

Group B (control) included 15 patients with patent coronary arteries and elevated LVEDP (chronic diastolic HF). The aortic systolic (AOS), aortic diastolic (AOD), aortic mean pressure (AOM), pulse pressure, and ejection fraction (EF) were recorded. CPP using the formula $CPP = AOD - LVEDP$ was calculated in both groups.

RESULTS The results showed that both groups had a similar percentage of chest pain and SOB ($p > 0.05$). All patients had a negative coronary angiogram. The majority of patients in group A had a higher LVEDP than the control group (B) ($P < 0.05$). However, the AO Diastolic (AOD) pressure was lower in group A than in group B ($P < 0.05$). In patients with elevated LVEDP and low AOD, with $CPP < 20$ mmHg, the EKG changes (type 3) with deep T wave inversion were more frequently seen in more chest and limb leads. If the CPP was between 20-30 mmHg, the EKG changes were more of type 2 (mild ST depression) ($p < 0.5\%$). If the $CPP > 30$ mmHg, there were normal EKG readings or only type 1 changes ($p < 0.05\%$). It was strongly suggested that $CPP < 20$ mmHg was associated with chest pain and ischemia on the EKG. Once the elevated LVEDP was reduced to a lower level or when the OAD pressure improved (no more diastolic hypotension), the ST segment abnormalities improved.

CONCLUSIONS In patients with HF and EKG changes suggestive of ischemia, a lower AOD could aggravate ischemia in patients with elevated LVEDP. The reason is that the coronary perfusion pressure (CPP) is the difference between AOD and LVEDP; the CPP could then decrease and cause ischemia (due to low perfusion pressure) even though the coronary arteries are patent. As result, LV dysfunction could cause ischemia in selected patients, and could be the cause of death in patients with elevated LVEDP (e.g., CAD with LV dysfunction or aortic stenosis) undergoing PCI.

GW28-e0836

Contrastive study on the prognostic values from independent GRACE score, SYNTAX score and combined scoring of GRACE and SYNTAX for patients with ACS undergoing PCI

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OBJECTIVES This study aims to combine coronary artery anatomy-related SYNTAX (Synergy between Percutaneous Coronary Intervention with Taxus and Cardiac Surgery) score system and GRACE (Global Registry of Acute Coronary Events) score system which includes only clinical variables into a new risk score system to build a NewScore that not only contains coronary artery anatomy-related variables but also have clinical variables. Then, exploring the prognostic value of three score systems in patients with ACS (Acute Coronary Syndrome, ACS) undergoing PCI (Percutaneous Coronary Intervention, PCI).

METHODS In this study, we collected 670 patients with ACS undergoing PCI admitted from October 2011 to March 2014 Department of Cardiology of affiliated HaiKou hospital Xiangya school of medicine Central South University. This research collected patients' coronary angiography data and clinical data including age, heart rate, systolic blood pressure, Killip classification, ST segment changes, myocardial marker and cardiac arrest and so on. The next step is to calculate SYNTAX and GRACE risk score respectively, followed patients for 1 year of time after the onset of the disease. On the basis of GRACE and SYNTAX score system, building the data model by random forest statistical method and developing a NewScore that combines coronary anatomy with clinical data. And then compare the difference between the three risk score system incidence of adverse events, depict the receiver-operating characteristic curve of the three risk score (Area under the receiver-operating characteristic curve, the ROC) and calculate the Area under the curve (Area under the curve, AUC). Finally, comparing the predictive value of the three risk scoring systems to the patients' incidence of adverse events and mortality during follow-up 1 year after PCI.

RESULTS The higher the SYNTAX and the GRACE risk score, the higher incidence of adverse cardiovascular events. Based on the SYNTAX and the GRACE risk score, a new score system has been developed by random forest statistical methods, which combines clinical data and coronary artery anatomy, low-risk group ≤ 34 points; High risk group > 34 points. NewScore, SYNTAX and GRACE risk score of the area under the ROC curve is 0.6807, 0.5564, and 0.5577 respectively, the NewScore, SYNTAX and GRACE risk score area under

the curve comparison have a significant difference ($P < 0.05$), while the SYNTAX and GRACE risk score was no significant difference of the area under the ROC curve.

CONCLUSIONS The prognosis value of NewScore system is better than SYNTAX and GRACE risk score system in patients with ACS undergoing PCI during 1 year follow-up. The prognosis value of SYNTAX and GRACE risk score system are considerably the same in these patients in 1-year follow-up. The Newscore system redivides the low-risk (≤ 34 points) and high-risk groups (34 points). The higher the score, the higher the proportion of adverse cardiovascular events.

GW28-e0859

Obstructive sleep apnea is associated with severity and long-term prognosis of acute coronary syndrome

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OBJECTIVES Obstructive sleep apnea (OSA) is a common disease affects 26-69% of the acute coronary syndrome (ACS) population. Some study revealed OSA is associated with an increased risk of fatal and nonfatal cardiovascular events. The goal of this study was to evaluate the influence of OSA on the severity and prognosis of patients admitted for ACS.

METHODS Prospective cohort study. We enrolled patients with ACS who undergone polysomnography and coronary angiogram or percutaneous coronary intervention. Patients with an apnea-hypopnea index (AHI) > 15 events/h-1 were considered as moderate to severe OSA group ($n=373$). Those with an AHI ≤ 15 events/h-1 were considered controls ($n=156$). After follow up, we compared the acute coronary syndrome severity (ejection fraction, number of diseased vessels, SYNTAX score, length of hospitalization and plasma troponin I et al.) and long-term major adverse cardiovascular events (MACE, the composite of cardiac death, myocardial infarction, unplanned revascularization, or heart failure requiring hospitalization) according to the category of OSA.

RESULTS We finally collected 529 patients' data (AHI 29 ± 19 h-1, 59 ± 10 years, 76% males, follow-up duration 28 ± 4.6 months). Patients with moderate or severe OSA exhibited a higher prevalence of systemic hypertension (75.3% versus 64.1%, $P=0.009$). as well as higher body mass index (28.1 ± 3.6 kg/m² versus 26.4 ± 3.4 kg/m², $p < 0.001$), SYNTAX score (10.1 ± 5.4 versus 3.0 ± 6.4 , $p < 0.0001$), Epworth score (6.2 ± 5.4 versus 4.5 ± 3.9 , $p < 0.0001$) and length of hospitalization (8.0 ± 5.6 versus 6.7 ± 4.2 , $p=0.007$) compared with controls. The event rate at 30 months was higher in the moderate to severe OSA than the control group (8.6% versus 3.2%, $p = 0.028$). After adjusting for baseline confounders by Cox regression model, AHI was an independent risk factor of long-term MACE (HR = 2.758, 95% CI 1.068-7.122).

CONCLUSIONS The results of this study demonstrate that moderate or severe OSA is correlated with disease severity and associated with worse long-term prognosis in ACS patients.

GW28-e0889

In-hospital Outcomes of Acute Coronary Syndrome Patients With Diabetes Mellitus: A Report From the Improving Care for Cardiovascular Disease in China Project

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OBJECTIVES Diabetes mellitus (DM) is associated with adverse outcomes and the in-hospital outcomes of diabetic patients with acute coronary syndrome (ACS) are less known. This study aims to investigate the relationship between DM and in-hospital outcomes in the setting of ACS patients in China.

METHODS A nation-wide registry study, Improving Care for Cardiovascular Disease in China Project - ACS program, was launched in 2014 as a collaborative study of the American Heart Association and Chinese Society of Cardiology, with 150 participating hospitals reporting details of clinical management and outcomes of patients with ACS.

Clinical characteristics and in-hospital outcomes were analyzed by prior DM status.

RESULTS A total of 59456 patients with ACS were enrolled between November 2014 and March 2017, including 37336 (62.8%) ST-segment elevation myocardial infarction (STEMI), 14465 (24.3%) non-ST-segment elevation myocardial infarction (NSTEMI) and 7655 (12.9%) unstable angina pectoris (UAP) patients. Overall, 21.9% of the ACS patients had DM. In-hospital mortality rates for ACS patients with DM was 2.96% compared with 1.73% in those without DM. There was an increased risk of in-hospital mortality in the DM group in the STEMI (odds ratio [OR] 1.58, 95% confidence interval [CI] 1.36 to 1.84, $P < 0.001$), NSTEMI (OR 1.66, 95% CI 1.32 to 2.10, $P < 0.001$) and UAP (OR 4.15, 95% CI 1.31 to 13.13, $P = 0.02$) populations after adjusting for age, sex and other potential confounders.

CONCLUSIONS ACS Patients presenting with DM have a higher in-hospital mortality risk, compared with patients without DM. The aggressive treatment in diabetic patients with ACS is warranted.

GW28-e0910

Plasmatic microRNA signatures in elderly people with stable and unstable angina

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OBJECTIVES To search the distinctive miRNA profiles in plasma of the elderly patients with unstable angina (UA) and stable angina (SA), and to find more effective markers of UA in elderly people.

METHODS We compared the miRNA expression levels in plasma samples from 10 elderly patients with UA and 10 elderly patients with SA by using microarray-based miRNA chip, then validated by Real-time PCR in 30 UA patients and 30 SA patients. Using Mirbase, Miranda, and Targetscan to predict the selected miRNA target genes.

RESULTS Six miRNAs (i.e., mir-21-5p, mir-1202, mir-1207-5p, mir-1225-5p, mir-3162-3p, let-7f-1-3p) were selected in screening step. Mir-1202, mir-1207-5p and mir-1225-5p showed a statistically significant down-regulation ($p < 0.05$), while mir-3162-3p showed up-regulation ($p < 0.05$) in confirmation step. Conversely, mir-21-5p and let-7f-1-3p were not confirmed as significant at this step. Of all single miRNAs, mir-3162-3p showed the highest discriminatory power in the diagnosis of elderly patients with UA (AUC: 0.79, 95%CI: 0.675-0.905). The discriminatory power of a panel of three miRNAs (mir-3162-3p/ mir-1225-5p/ mir-1207-5p) was highest, with an AUC of 0.91 (95% CI: 0.84-0.98), followed by mir-3162-3p/mir-1225-5p (AUC: 0.833, 95% CI: 0.732-0.934) and mir-3162-3p /mir-1207-5p (AUC: 0.817, 95% CI: 0.712-0.922).

CONCLUSIONS Multi-miRNA panel could provide higher diagnostic value for the diagnosis of elderly patients with UA. MicroRNAs, such as mir-3162-3p/mir-1225-5p/mir-1207-5p, mir-3162-3p/mir-1225-5p may become targets for diagnosis of elderly patients with UA.

GW28-e0922

The effects of EEC therapy on functions of endothelial progenitor cells and the restoration of endothelial function after emergency PCI of AMI

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OBJECTIVES We selected patients with acute myocardial infarction (AMI) after emergency percutaneous coronary intervention (PCI). To search the effects of enhanced external counter-pulsation (EECP) on the number and function of endothelial progenitor cells (EPCs) in peripheral blood of these patients. And also, the restoration of endothelial function after emergency PCI of AMI were detected.

METHODS 36 AMI patients who have received emergent PCI were put into 2 groups at random. The control group (16 cases) received drug treatment following the guide. The EEC group (16 cases) received drug treatment and enhanced external counter-pulsation therapy, which was at least 12 hours per month. The peripheral blood of the patients was taken in the first week and the eighth week after PCI, we obtain mononuclear cells (MNCs) from peripheral blood through density gradient centrifugation, and then culture the cells in EGM-2 culture. We identify the cells by fluorescence in taking and cell surface

markers. The cells were plated on fibronectin-coated culture dishes for 7 days. Adherent cells were collected and marked with FITC-UEA-1/acLDL-DiL. EPCs were characterized as double positive for FITC-UEA-1/acLDL-DiL, and then placed under the fluorescence microscope for counting. The functions of endothelial progenitor cells were measured, such as proliferation, differentiation, migration, and angiogenesis ability. We also detected key cytokines related to endothelial cell repair and function, such as vascular endothelial growth factor (VEGF), platelet derivation growth factor (PDGF), basic fibroblast growth factor (bFGF), nitric oxide synthase (eNOS), and endothelin (ET), by ELISA and immunofluorescence techniques.

RESULTS There were no statistical differences of baseline clinical characteristics in the two groups. On the eighth week, the numbers of EPCs in peripheral blood of both groups were significantly increased than that of the first week after emergency PCI of AMI. There were significantly more EPCs colony numbers, better proliferation ability and adhesion abilities ($P < 0.05$). Meanwhile, compared with control group on the eighth week, EEC treatment increased the numbers of EPCs and cell colony, and significantly improved the abilities of proliferation, migration, and angiogenesis ($P < 0.05$). In addition, EEC treatment promoted expressions of VEGF, PDGF, bFGF, eNOS ($P < 0.05$), decreased the amount ET on the contrary ($P < 0.05$).

CONCLUSIONS After emergency PCI of AMI, EEC therapy not only increased the number, improved functions of EPCs in peripheral blood but also enhanced the restoration of endothelial function. So, based on vascular biomechanics and remodeling of endothelial function, EEC therapy can increase blood flow shear stress, thus promote endogenous vascular endothelial repair mechanisms after emergency PCI of AMI.

GW28-e0923

Status and predictors of informed consent of primary percutaneous coronary intervention

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OBJECTIVES Informed consent is an imperative step in primary percutaneous coronary intervention (PCI), which may directly affect the patient's final decision. In addition, time of informed consent is an important part of door-to-balloon time for primary PCI. However, up to now, little is known about the quality of decision making before primary PCI. Therefore, we investigated the status and factors that affects informed consent of primary PCI.

METHODS 301 consecutive cases with STEMI who arrived at Peking University People's Hospital within 12 hours from the onset of symptom between August 2014 to February 2017 were included. Data were collected through consulting medical records and performing questionnaire investigations. Patients were divided into consent group and refusal group according to the final decision. Those who received primary PCI were further categorized into two groups based on the 26.5min cut-off time. We examined the differences in clinical information and informed consent information between those groups. Multivariate logistic regression was used to determine the factors associated with decline or delay consent for Primary PCI.

RESULTS 1. Among the 301 patients with STEMI reviewed, primary PCI was accepted by 236 patient (78.4%). And 115 patients participated in the investigation, among these cases, only 13 conversations (11.3%) included all 7 elements of informed decision making.

2. Multivariate logistic analysis showed that old age (OR 5.03, 95% CI 1.65~15.30, $p=0.004$), outside Beijing (OR 4.41, 95% CI 1.10~17.65, $p=0.036$), symptom relief (OR 6.41, 95% CI 2.39~17.22, $p<0.001$), history of chronic kidney disease (OR 8.97, 95% CI 3.15~25.53, $p<0.001$), and history of myocardial infarction (OR 3.15, 95% CI 1.09~9.05, $p=0.034$) were associated with refusal of primary PCI. While self-rated severe symptoms (OR 0.13, 95% CI 0.05~0.33, $p<0.001$) and understanding the importance of timely reperfusion (OR 0.12, 95% CI 0.02~0.91, $p<0.041$) were predictors of consent to primary PCI.

3. 194 patients completely recorded times of informed consent in the consent group. Among these cases, the median of informed consent time was 26.5 (15.8, 42.0) minutes. Symptom to door ≥ 4 h (OR 2.34, 95% CI 1.25~4.39, $p=0.008$), admission during regular hours (OR 2.85, 95% CI 1.43~5.68, $p=0.003$), and understanding the differences between coronary angiography and stent (OR 9.92, 95%