Acute Coronary Syndrome

GW25-e3564
Impact of heart rate control on prognosis in patients with ST-segment elevation myocardial infarction

Wang Zhihao1, Liu Dayi2
1Departments of Geriatrics Medicine, The Bethune First Hospital of Jilin University, Changchun 130021, China, 2Department of Cardiology, General Hospital of Daqing Oil Field, Heilongjiang Daqing 163001, China

Objectives: To investigate the impact of the heart rate control on Cardiovascular events and cardiac function in patients with ST-segment elevation myocardial infarction (STEMI).

Methods: It was a retrospective analysis of 228 patients with ST-segment elevation myocardial infarction treated in the department of Cardiology of the 1st Hospital of Jilin University enrolled in this study from March, 2013 through March, 2014. The patients were randomly divided into 2 groups of enhanced heart rate control group A (112 cases) and control group B (116 cases).Group A: with Metoprolol Succinate Sustained-release Tablets. Group B: Metoprolol Succinate Sustained-release Tablets. Target resting heart rate was 55-65 beats / min. The starting dose of Metoprolol Succinate Sustained-release Tablets was 47.5 mg, and we calibrated resting heart rate once a week, if the heart rate was greater than 65 beats / min, the Metoprolol Succinate Sustained-release Tablets increase the amount of 23.75mg until the resting heart rate reached the standard. Random sample of the same period of hospitalization ST segment elevation myocardial infarction as a control group with no Metoprolol Succinate Sustained-release Tablets. We recorded series of events within one year including of episodes of angina, recurrent myocardial infarction, coronary revascularization, heart failure, left ventricular end-diastolic diameter, serum brain natriuretic peptide (BNP), left ventricular ejection fraction (LVEF), fatal arrhythmias and cardiac deaths.

Results: Enhanced heart rate control group was significantly lower in angina pectoris, coronary revascularization, heart failure, death, re-infarction, fatal arrhythmias, Left ventricular end-diastolic diameter and BNP than control group (P<0.05). LVEF was significantly higher in enhanced heart rate control group than in control group (P<0.05).

Conclusions: The study shows that heart rate control with Metoprolol Succinate Sustained-release Tablets can antagonize sympathetic activity as well and may improve prognosis in patients with STEMI.

GW25-e2265
Clinical epidemiological study of the hypothesis of endogenous collateral wind on Acute coronary syndrome

Wang Xuan1,2, Yang Ran2, Sun Tian2,3, Li Hong-Mei2,3, Chen Jian-Xin2
1Dongzhimen hospital Affiliated to Beijing University of Chinese Medicine, 2Beijing University of Chinese Medicine

Objectives: To study the distribution characteristics of TCM four diagnostic information and syndrome of patients with Acute Coronary Syndrome (ACS).

Methods: The demographic data and TCM four diagnostic information of 300 eligible patients were collected through the clinical epidemiologic methods, and then hierarchical clustering methods and frequency analysis methods were adopted for data analyzing by STATISTICA 6 software and SPSS17.0 statistical software.

Results: (1) Endogenous collateral wind was an independent syndrome of TCM chest pain; (2) Qi deficiency was the main and facultative syndrome of endogenous collateral wind; (3) Blood stasis syndrome had less correlation with endogenous collateral wind; (4) Qi deiciency was the main and facultative syndrome of endogenous collateral wind and Qi deficiency; (4) Endogenous collateral wind syndrome also related to Yin deficiency.

Conclusions: It is the preliminary evidence that endogenous collateral wind is the important pathogenesis of acute coronary syndrome.

GW25-e0153
Outcomes in Patients with Non-ST-Elevation Acute Coronary Syndrome Randomly Assigned To An Invasive as Compared With A Conservative Strategy: A Meta-Analysis

Li Yingqin1, Liu Na1, Lu Jianhua1
1Guangzhou First People’s Hospital, Guangzhou Medical University, 2Sun Yat-sen University Cancer Center

Objectives: The goal of the present study was to compare the prognosis of patients with non-ST-elevation acute coronary syndromes (NSTE-ACS) which treated by invasive or conservative treatment strategy.

Methods: We performed a meta-analysis of studies in patients with NSTE-ACS to assess the effect between invasive and conservative strategy for short- and long-term survival. We searched PubMed for published studies from 1990 to November 2012 that studied the effects of an invasive vs. conservative strategy in patients with NSTE-ACS, and using the search terms non-ST-elevation myocardial infarction, unstable angina, acute coronary syndromes, invasive strategy and conservative strategy. The primary endpoints were all-cause mortality at 30 days and 1 year.

Results: Seven published studies were included in the present meta-analysis. The pooled analyses showed that invasive strategy decrease the chance of death (risk ratio [RR] 0.839 [95% confidence interval [CI] 0.648-1.086]; P = 0.465%) compared to conservative strategy during 30 days. Furthermore, invasive treatment could also decrease the mortality (RR 0.276 [95% CI (0.259-0.304); P = 0.459%]) compared to conservative strategy until 1 year.

Conclusions: In NSTE-ACS, compared with conservative strategy, the invasive strategy has a comparable benefit to decrease the mortality of short- and long-term.

GW25-e0534
JAK2V617F mutation positive polycythemia Vera complicating acute coronary syndrome: a report of 2 cases and literature review

Yang Ming, Zeng Yong
Peking Union Medical College Hospital

Objectives: To review the clinical features, diagnosis, prognosis and treatment of polycythemia Vera (PV) complicating acute coronary syndrome (ACS).

Methods: The clinical data of two PV complicating ACS patients admitted to Peking Union Medical College Hospital were retrospectively analyzed and the review of recent literatures was performed.

Results: Case 1 was a 65-year old man who had been diagnosed PV with a positive mutation JAK2V617F mutation 3 years ago. At presentation, the patient was suffering from recurrent angina pectoris, and coronary angiography revealed that there was a severe (80%) lesion in the middle segment of left circumflex and a Xience V stent was implanted. After the percutaneous transluminal coronary intervention (PCI), secondary prevention for coronary heart disease and hydroxyurea for PV were given to the patient and the patient has been followed up regularly for more than three years and he is going on well. Case 2 is a 44-year old man who was diagnosed PV with a positive result of JAK2 mutation 3 years ago and hydroxyurea, interferon, aspirin was prescribed. He was then to develop splenic infarction, thrombosis of splenic vein,regional portal hypertension, severe varices of fundus of stomach and upper gastrointestinal bleeding, 2 months ago, an AMI of inferior wall occurred and the angiographic findings demonstrated an thrombotic lesion in the proximal segment of the right coronary artery with a moderate stenosis (60%). 1 month ago, an AMI of anterior wall developed and coronary angiography discovered that there were diffuse thrombus in the proximal segment of left anterior descending artery with a severe stenosis (90%) and a complete occlusion in the right coronary artery. After double antiplatelet therapy with anticoagulation therapy of warfarin was given, the patient recovered gradually.

Conclusions: PV complicating ACS is relatively rare. According to recent studies, positive result of JAK2V617F mutation, leukocytosis, age greater than 65 years and positive history of thrombosis were the most important predictors of cardiovascular events. Clinicians should combine clinical features, coronary angiography findings and complications in hope of making an individualized treatment. For those with thrombotic lesion in the coronary artery due to the hypercoagulative state caused by PV, it should be cautious to carry out a coronary revascularization treatment.

GW25-e0766
Comparison of Circulating Dendritic Cells and Monocyte Subsets at Different Stages of Atherosclerosis: insights from optical coherence tomography

Zhuang Jianhui, Zhu Gouya, Li Xiankai, Xu Yawei
Shanghai Tenth People’s Hospital, Tongji University School of Medicine

Objectives: Proinflammatory dermritic cells (DC) and monocytes are critically involved in the proceeding and destabilization of atherosclerosis. Recent studies have reported potential associations of specific patterns of circulating DCs and monocytes with the incidence of coronary artery disease (CAD) and ST-elevation myocardial infarction (STEMI); however, further information of DC and monocyte subsets on plaque morphology and vulnerability is uncertain and required.

Methods: Forty-seven CAD patients with borderline lesions (stenosis 50%-70%) by coronary angiography (CAG) were enrolled, while 31 subjects free of luminal diameter narrowing ≥ 50% served as controls. Likewise, 35 patients with STEMI with heart rate reached the standard. Random sample of the same period of hospitalization ST segment elevation myocardial infarction as a control group with no STEMI were evaluated at the site of the minimum lumen area and culprit lesions by optical coherence tomography. Peripheral blood (6 ml) was collected from each patient and drawn into heparin-anticoagulated tubes at entry. Circulating myeloid dendritic cells (mDCs) and monocyte subsets were analyzed using flow cytometry. Plasma levels of biomedical markers, including Lp-PLA2, PTX3, FABP3, FABP4 and myeloperoxidase, were measured using commercial available ELISA assays.

Results: There was no discrepancy in the peripheral total white blood cell count, differential count among three groups. Compared to control group, patients with CAD and STEMI had significantly lower proportions of mDC1, mDC2, pDC and a remarkable higher proportion of monocytes with intermediate CD16 expression (Mon2, CD14+CD16+) in peripheral blood. In the OCT subgroup, patients with thin- coronary cap thrombosis (TCFA) had a higher proportion of mDC2 than those without TCFA (0.70% ± 0.38% and 1.42% ± 0.51%, P = 0.021). Otherwise, Mon2 proportion retained a higher level in patients with TCFA relative to those without TCFA (17.82% ± 3.69% and 14.19% ± 2.37%, P = 0.034). When proportions were...
converted into absolute value, as oppose to a gradual rise in the number of Mon2/ml, the number of mDC2/ml remain gradually decreased with the progress of plaque vulnerability. Plasma levels of Lp-PLA2, PTX3, FABP4 and myeloperoxidase, all of which reflected coronary plaque vulnerability, were positively correlated with the number of Mon2/ml, but negatively with the number of mDC2/ml.

Conclusions: Circulating subsets of mDC2 and Mon2 appear to be promising markers of plaque stabilization and rupture.

GW25-e0795
Relationship between Stress Hyperglycemia and in hospital Mortality and Complications in Patients with Acute Myocardial Infarction
Zhou Na, Li Zen
First Affiliated Hospital Of Dalian University
Objectives: To investigate the effect of stress hyperglycemia on the mortality and cardiovascular events in patients with acute myocardial infarction (AMI).
Methods: The study covered 1226 patients with the diagnosis of acute myocardial Infarction admitted in CCU from January 2010 to December 2012 in the First Affiliated Hospital of Dalian University. Based on the level of fasting blood glucose (FBG), all patients were grouped into two groups: high blood glucose group (HBG group, ≥7mmol/L) and non-high blood glucose group (non-HBG group, <7mmol/L). Based on the history of diabetes were grouped into non-diabetes mellitus group (NDM) and diabetes mellitus group (DM group). According to the level of FBG, patients with DM and NDM group were further divided into group A (FBG<7.0mmol/L), group B (7.0mmol/L<FBG<9.0mmol/L), group C (9.0mmol/L<FBG<11.1mmol/L), group D (FBG>11.1mmol/L). Respectively. Compare the differences of the mortality and the rate of acute heart failure, cardiogenic shock and main arrhythmias among these groups.

Results: The rate of high FBG is 34.1% in all AMI, among 37% patients without history of diabetes mellitus. Compare with the 808 non-HBG groups patients, the 418 HBG group patients had higher mortality (9.1% vs 2.1%) and higher rate of acute heart failure (37.8% vs 21.2%), cardiogenic shock (7.9% vs 0.7%) and main arrhythmias (25.6% vs 16.5%) (all P<0.01). The mortality (6.4% vs 3.7%) and the rate of acute heart failure (35.9% vs 23.0%) and cardiogenic shock (6.6% vs 1.7%) are greater in the 362 DM group patients than the 864 NDM group (P<0.05). Among the NDM group, the mortality and cardiovascular complications increased incrementally with the increasing of FBG. Compared with group A, the mortality and the rate of acute heart failure, cardiogenic shock and main arrhythmias of group B, group C, group D are significantly higher (all P<0.05). Compared with group B, that mortality of group D increased significantly from 2.0% to 7.0%, P<0.01. In the DM group, the mortality showed no significant differences with the increased FBG levels, but the rate of acute heart failure increased incrementally as FBG reached 9 mmol/L compared with group A (P<0.01). The mortality of impaired fasting glucose (IFG) patients is similar to the patients with normal FBG (2.4% vs 1.9%, P=0.05), and significantly lower than the patients with FBG≥7.0mmol/L. (11.5% vs 2.4%, P<0.01).

Conclusions: The stress hyperglycemia could be used as a predictor of inhospital mortality and cardiovascular events for patients with AMI. The elevation of FBG increases the mortality and the incidence of acute heart failure, cardiogenic shock, and main arrhythmia (with NDM). But the relationship between DM and NDM patients. In NDM patients, as the FBG level increased, the mortality increased significantly, but this results was not obtained in DM group. In DM group, the incidence of acute heart failure was significantly increased as the FBG level increased.

GW25-e2360
The changes of PPARγ and EPCs in patients with ACS complicated with diabetes mellitus and the effect of Irbesartan on them
Li Xiaoyan, Sun Qing
Department of Cardiology, General Hospital of Jinan Military Region
Objectives: To observe the level of PPARγ and EPCs in patients suffered from ACS combined with Type-2 diabetes mellitus (T2DM) and without T2DM, analysis the relationship between PPARγ, EPCs and ACS, T2DM, furthermore explore the influence of Irbesartan on them to study the mechanisms of endothelial protection beyond the antihypertensive effect of Irbesartan, hoping to find a new treatment method for ACS combined with T2DM.
Methods: 102 patients suffered from ACS was enrolled into our study, of which 52 of them combined with T2DM (ACSDM group) and the other 50 patients only suffered from ACS. Meanwhile, we selected 30 patients without coronary heart disease and T2DM as the control group. To all patients, blood was drew when they were enrolled to detect the level of PPARγ and CD34+/CD45−/CD34+ EPCs. All basic clinic data, CAG and then Gensini score were compared among all groups. ACSDM group patients were divided into A, B two group randomly. Patients, who were in A group, were treated with irbesartan 75mg po qd excepting conventional treatment of coronary heart and diabetes. Patients, who were in B group, were treated without Irbesartan. Blood was drew again after 12 weeks. The level of PPARγ was detected by enzyme-linked immunosorbent method, meanwhile EPCs was detected by Flow cytometry instrument. And the levels of PPARγ and EPCs were measured by vasodilator-stimulated phosphoprotein (VASP) phosphorylation flow.

Results: (1) The basic clinic data among each group, such as age, sex, body mass index (BMI), smoking history, blood pressure, stain use, TG, HDL-CH, TC, LDL-CH, blood urea nitrogen, creatinine were no difference (P(all)>0.05). CHD history, STEMI/ NSTEMI were no difference in ACS group and ACSDM group (P(all)>0.05). FBG, HbA1c in the ACSDM group were significantly much more than those in the ACS group and control group (P<0.05), (2) The levels of PPARγ of ACS group and ACSDM group, when compared with control group (295.56±25.06 ng/L), were decreased significantly (P(all)<0.05), and the ACSDM group was much lower than the ACS group (P<0.05). (3) EPCs levels in ACS and ACSDM group were also significantly lower, when compared with control group (0.058±0.012% vs. 0.012% ±0.005%). The levels of PPARγ and EPCs in combined group were significantly correlated positively (r=0.558, P<0.01). 6 After 12 weeks intervention of irbesartan, the level of PPARγ of A group increased significantly compared with pre-treatment levels (11.5%±2.5% vs. 7.4%±1.7%)(P<0.05). Meanwhile EPCs showed no significantly change (0.028±0.0111 %) VS. (0.031±0.0102 %), P>0.01. There was a significant positive relationship between them (r=0.767, P<0.01). The level of PPARγ and EPCs of B group had on statistical difference after 12 weeks conventional treatment compared with control group.

Conclusions: The level of PPARγ, EPCs of patients with ACS are significantly lower than those of control group, being much lower in ACSDM group. PPARγ and EPCs level both decrease with the increasing of the degree of coronary artery stenosis. Irbesartan improved the levels of PPARγ and EPCs in patients with ACS and T2DM, which probably become a new targets for therapy.

GW25-e3089
Bleeding outcomes in low-mediate risk acute coronary syndrome patients receiving stenting predicted by adenosine diphophate induced platelet aggregation after initiation of clopidogrel: 6 months follow-up
Cai Tingtao, Huimin Yu, Taining Dong, Bin Zhang, Hong Yan, Handong Wu, Hongtao Liao, Lijin Jian
Department of Cardiology, Guangdong General Hospital, Guangdong Academy of Medical Sciences, Guangdong Cardiovascular Institute
Objectives: The correlation of enhanced platelet responder to clopidogrel with bleeding outcome and entry-site complication has rarely been characterized in China population undergoing percutaneous coronary intervention (PCI). The aim of present study is to assess the prognostic significance of optimal platelet inhibition according to a given clinical state and ethnicity.
Methods: A total of 278 non high risk acute coronary syndrome (ACS) patients indicated for PCI were enrolled. Adenosine diphosphate induced maximal platelet aggregation (ADP-PG max) was assessed with Lumi-Aggregometer by light trans-mission aggregometry method. The primary endpoint was the incidence of Thrombolysis in Myocardial Infarction (TIMI) defined bleeding outcome and significant entry-site complication within hospital and 6 months follow-up period. Blood was obtained for platelet aggregation 24h after PCI and 1 month follow up respectively. Receiver-operating characteristic (ROC) curve analysis was conducted to reveal the optimal platelet aggregation value defining enhanced clopidogrel responder for association of measurements with endpoints.
Results: A total of 24 patients (8.6%) met with primary endpoint in the study, while 4 (1.4%) TIMI major bleeding events, 11 (4.0%) minor bleeding events and 9 (3.2%) significant entry-site complications were observed. Follow-up ADP-PG max (OR=0.96, 95%CI, 0.93-0.99; P=0.008) and renal insufficiency (OR=3.58 95%CI, 1.19-9.91; P=0.02) were associated with the prediction of bleeding events. The optimal cutoff for follow up ADP-PG max was 24.5% [area under the curve 0.72 (95% confidence interval 0.59-0.85), p<0.001]. Bleeding occurred in 26.2% of patients with clopidogrel enhanced response (16/61), as compared with 3.7% of remaining patients (9/217), (hazard ratio, 9.26; P<0.05).

Conclusions: In conclusion, enhanced clopidogrel responsiveness was associated with a higher risk of bleeding and entry-site complication. Platelet function test detected at an appropriate sampling time after clopidogrel administration may help identify high bleeding risk patients after coronary intervention.

GW25-e3234
Discrepancy in Measuring On-Clopidogrel Platelet Responsiveness by Vasoconstrictor-Stimulated Phosphoprotein Phosphorylation and Platelet Aggregation Is Associated with Smoking Status Following ST-Elevation Myocardial Infarction
Zhou Xin, Jing Sun, Guo-Hang Yang, Wen-Jie Ji, Rui-Yi Lu, Xin-Lin Liu, Zhao-Zeng Guo, Ji-Hong Zhao, Tie-Min Jiang, Yu-Ming Li
Tianjin Key Laboratory of Cardiovascular Remodeling and Target Organ Injury, Institute of Cardiovascular Disease and Heart Center, Peking Hospital
Objectives: To investigate the potential mechanism accounting for the discrepancy of VASP phosphorylation and platelet aggregation (PAG) in evaluating high on-clopi-dogrel platelet reactivity in patients following ST-segment elevation myocardial infarction (STEMI).
Methods: 90 consecutive STEMI patients scheduled for emergency percutaneous coronary intervention (PCI) were enrolled. Platelet reactivity after clopidogrel loading dose (300 mg) was determined by two methods [platelet reactivity index (PRI), measured by vasoconstrictor-stimulated phosphoprotein (VASP) phosphorylation flow