3. Correlation analysis: Unvariable logistic regression analysis concluded that MPV and hs-CRP were independent predictors of clopidogrel resistance in unstable angina pectoris patients.

CONCLUSIONS MPV and hs-CRP were independent predictors of clopidogrel resistance in patients with unstable angina.

GW26-e4585
Plasma catstatin: a useful biomarker for coronary collateral development with chronic myocardial ischemia
Weixian Xu
Department of Cardiology, Peking University Third Hospital

OBJECTIVES Catstatin is an endogenous multifunctional neuro-endocrine peptide. Recently, catstatin was discovered as a novel angiogenic cytokine. The study was to investigate the associations between endogenous catstatin and coronary collateral development among the patients with chronic myocardial ischemia.

METHODS Thirty-eight patients with coronary artery chronic total occlusions (CTO) and 38 patients with normal coronary arteries (normal group) were enrolled in series. In the patients with CTO, coronary collateral development was graded according to the Rentrop score method. Rentrop score 0-1 collateral development was regarded as poor collateral group and 2-3 collateral development was regarded as good collateral group. Plasma catstatin level and vascular endothelial growth factor (VEGF) were measured by ELISA kits.

RESULTS The mean serum levels of catstatin in CTO group were significantly higher than that in normal group (1.97±1.01 vs 1.36±0.97 ng/ml, P<0.0001). In the CTO group, the patients with good collateral development had significantly higher catstatin and VEGF levels than those with poor collateral development (2.36±1.43 vs 1.61±1.12 ng/ml, P=0.018; 425.23±140.10 vs 238.48±101.00 pg/ml, P<0.001). There is a positive correlation between plasma catstatin levels and Rentrop score (r=0.40, P=0.001) among the patients with CTO. However, there is no correlation between plasma catstatin levels and VEGF (r=-0.06, P=0.744). In the multiple linear regression models, plasma catstatin was one of the independent factors of coronary collateral development after adjustment for confounders.

CONCLUSIONS The plasma catstatin was associated with coronary collateral developments. It may be a useful biomarker for coronary collateral development and potential target for therapeutic angiogenesis in patients with CTO.

GW26-e0240
The role of red blood cell distribution width in mortality and cardiovascular risk among patients with coronary artery diseases: a systematic review and meta-analysis
Weijin Mei
Department of Cardiology, the Eastern Hospital of the First Affiliated Hospital, Sun Yat-Sen University, Guangzhou, China

OBJECTIVES Red cell distribution width (RDW) might be a novel biomarker that reflects multiple physiological impairments related to atherosclerosis and coronary artery diseases (CAD). We conducted this systematic review and meta-analysis to evaluate the association of RDW between all-cause mortality and fatal/non-fatal cardiovascular disease (CVD) events in CAD patients.

METHODS Relevant studies were searched and identified in the MEDLINE and EMBASE databases. English-language prospective studies that reported risk estimates for RDW and mortality/CVD events were included. Data were extracted regarding the characteristics and clinical outcomes, and a quality assessment was conducted. Results were extracted for the highest versus lowest RDW level, and meta-analyses were carried out using random effects models.

RESULTS We identified 22 studies enrolling 80,216 participants. The study duration ranged between 1 month and 23 years. Of the 15 studies that were included in the meta-analysis, higher RDW indicated a significant increased risk for all-cause mortality in CAD patients: pooled risk ratio (RR) 2.20 (95% CI, 1.42-3.39; P<0.0004). The results for fatal, non-fatal and fatal/non-fatal events were: pooled RR 1.80 (95% CI, 1.32-2.41; P<0.0001); RR 1.86 (95% CI, 1.50-2.31; P<0.00001) and RR 2.13 (95% CI, 1.20-3.77; P=0.01). Heterogeneity was moderately present; however, sensitivity analyses for follow-up duration, CAD subtype, or RDW as dichotomous values showed similar results.

CONCLUSIONS The meta-analysis indicates that higher RDW levels are associated with increased risk of mortality and CVD events in patients enrolled.

GW26-e2173
Association of Mean Platelet Volume with Impaired Myocardial Reperfusion and Short-term Mortality in Patients with ST-Segment Elevation Myocardial Infarction Undergoing Primary Percutaneous Coronary Intervention
Qingjie Chen,1-3 Hongmei Lai,1,2,3 Yingying Yang,1,2,3 Xiaomei Li,1,2 Rui Xu,1,2 Hui Zhai,1,2 Fen Liu,1,4 Bangdang Chen,1,2 Qian Zhao,1 Yitong Ma,1
1Department of Cardiology, First Affiliated Hospital of Xinjiang Medical University, Urumqi, China; 2People’s Hospital of Xinjiang Uygur Autonomous Region, Urumqi, China; 3Xinjiang Key Laboratory of Cardiovascular Disease Research, Urumqi, China; 4Clinical Research Institute of Xinjiang Medical University, Urumqi, China

OBJECTIVES Impaired myocardial reperfusion is associated with adverse clinical outcomes in patients with ST-segment elevation myocardial infarction (STEMI). The aim of this study was to investigate the impact of admission mean platelet volume (MPV) on the myocardial reperfusion and 30-day all-cause mortality in STEMI patients with successful epicardial coronary reperfusion after primary percutaneous coronary intervention (PCI).

METHODS A total of 453 STEMI patients who underwent primary PCI within 12 hours of symptoms onset and achieved TIMI 3 flow at infarct-related artery (IRA) after PCI were enrolled and divided into two groups based on postinterventional myocardial blush grade (MBG): those with MBG 2/3 and those with MBG 0/1. Admission MPV was measured before coronary angiography. The primary endpoint was all-cause mortality at 30 days.

RESULTS MPV was significantly higher in patients with MBG 0/1 than in patients with MBG 2/3 (10.38±0.98 vs 9.59±0.73, P=0.001). The cumulative 30-day all-cause mortality rate was significantly higher in the groups with high MPV and MBG 0/1 (6.8% vs 1.5%, P=0.005, 7.6% vs 1.9%, P=0.006, respectively). Multivariate logistic regression analysis demonstrated MPV was independently associated with postinterventional impaired myocardial reperfusion (OR 2.668, 95% CI 2.000 to 3.559, P<0.001) and 30-day all-cause mortality (HR 1.763, 95% CI 1.009 to 3.079, P=0.046).

CONCLUSIONS Increased MPV at admission is an independent predictor of impaired myocardial reperfusion and short-term mortality in STEMI patients with successful epicardial coronary reperfusion after primary PCI.

GW26-e2184
The short- and long-term effects of Ischemic postconditioning in STEMI patients: a meta-analysis
Jing Gao,1,2,3 Fen Liu,1,2 Yingying Zheng,1,2 Bangdang Chen,2 Qingjie Chen,1,2 Hui Zhai,1,2 Junyi Luo,1,2 Yitong Ma,1
1Department of Cardiology, First Affiliated Hospital of Xinjiang Medical University, Urumqi, China; 2Xinjiang Key Laboratory of Cardiovascular Disease Research, Urumqi, China; 3Department of endocrinology, Fifth Affiliated Hospital of Xinjiang Medical University, Urumqi, China

OBJECTIVES Compelling evidence from large randomized trials demonstrates the salutary effects of ischemic postconditioning on cardioprotection against ischemic/reperfusion injury. However, some studies appear negative findings. Our objective was to assess the short- and long-term effects of postconditioning in patients presenting with evolving ST-elevation myocardial infarction (STEMI). Relevant studies from were identified through electronic.

METHODS Relevant studies from were identified through electronic literature search from PubMed, library of congress and EMBASE. Studies published up to December 2014 were eligible for inclusion. Patients older than 18 years presenting within 12 h of a first STEMI and eligible for angioplasty were considered for the study. Ischemic postconditioning was performed by applying consecutive cycles of reocclusion / reperfusion after reperfusion. The outcome include infarct size assessed by SPECT or CMR, cardiac biomarkers and left ventricular ejection fraction (LVEF).

RESULTS The 35 trials enrolled 1156 patients to perform loco-regional postconditioning cycles at onset of reperfusion and 1153 patients to usual percutaneous coronary intervention (PCI). Statistical analysis indicated that the peak of creatine kinase (CK) and creatine kinase isoenzyme (CKMB) in postconditioning (PoC) groups decrease significantly during the first 72 hours after PCI compared with controls (Com) (P<0.001 & P<0.05). The data showed smaller infarct size (IS) in PoC+ PCI than in PCI patients during 7 days after myocardial infarction (p<0.01). However, IS was not significantly different between study groups after 6 months (p=0.08). While there was a trend toward reduction of IS. LVEF is also improved during 7 days after myocardial infarction (p<0.001). LVEF was also improved 4-12 months after myocardial infarction (p=0.02).

CONCLUSIONS Ischemic postconditioning by brief interruptions of coronary blood flow at the onset of reperfusion after PCI appears to be superior to PCI alone in reduction of both myocardial injury and left ventricular dysfunction. Ischemic postconditioning attenuated CK release and reduced infarct size for up to 7 days after reperfusion in patients with STEMI, but seems failing to limit IS for long time. However, long-term LVEF may be improved by the additional protocol.

GW26-e4027
Effect of candesartan on proliferation of vascular smooth muscle cell induced by high glucose
Shaojung Xi, Liguo Lang, Yunlu Li, Lijun Ge
Ningxia People's Hospital

OBJECTIVES To observe the rat vascular smooth muscle cell A7r5 proliferation at high concentrations of glucose, as well as changes in the secretion of candesartan (Cand) the effect of different concentrations.

METHODS A7r5 cell culture 48h after randomization, normal glucose group (NG, 5 mM D-glucose), high glucose (HG, 15, 25, 35, 45 mM D-glucose), high glucose (25mM) + Cand10^{-5} mol / L group, high glucose (25mM) + Cand10^{-10} mol / L group, high glucose (25mM) + Cand10^{-12} mol / L group, cell proliferation assay by MTT; ELISA detect AngII levels; using immunofluorescence staining to detect AT1 receptor (AT1R) on cell membrane.

RESULTS (1) after culture 24, 48, 72h, compared with NG group, HG group absorbance values were significantly higher (p<0.05), and the highest one is 25mM group(p<0.01); (2) after culture 48h, compared with the NG group, HG group AngII secretion was significantly increased (P<0.05) and the highest one is 25mM group (p<0.01); (3) immunofluorescence staining observed A7r5 AT1 receptor on cell membrane, and the HG group is significantly increased the amount of the distribution compared NG group; (4) compared to the 25mM group, in high concentrations Cand group inhibit A7r5 cell proliferation, and the differences were statistically significant (p<0.05); (5) compared with high glucose 25mM group, Cand group do not affect the secretion of AngII, the difference was not statistically significant(P<0.05); (6) compared with high glucose 25mM group, Cand group AT1 receptor on the cell membrane significantly reduced the amount of distribution.

CONCLUSIONS High glucose can induce abnormal cell proliferation, prompting cells to secrete AngII, prompting an increase in AT1 receptor on the cell membrane distribution volume. Cand may antagonize AngII with AT1 receptor binding, and play high glucose-induced inhibition of A7r5 cell proliferation.

GW26-e2947
Is the Benefits Of Enhanced External Counter Pulsion in Patient With Moderate Left Ventricular Dysfunction Independent of Diabetes?
Ramasamy Subramanian,1 N. Sivakadaksham,1 Pradeep G. Nayar,2 K. Sivaram Kumar1
1Heart Healing and Rejuvenation Center; 2Chettinad Super specialties Hospital

OBJECTIVES Enhanced External Counter Pulsion (EECP) is a non-invasive treatment option for selected patients with refractory angina and heart failure. The effectiveness of EECP in improving myocardial function in diabetic patients when compared to non diabetic is unknown. We tested the hypothesis whether the effect of EECP in Left ventricular function is independent of diabetic status.

GW26-e4530
Correlation between LDL-C, BMI and Coronary Slow Flow
Ye Zhou, Muyang Yan
Department of Cardiology, Chinese PLA General Hospital

OBJECTIVES The aim of this research is to study correlation between LDL-C, BMI and coronary slow flow phenomenon (CSFP).

METHODS The 150 patients with chest pain, who underwent coronary angiography were divided by corrected TIMI frame count (CSFP was defined as frame count >27) into CSFP group (79) and control group (71). Body mass index (BMI) and LDL-C were measured on admission, and were positively correlated with CSFP. Hyper tension, diabetes and hyperlipidemia were recorded and the total cholesterol (TC), triglyceride (TG), Low-density lipoprotein (LDL-C), high-density lipoprotein (HDL-C), uric acid (UA), creatinine (Cr), left ventricular ejection fraction (EF), systolic blood pressure (SBP) and diastolic blood pressure (DBP) were measured on admission.

RESULTS The smoking rate, BMI, TG, LDL-C, UA were significantly higher in the patients with the CSFP group than the subjects in control group. BMI, LDL-C in the CSFP group increased significantly during the first 72 hours after PCI compared with controls (Com) (29.8±7.9 to 36.2±8.6) P<0.001 Vs (29.9±8.5 to 35.9±10.5) P<0.001, cardiac output in ml/min (3.1±0.7 to 3.9±1.0) P<0.001 Vs (3.3±0.7 to 4.1±0.7) P<0.001 and stroke volume in ml (48.3±18.9 to 54.8±17.7) P<0.05 Vs (46.7±16.4 to 55.7±16.8) P<0.001. All parameters show significant improvement when compared with pre and post EECP in both the groups but there is no significant difference in improvement between DM and NDM.

CONCLUSIONS EECP treatment significantly reduces NYHA functional class, increase ejection fraction, cardiac output and stroke volume in both diabetes and non diabetes patients with refractory angina and Left ventricular dysfunction similarly. The effect of EECP seems to be independent on the status of diabetes.

GW26-e5434
The study of relationships between intra-abdominal obesity and high sensitive C-reactive protein, tissue inhibitor of metalloproteinase-1 in patients with coronary heart disease
Xingshan Zhao, Jihong Wang, Jinjin Zhai, Yonghao Lan, Mei Zheng, Xiaoguang Cheng
Beijing Jishuitan Hospital

OBJECTIVES The aim of this study is to investigate the relationship between intra-abdominal obesity and the serum levels of inflammatory factors - high sensitive C-reactive protein (hs-CRP) and tissue inhibitor of metalloproteinase-1 (TIMP-1) in patients with coronary heart disease (CHD).

METHODS A total of 85 persons were divided into two groups of disease group and control group. All subjects were observed to survey the height, body weight, waist circumference (WC), then calculated the body mass index (BMI) and the waist-to-hip ratio (WHR). All subjects were evaluated with a DEXA total body scan performed using a Lunar Prodigy system(GE Healthcare). All subjects were collected venous blood to assay fasting total cholesterol (TC), triglyceride(TG), high-density lipoprotein (HDL-C), uric acid (UA), creatinine (Cr), left ventricular ejection fraction (EF), systolic blood pressure (SBP) and diastolic blood pressure (DBP) were measured on admission.