reveal that irisin concentration is associated with blood uric acid (r=0.397, p=0.003), serum creatinine (r=-2.239, p=0.03) independently. The levels of plasma irisin were significantly lower in the SAP group than UAP group (103.48±61.50 ng/mL VS 133.67±58.24 ng/mL, P=0.021) and AMI group (103.48±61.50 ng/mL VS 139.20±50.12 ng/mL, P=0.002). But it is not significantly difference between UAP and AMI group (133.67±58.24 ng/mL VS 139.20±50.12 ng/mL, P=0.671). The plasma irisin concentration of CAD patients with normal renal function or abnormal renal function were 125.69±59.66 ng/mL, 110.78±51.09 ng/mL (P=0.33), respectively. After one year of follow up of AMI group subjects, the data show that the incidence of MACEs is lower in irisin > median group (32.14%) than irisin < median group (50%).

**CONCLUSIONS** The plasma irisin concentration is higher in CAD patients than non CAD subjects, and correlated with aortic root diameter, left ventricular posterior wall thickness, interventricular septum thickness, blood uric acid, serum creatinine in the CAD patients. And gradually increasing in the subgroups of CAD (SAP, UAP, AMI). And lower in patients of CAD with normal renal function than abnormal renal function. The incidence of MACEs is lower in AMI subjects with higher irisin levels undergone percutaneous coronary intervention treatment.

**GW26-e0387****Thromboelastograph in the clinical application of acute coronary syndrome**

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**OBJECTIVES** The purpose of this study is to clear the relationship platelet reactivity to adenosine diphosphate by Thromboelastograph with ischemic events after PCI.

**METHODS** We measured platelet reactivity to adenosine diphosphate (ADP) by Thromboelastograph in acute coronary syndrome undergoing PCI (n=89). All patients take orally clopidogrel with loading dose of 300 mg, or maintenance dose of 75 mg at least 3 days. According to the result of Thromboelastograph, We divide the ADP inhibition rate into the two groups (A group ADP inhibition rate more than 50% and B group ADP inhibition rate less than 50%), and observe six to nine months events of the two groups. End point events were defined as new cardiovascular events (death, myocardial infarction, myocardial ischemia, peripheral vascular disease) and new cerebrovascular events (cerebral infarct and hemorrhage).

**RESULTS** Within six to nine months after discharge, 11 of 22 patients in A group occurred events, including TIA (n=1), unstable angina (n=5), variant angina pectoris (n=1), NSTEMI (n=1), STEMI (n=1), cardiac insufficiency (n=1). However in B group, there were 19 events that occurred in 67 patients within six to nine months after discharge, including death (n=1), cerebral infarction (n=1), NSTEMI (n=1), unstable angina (n=16). There was significant statistical difference between the two groups on gender, history of high blood pressure, urea

nitrogen, platelet inhibition mediated by ADP, AA (arachidonic acid) of platelet inhibition mediated by AA (arachidonic acid), ADP mediated MA (P=0.004, P=0.022, P=0.029, P=0, P=0, P=0). Logistic regression analyses revealed that ADP mediated MA is the independent predict factors of the occurrence of major cardiovascular and cerebrovascular events (P=0.029).

**CONCLUSIONS** All data shows that ADP mediated platelet MA value can guidance antiplatelet therapy in patients at risk of acute coronary syndrome, so as to reduce the incidence of end point events.

**GW26-e0397****Impact of rhBNP on reperfusion injury in the patients with acute myocardial infarction undergoing emergency percutaneous coronary intervention**

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**OBJECTIVES** To investigate the effect of Lyophilized Recombinant Human Brain Natriuretic Peptide (rhBNP) on myocardial reperfusion injury in the patients with ST-segment elevation myocardial infarction (STEMI) of anterior wall undergoing emergency percutaneous coronary intervention (PCI).

**METHODS** This prospective study included patients with acute STEMI of anterior wall undergoing emergency PCI hospitalized at Affiliated Zhongshan hospital of Dalian University from January 2013 to October 2014. Patients with SBP < 100mmHg, culprit vessel blood flow of TIMI 2-3 before PCI, and renal insufficiency were excluded. 60 patients were randomly divided into rhBNP group (n = 29) and control group (n = 31). In the rhBNP group, rhBNP was injected by intravenous with 1.5 ug/kg between 3 minutes and 5 minutes followed with continuous infusion of 0.01ug<sup>-1</sup>·min<sup>-1</sup>, and the total dose of rhBNP was 0.5g in each patient. Other procedures of rhBNP group were similar with those of control group. Patients' demographic, clinical and angiographic characteristics were obtained. The superoxide dismutase (SOD), malonaldehyde (MDA) were measured. The parameters presenting myocardial infarction including corrected TIMI framecount (CTFC) and myocardial blush grade (MBG) were calculated. The reperfusion arrhythmias was recorded. Left ventricular ejection fraction (LVEF) of the recruited patients was assessed at 3-5 days and 6 weeks after emergency PCI.

**RESULTS** The serum level of MDA significantly lower (5.52±1.21 vs. 6.72±1.22, p<0.05), and serum SOD level was significantly higher in rhBNP group than those in control group (84.93.52±14.28 vs. 73.92±13.71, p<0.05). Compared with control group, CTFC was significantly lower in rhBNP group (24.23±3.65 vs. 26.97±3.28, p<0.05). The MBG ≥ grade 2 was more common (86.21% vs. 61.29%, p<0.05), and incidence of reperfusion arrhythmias was less common in rhBNP group than those in control (all p<0.05). RhBNP group patients' LVEF was higher than that in control group at both 3 days and 6 weeks after emergency PCI (53.82±9.26 vs. 51.45±10.12 and 55.12±11.54 vs. 52.17±13.03 respectively, all p<0.05). No significant differences including age, gender, hypertension, diabetes, hyperlipidemia, history of previous myocardial infarction, blood pressure and heart rate before PCI, time from onset to balloon, diseased vessel number and culprit lesion site were observed between the two groups.

**CONCLUSIONS** RhBNP can effectively reduce myocardial ischemia-reperfusion injury in patients with STEMI of anterior wall after emergency PCI.

**GW26-e0501****Characteristics of coagulation-anticoagulation-fibrinolytic system related gene mRNA expression in patients with acute myocardial infarction and stable angina pectoris**

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**OBJECTIVES** The objective of this study was to investigate expression differences of coagulation -anticoagulation - fibrinolytic system related genes mRNA among acute myocardial infarction (AMI), stable angina pectoris (SAP) and control groups, and then analyze systematically their dynamic trends in myocardial ischemia as well as arterial thrombosis.

**METHODS** Whole Human Genome Oligo Microarrays were applied to assess the differential expression characteristics of coagulation -anticoagulation - fibrinolytic system related mRNAs in patients with AMI (n=20), SAP (n=20) and controls (n=20).

**RESULTS** (1) Compared with control group, the expression of 4 mRNAs related to coagulant factors (FGB, F5, F8 and F13) was obviously elevated ( $P < 0.05$ ) in patients with CAD, and the expression of 2 mRNAs (F5 and F8) among 14 genes was significantly up-regulated ( $P < 0.01$ ) in the AMI groups. (2) In AMI group, the expression of all mRNAs related to anticoagulant factors was higher than SAP and control groups, especially, the expression of 3 mRNA (TFPI, THBD and SERPINA1) among 8 genes was significantly up-regulated ( $P < 0.01$ ). (3) Compared with control group, the expression of 3 fibrinolysis factor-related mRNAs (SERPINE1, PLAU and PLAUR) was significantly up-regulated ( $P < 0.01$ ) in both groups AMI and SAP. PLAT mRNA expression was not obviously elevated and PLG mRNA expression was down-regulated in AMI and SAP groups.

**CONCLUSIONS** In this study, there were imbalances in the expression of mRNAs among coagulation, anticoagulation and fibrinolysis; the expression of many mRNAs related to coagulant factors and anticoagulant factors was significantly up-regulated, and the expression of mRNAs related to fibrinolytic system was disordered.

This disequilibrium plays an important role in the progression of coronary artery disease and arterial thrombosis.

#### GW26-e1456

##### The Clinical Characteristics, Treatment Status and Their Relations to Prognosis among Patients Admitted to Tertiary A TCM hospital for Acute Myocardial Infarction

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**OBJECTIVES** To improve clinical quality and patient outcomes in tertiary A TCM hospitals by providing evidence-based findings which obtained through investigation done on patients' characteristics, treatments status and prognosis among patients admitted for AMI during 2013.

**METHODS** This research is done through analysis of all AMI in-patient medical records sampled from 29 participated TCM hospitals based on the diagnosis and treatments guideline for MI issued by Chinese Medical Association. Cases data were obtained through standardized CRF that looks into patients' clinical characteristics, treatment and prognosis. Data were managed with Microsoft SQL Server. We adopted descriptive analysis method on general information with SPSS 15.0, while logistic regression method was employed to conduct multiplicity analysis on their related prognosis. Statistical significant was defined as  $P \leq 0.05$ .

**RESULTS** Total of 1217 AMI patients were reported to be admitted by the 29 hospitals which agreed to participate in this research from 1<sup>st</sup> Jan to 31<sup>st</sup> Dec, 2013. Mean age of the sampled patients was  $65.48 \pm 12.96$  years old, among which, 52.42% were over 65 years old, 357 (29.55%) were female. 402 patients (34.04%) has been smoking regularly while 225 (19.50%) has been regular drinker; 61.16%, 32.00% and 34.63% were reported to be associated with HTN, DM and hyperlipidemia respectively. 439 patients (37.91%) had historical diagnosis of CHD, 136 (12.18%) had MI; 218 patients (18.59%) had CVD. Meanwhile, 686 cases (59.04%) of STEMI patients were found among all studied patients; 291 cases (24.87%) were diagnosed with arrhythmias on admission. The rate of patients with in-hospital Killip classification I, II, III, IV was 54.15%, 23.50%, 8.79%, 7.97% separately. The most frequently occurred TCM syndromes type of deficient were: heart-QI deficiency (62.37%), heart-YIN deficiency (19.15%), spleen & kidney-QI deficiency (10.19%). 1053 (86.52%) cases showed symptoms of blood stasis, while 606 (49.80%) showed characteristics of phlegm and retained fluid. 536 (44.04%) patients underwent early reperfusion treatments. 1101 (90.47%) and 530 (43.55%) of all cases had received Chinese patent drug intravenously and orally, 741 (60.89%) patients had been given TCM decoction subscriptions. After eliminated interactions effects, our finding indicates the following factors has significant influences on the death rate of studied AMI patients: age, history of diabetes, arrhythmia, Killip classification, TCM clinical manifestations of spleen & kidney-QI deficiency or cold coagulation, early revascularization, oral Chinese patent drug and TCM decoction.

**CONCLUSIONS** Findings suggested that the risk factors of in-hospital mortality including: age  $\geq 65$  years, previous medical history of diabetes or arrhythmia, Killip classification  $\geq 1$ , TCM clinical manifestations of spleen & kidney-QI deficiency or cold coagulation. Meanwhile, early reperfusion, oral Chinese patent drug and decoction may have positively improved short-term prognosis of AMI patients.

#### GW26-e2511

##### The Correlation Analysis between plasma Cystatin C and the prognosis of Patients with STEMI

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**OBJECTIVES** In recent years, the mortality of acute ST segment Elevation Myocardial Infarction (STEMI) has been increased. Early assessment for prognosis of STEMI patients is very significant. Although there already have some clinical marker for predicting the prognosis of STEMI, it's still dissatisfied. Preliminary research showed that Cystatin C (Cys-C) has the independent prediction value for STEMI. It seems to be that Cys-C might be involved in atherosclerotic processes. Another study show that Cys-C and its fragments may also affect the phagocytic and chemotactic ability of neutrophil, participates in the inflammatory process and regulates inflammatory responses. This study aims to analysis the correlation between plasma Cys-C and the MACE in STEMI patients.

**METHODS** Hospitalized patients in coronary care unit of the First Affiliated Hospital of Harbin Medical University from January 2012 to December 2013 are selected. Patients were diagnosed as STEMI. A total of 445 patients are selected. Observation indicator is the major adverse cardiovascular events (MACE) occurrence of those patients in-hospital and out-hospital. Patients are divided MACE group and non-MACE group. Statistical analysis is performed. ROC curves of Cys-C, hsCRP, TNI and CKMB are respectively drawn. The predatory value for MACE as well as to determine the threshold value. According to the concentration of plasma Cys-C, patients are divided high concentration group and low concentration group, and respectively statistical analysis for two group patients, thus evaluating the correlation among plasma Cys-C level, the prognosis and adverse events of patients with STEMI.

**RESULTS** 1. The single factor analysis shows that the average value of Cys-C in the MACE group is  $1.09 \pm 0.23$  mg/L, while in the non-MACE group it is  $0.82 \pm 0.15$  mg/L, and there is statistical difference between two groups ( $P < 0.0001$ ).

2. Multiple factors analysis shows that OR value of Cys-C is 9.710, 95% CI (5.971, 5.971), indicating that Cys-C is an independent risk factor of AMI.

3. The area under ROC curve of Cys-C is 0.8431, higher than that of Hs-CRP (0.6249), TNI (0.544) and CK-MB (0.5569). The best cutoff values that Cys-C predicting the MACE in STEMI patients is 0.94 mg/L, the sensitivity was 77.14%, specificity of 80.85%.

4. With terms in-hospital stay, out-hospital in 1 ~ 6 months and in 7 ~ 12 months, in comparison, the incidence of MACE for the higher concentration group are 57%, 31.64% and 48.57%, and the lower group are 17.96%, 2.49% and 7.08% separately,  $P < 0.05$ ; and for terms in-hospital stay, out-hospital within 1 ~ 6 months and within 7 ~ 12 months, the total mortality of higher concentration group is 11.5%, 30% and 48.5%, and the lower concentration group, 1.63%, 2.04% and 8.89% separately,  $P < 0.05$ .

**CONCLUSIONS** There might be some correlation between the Cys-C and the MACE in STEMI patients. Cys-C is an independent risk factor and potential prognosis indicator for MACE that happens both in-hospital and out-hospital in STEMI patients.

#### GW26-e4568

##### Mean Platelet Volume is the Predictor of Poor Myocardial Perfusion post Primary PCI

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**OBJECTIVES** Mean platelet volume (MPV) is shown to be the predictor of poor clinical outcome, as well as poor TIMI flow in patients receiving primary percutaneous coronary intervention (PPCI). But the correlation of MPV and myocardial perfusion has not been well demonstrated. So the aim of our study was to investigate the relationship between pre-intervention MPV and myocardial perfusion post PPCI in patient with acute ST-segment elevation myocardial infarction (STEMI).

**METHODS** Total of 168 consecutive patients from 2012, January to 2014, December suffered from STEMI undergoing PPCI were analyzed retrospectively. The inclusion criteria were (1) age  $> 65$  yrs; (2) PPCI was performed within 12 hours from symptom onset; (3) the infarct-related artery (IRA) was totally occluded; and (4) post intervention flow was TIMI 2 or greater. Exclusion criteria were (1) post history of myocardial infarction, CABG or PCI of IRA; (2) presentation with shock or cardiac arrest; (3) TIMI 1 or greater flow at IRA at initial angiography; and