

ischemic stroke. Follow-up was scheduled at 1, 3, 6, 9 and 12 months after PCI. The association between RHR and 1-year risk of MACE was assessed using multivariate Cox proportional hazards regression model to calculate adjusted hazard ratio (AHR) with a 95% CI.

**Results:** Compared with participants with RHR >76 bpm, the AHR was 0.51 (95% CI: 0.23 to 1.14;  $P=0.100$ ) for participants with RHR <61 bpm, and 0.44 (95% CI: 0.23 to 0.85;  $P=0.014$ ) for those with RHR between 61 bpm and 76 bpm. For participants with RHR  $\geq 61$  bpm, an increase of 10 bpm in RHR was associated with an increase by 38.0% in the risk of MACE (AHR: 1.38; 95% CI: 1.04 to 1.83;  $P=0.026$ ).

**Conclusions:** ACS patients after PCI with RHR >76 bpm were at higher risk of MACE compared with those with RHR between 61 bpm and 76 bpm. Elevated RHR  $\geq 61$  bpm was associated with a significantly increased risk of MACE in post-PCI ACS patients during 1-year follow-up.

#### GW25-e2477

##### Real-time three-dimensional dobutamine stress echocardiography for ischemic mitral regurgitation evaluation

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**Objectives:** To evaluate the relation between left ventricular (LV) myocardial function and mitral regurgitation in patients with ischemic mitral regurgitation (IMR) by Real-time three-dimensional dobutamine stress echocardiography (RT3D-DSE).

**Methods:** Ninety consecutive in-patients with myocardial infarction and IMR were enrolled in the study, and 50 subjects of them underwent coronary artery bypass graft surgery (CABG) in 2006-2012. Each patient underwent RT3D-DSE before treatment. Graded Dobutamine (DOBU) was administered intravenously with the initial dose of 5ug/kg.min, raising 3 min a time at 10-20-30-40-50ug/kg.min respectively. Positive standard: new left ventricular wall motion abnormality detected or existing motion abnormality got worse. Treatment stopped at dose stage of 50ug/kg.min if no positive reactions showing. Three-dimensional (3D) heart full-volume data and 3D mitral regurgitation were obtained at baseline and each state. Quantitative parameters including: Left ventricular end-diastolic volume (LVEDV), Left ventricular end-systolic volume (LVESV), left ventricular ejection fraction (LVEF), Left ventricular diastolic mass (LVMd), Left ventricular systolic mass (LVMS). The time to the point of minimal regional systolic volume (Tmsv) was measured from the time volume curves of 17 segments, the standard deviation (Tmsv-SD) and maximal difference (Tmsv-Dif) of Tmsv were calculated, and with the corresponding parameters corrected by R-R interval time were evaluated together. Excursion Max (Emax), Excursion SD (Esd), contact area (CA). Follow-up RT3DE was performed 1 week after CABG. Continuous variables are expressed as means standard deviation. One-way analyses of variance (ANOVA) were used among groups, and the LSD method is adopted between multiple pairwise. A value of  $P<0.05$  was considered statistically significant. Data were analyzed using standard statistical software (SPSS version 17.0).

**Results:** At different stress state, CA decreased significantly, and the decrement was up to the largest at 30ug/kg.min. 2D-LVEF, 3D-LVEF increased gradually, but decreased at 50ug/kg.min; 2D-LVESV, LVMd decreased, however increased at 50ug/kg.min. Tmsv-16SD (%R-R), Tmsv-12SD (%R-R), Tmsv-6SD (%R-R), Tmsv-16Dif (%R-R), Tmsv-12Dif (%R-R) and Tmsv-6Dif (%R-R) decreased, but increased at 50ug/kg.min; Eave, Esd increased, and decreased at high-dose DOBU (40-50ug/kg.min), too ( $P<0.05$ ). Possibly because only 39 patients can tolerate high-dose DOBU (50ug/kg.min). We compared each stress state with the baseline state, finding that some LV remodeling parameters included 2D-LVESV, 2D-LVEDV, 2D-LVEF, 3D-LVESV, 3D-LVEDV, 3D-LVEF, 3D-SV, LVMS were statistically significant, and the decrement was the largest at 40ug/kg.min ( $P<0.05$ ). The CA and left ventricular function were improved significantly after CABG.

**Conclusions:** RT3D-DSE is useful to evaluate the heart function, and proves that the severity of IMR decreased is associated with an improvement in LV remodeling and synchronization.

#### GW25-e3407

##### Relationship of C-Reactive Protein with the Index of Microcirculatory Resistance Measured After Primary Percutaneous Coronary Intervention

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**Objectives:** Although the extent of coronary microvascular dysfunction might be related to luminal obstruction, endothelial dysfunction, and smooth muscle cell (SMC) dysfunction, little is known about their relation to the inflammatory status. The aim of this study was to determine a possible relationship between inflammation, as reflected by the serum C-reactive protein (CRP) levels, and index of microcirculatory resistance (IMR) measured at the time of primary percutaneous coronary intervention in patients with ST-segment elevation myocardial infarction (STEMI).

**Methods:** Thermomodulation-derived IMR was measured immediately after primary percutaneous coronary intervention in 43 patients with the use of a pressure-temperature sensor wire. The mean IMR was  $40.5 \pm 12.3$ . All patients were divided into 2 groups using IMR values ( $\leq 32$  and  $>32$ ). Clinical variables were compared between 2 groups based on IMR values.

**Results:** Patients with higher IMR had significantly higher serum CRP levels ( $16.5 \pm 6.6$  vs  $5.9 \pm 4.7$   $p=0.02$ ). There were no significant changes in the FFR values, angiographic findings, cTnT values, and other baseline parameters between the groups. Linear regression analysis also showed a significant linear relationship between IMR and CRP ( $r = 0.732$ ,  $P < 0.001$ ). In multivariate analysis, the admission CRP level was an independent predictor of increased IMR (odds ratio [OR] 1.041, 95% confidence interval [CI] 1.007–1.076,  $p=0.017$ ).

**Conclusions:** These results have shown that the CRP levels were associated with increased IMR in the patients with STEMI. This implies inflammation may contribute to increased microvascular resistance in these patients.

#### GW25-e3444

##### The observations of the short term efficacy of routine thrombus aspiration during primary percutaneous coronary intervention in patients with acute ST-segment elevation myocardial infarction.

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**Objectives:** To evaluate the efficacy of routine thrombus aspiration during primary percutaneous coronary intervention (PPCI) in patients with ST-segment elevation myocardial infarction (STEMI) using prospective and randomized methods.

**Methods:** 326 patients with STEMI underwent PPCI were divided into two groups: 115 patients were treated with routine thrombus aspiration before PPCI (thrombus aspiration group) and 211 patients underwent PPCI without thrombus aspiration (routine PCI group). The basic data, the incidence of no-flow, corrected TIMI frame counts (CTFC) after PCI, ST segment resolution (STR)  $\geq 50\%$  two hours after PCI, the left ventricular ejection fraction (LVEF) within 2 weeks after PCI and the combined incidence of death, recurrent myocardial infarction, heart failure and severe arrhythmias during hospitalization were evaluated.

**Results:** the basic data of the two group including age ( $62.6 \pm 12.1$  Vs  $63.3 \pm 10.9$ ), male proportion ( $66.8\%$  Vs  $64.2\%$ ), hypertension ( $54.5\%$  Vs  $55.6\%$ ), diabetes mellitus ( $29.7\%$  Vs  $24.6\%$ ), percentage of smoker ( $53.8\%$  Vs  $47.4\%$ ), proportion of anterior wall infarction ( $56.5\%$  Vs  $51.7\%$ ) are comparable ( $p>0.05$ ); whereas in thrombus aspiration group, the incidence of no-reflow is much lower ( $8.9\%$  Vs  $18.6\%$ ,  $P < 0.05$ ), corrected TIMI frame counts (CTFC) after PCI is fewer ( $21.8 \pm 3.3$  Vs  $34.6 \pm 8.1$  frame,  $P < 0.05$ ), LVEF of 2 weeks is higher ( $56.2 \pm 6.0\%$  Vs  $44.5 \pm 6.2\%$ ,  $P < 0.05$ ), ST segment resolution (STR)  $\geq 50\%$  two hours after PCI is higher ( $80.8\%$  Vs  $66.1\%$ ,  $P < 0.05$ ), the combined incidence of death, recurrent myocardial infarction, heart failure and severe arrhythmias during hospitalization were identical ( $13.3\%$  Vs  $19.9\%$ ,  $P > 0.05$ ).

**Conclusions:** Although it didn't improve the combination of death, recurrent myocardial infarction, heart failure and severe arrhythmias, the application of thrombus aspiration technique during primary PCI can reduce the incidence of no-flow and improve myocardial perfusion, thus protect cardiac function. We think routine thrombus aspiration can serve as an important means to improve left ventricular function, and our conclusion need to be tested by large scale trail.

#### GW25-e3526

##### Impact of admission old people peripheral blood leukocyte levels on ST-segment elevation myocardial infarction patients with percutaneous coronary interventional treatment

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**Objectives:** To evaluate the impact of admission peripheral white blood cell (WBC) level on 30-day all-cause death and cardiovascular events in ST-segment elevation myocardial infarction (STEMI) patients with percutaneous coronary interventional (PCI).

**Methods:** Analysis of 832 cases of primary PCI in STEMI patients which are divided into six groups by admission peripheral WBC. Group A: WBC  $< 10 \times 10^9/L$ ; Group B: WBC was between  $10 - 12 \times 10^9/L$ ; Group C: WBC was between  $12 - 14 \times 10^9/L$ ; Group D: WBC was between  $14 - 16 \times 10^9/L$  and Group E: WBC  $\geq 16 \times 10^9/L$ . The primary outcome was 30-day all-cause death; the secondary outcomes were reinfarction, cardiogenic shock or deadly arrhythmia.

**Results:** With the peripheral WBC count increased, the primary PCI which occurred slow flow or no-reflow incidence was increasing ( $P < 0.05$ ) in Group C, D, E. With the peripheral WBC count increased, the mortality among groups showed an increasing trend (the rate were 1.3%, 1.8%, 4.3% and 5.6% successively,  $P < 0.05$ ) in in Group B, C, D, E. In Group B, C, D, 30-day combined endpoint event rate was positively correlated with peripheral WBC count (each group were 13.0%, 27.8%, 37.5%). Levels of WBC had a significant positive correlation with troponin I, creatine kinase and N-terminal pro-brain natriuretic peptide in ( $P < 0.05$ ), Left ventricular ejection fraction (LVEF) was negatively correlated with peripheral WBC ( $P < 0.05$ ). Multivariate logistic regression analysis showed that the 30d mortality of Group A and Group B had no significant difference ( $P > 0.05$ ). The risk of death 30d in the rest groups gradually increased with the outer peripheral WBC count increased, (Group C OR values was 1.413; Group D was 1.905; Group E was 2.619). 30-day combined endpoint events in Group A, B, C had no significant difference in risk, But the of

combined endpoint events the Group D, E increased significantly. OR values were 1.451 and 1.902.

**Conclusions:** Admission white blood cell count was an independent risk factor for short-term outcome in primary PCI with STEMI patients.

#### GW25-e4141

##### **Predictive factor of 30-day mortality in hospitalized patients with acute myocardial infarction: A Cox-regression analysis in Beijing**

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**Objectives:** Despite advances in the management of patients with acute myocardial infarction, a variety of complications and death remain high during hospitalization of acute myocardial infarction. Therefore, it is important that the risk factors of 30-day mortality in patients with acute myocardial infarction are explored for improving the outcomes of acute myocardial infarction.

**Methods:** All hospital admissions with a discharge diagnosis of acute myocardial infarction were extracted from the Chinese PLA General Hospital Patients Information System Database from the January 1st in 2011 to the December 31st 2012. Cox's regression on mortality was performed using SPSS19 statistical software for the age, the sex, the history of diabetes, myocardial infarction, arial fibrillation, stroke, chronic renal failure, anemia, or coronary artery bypass graft, the complication of cardiogenic shock, heart failure, ventricular fibrillation/ventricular tachycardia, atrioventricular block II, III degree, acute renal failure, gastrointestinal hemorrhage, or multiple organ dysfunction syndrome and the percutaneous coronary intervention.

**Results:** Of 1869 cases, 91 (4.9%) patients (mean age 74.3 ± 10.9 years old) died. Among the patients, 1342 cases were male, and 437 cases female, mean age 61.1 ± 13.4 years old. Univariate analysis showed age, sex, the history of diabetes, myocardial infarction, arial fibrillation, stroke, chronic renal failure, anemia, or coronary artery bypass graft, complication of cardiogenic shock, heart failure, ventricular fibrillation/ventricular tachycardia, atrioventricular block II, III degree, acute renal failure, gastrointestinal hemorrhage, or multiple organ dysfunction syndrome and percutaneous coronary intervention were predictive factors of 30 day mortality. Cox regression analysis indicated that the independent predictive factors of the 30 day mortality rate were the age (odds ratio [OR] 1.065, 95% confidence interval [CI] 1.042-1.089), the history of diabetes (OR 1.858, CI 1.190-2.901), or anemia (OR 2.893, CI 1.483-5.642), the complication of cardiogenic shock (OR 12.596, CI 7.454-21.193), ventricular fibrillation/ventricular tachycardia (OR 8.904, CI 4.000-19.821), acute renal failure (OR 3.753, CI 1.814-7.765), or multiple organ dysfunction syndrome (OR 4.060, CI 1.586-10.396), and the percutaneous coronary intervention (OR 0.345, CI 0.204-0.583).

**Conclusions:** The age, the history of diabetes, anemia, the complication of cardiogenic shock, ventricular fibrillation/ventricular tachycardia, acute renal failure, multiple organ dysfunction syndrome and the percutaneous coronary intervention are independent predictive factors of 30 days mortality in patients with acute myocardial infarction.

#### GW25-e4279

##### **Effect of Intracoronary Anisodamine and Diltiazem Administration during Primary Percutaneous Coronary Intervention in Acute Myocardial Infarction**

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**Objectives:** The development of microvascular reperfusion injury is associated with adverse clinical outcomes in patients with ST-elevation myocardial infarction (STEMI) undergoing primary percutaneous coronary intervention (PCI). Upfront strategies to reduce the incidence of microvascular reperfusion injury could be considered for high-risk patients to improve outcomes. To examine the role of intracoronary anisodamine and diltiazem administration performed before stenting on the immediate angiographic and clinical outcomes.

**Methods:** STEMI patients with high-risk of no reflow presenting with primary PCI were randomized to 2 bolus injections of intracoronary anisodamine (1mg/5mL) and diltiazem (2mg/5mL) or diltiazem (2mg/5mL). The first bolus injection was given after guidewire and the second after the first balloon inflation. The primary endpoint was the incidence of no/slow reflow (TIMI flow grade≤2) immediately after stenting.

**Results:** A total of 108 patients were randomized to intracoronary anisodamine and diltiazem (COM group, n=54) or diltiazem (Diltiazem group, n=54). The percents of TIMI flow grade 3 was found higher in the COM group than in the Diltiazem group (92.6% vs 75.9%, p<0.05). TMPG 3 was obtained more frequently in the COM group than in the Diltiazem group (68.5% vs 46.3%, p<0.05). cTFC was significantly lower in the COM group than in the Diltiazem group (30 vs 44, p<0.05). COM group had showed low incidences of bradyarrhythmia and rapid arrhythmia (7.4% vs 24.1% and 3.7% vs 18.5%, respectively, p<0.05).

**Conclusions:** Intracoronary anisodamine and diltiazem administration before stenting improved the angiographic results and prevented reperfusion arrhythmia in patients with STEMI undergoing PCI.

#### GW25-e4324

##### **MiRNA Expression and Identification of CD4+T Lymphocytes in Patients with Acute coronary syndrome**

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**Objectives:** To screen differential microRNA expression profiles of CD4+T lymphocyte from the patients with acute coronary syndrome (ACS) and the healthy controls by microarray analysis technique. To elucidate the mechanism responsible for modulation of CD4+T lymphocyte and provide insights into the effects of microRNA on ACS.

**Methods:** Ten patients with ACS were enrolled in the study, and ten patients with normal coronary artery angiogram were served as a control group. Blood samples were taken from peripheral vein and the CD4+T lymphocytes were isolated from mononuclear cells prepared with Ficoll-Hypaque density-gradients centrifugation from human peripheral blood by magnetic cell sorting system (MACS). The purity of CD4+T lymphocytes was measured by flow cytometry analysis. The viable count was detected by the rejection experiment of trypanblau. Total RNA was abstracted from CD4+T lymphocyte with Trizol reagent. MicroRNA was isolated and enriched by use of Polyethylene Glycol from 40µg total RNA. The microRNA extracted from CD4+T lymphocytes was hybridized and microRNA expressions profiles of CD4+T lymphocyte were screened with the Affymetrix GeneChip microRNA array. The image signal was scanned by Affymetrix GeneChip Scanner 3000 and analysed by Affymetrix GeneChip Command Console™ 1.1 software. Then the image signal was transformed into digital information, which was analysed with SAM software. The differentially expressed microRNA were identified between the two groups. Real-time quantitative polymerase chain reaction (qRT-PCR) was used to confirm the result of selected genes from microarray analysis.

**Results:** The results showed that the expression of microRNA-155, microRNA-21, microRNA-424 and microRNA-127-3p were over 1.5 folds up-regulated, and the expression of microRNA-30b and microRNA-181a were over 0.5 folds down-regulated in ACS group compared to the control group. The qRT-PCR results were in accordance with those obtained using microarray analysis.

**Conclusions:** The differentially expressed microRNA of CD4+T lymphocyte may participate in the the occurring and developing of ACS.

#### GW25-e4343

##### **The Relation of RDW with the Severity of Coronary Artery Disease and Long-term Prognosis in ACS**

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**Objectives:** Red Blood Cell Distribution Width (RDW) is an indicator which can react the degree of the dispersion of outer peripheral red blood cell volume. Recently, studies have shown that the baseline of RDW is closely related with various heart diseases. This study aimed to explore the changes of RDW in acute coronary syndrome (ACS), and to analyze the relation of RDW with the severity of coronary artery disease and long-term (two-year ) prognosis.

**Methods:** A total of 218 patients (aged 27-85 years, 54.59% men) were enrolled in this study, including 140 patients with ACS and 78 patients without ACS. The group of ACS contained 60 patients with STEMI and 26 patients with NSTEMI and 54 patients with UA. All the patients had coronary arteriography (CAG), then Gensini score was calculated. All detailed records of general condition and results of the routine examinations were recorded. Every ACS patient had an interview by phone after two years to evaluate adverse cardiovascular events during the two years, such as angina pectoralis grade of CCS raised at least of I grade, onset of heart failure, recurrence of myocardial infarction, cardiac death. According to the thresholds of RDW determined by ROC curve analysis, ACS patients were divided into high-levels group and low-levels group, the incidence of long-term adverse cardiovascular events between the two groups was compared.

**Results:** (1) The average level of RDW was significantly higher in ACS group than it in control group [(12.81±0.55) % vs (12.28±0.41) %, P<0.001]. ACS patients with myocardial infarction had higher level of RDW than those without myocardial infarction [(12.92±0.57) % vs (12.63±0.46) %, P=0.001]. (2) Spearman correlation analysis showed that RDW was positively associated with Gensini score significantly (r=0.463, P<0.001), and also positive linear correlated with coronary artery lesions (r=0.295, P<0.001). (3) ROC curve analysis showed that test performance was the best when RDW was 12.85% [area under curve=0.87, P<0.01]. There were 57 cases of adverse cardiovascular events during the two-year follow-up periods. Compared with low-levels group (RDW<12.85%), the incidence of long-term cardiovascular events of high-levels group (RDW≥12.85%) increased significantly (56.72% vs 26.03%, P<0.001). Logistic regression analysis showed that NT-proBNP (P=0.007), LDL-C (P=0.038), apolipoprotein-B (P=0.030) and RDW (P=0.010) were the predictors of long-term adverse cardiovascular events. (4) Spearman correlation analysis also showed that RDW was positively correlated with WBC, AST, LDH, cTnI, hs-CRP, NT-proBNP and LVED, while it was negatively relative with LVEF and MCV. Multiple stepwise regression analysis showed that RDW was positively correlated with WBC (r=0.232, P<0.001) and hs-CRP (r=0.352, P<0.001), while negatively correlated with LVEF (r=-0.213, P<0.001).

**Conclusions:** (1) The level of RDW in patients with ACS increased significantly, and ACS patients with AMI had higher level of RDW compared with those without AMI.