Methods: 1091 patients with suspected ischemic chest pain underwent a clinically indicated angiography and enrolled in this study. Significant CAD was defined as ≥50% stenosis in any one major epicardial coronary artery. Multivariate logistic regression was used to determine predictors of significant CAD.

Results: More than women had found with normal/non-significant CAD (44.3% vs. 25.6%), but more men were shown either left main or three- vessel disease (25.5% vs. 14.2%). Among patients with significant CAD, more men had had relatively mild coronary artery lesions (50.74% stenosis) (27.5% vs. 16.5%), more men had the most severity CAD (90-100% stenosis) (65.3% vs. 56.5%). Risk factors independently associated with significant CAD including age, hypertension, diabetes mellitus, and prior myocardial infarction for both genders. LDL-C (>100 mg/dL) was separately for men, and postmenopause was separately for women.

Conclusions: Women referred for angiography are more likely to have normal or non- significant CAD and lower rates of significant CAD compared with men across all ages. The use of CAD of Chinese women was similar with the Western countries. It was a fortunate result because measures of CAD primary prevention used in Western countries may be also suitable for China.

GW25-e1493
The Impact of Epicardial Fat Volume and Inflammatory Cytokines on Coronary Artery Disease and Atherosclerotic Plaque Stability
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Objectives: Epicardial fat is an unusual visceral adipose tissue that is functionally and anatomically related to the coronary arteries and has been reported to be a rich source of various cytokines. Several groups have demonstrated that both epicardial fat and adipokines derived from adipose tissue may directly affect the progression of atherosclerosis. However, the relationship between EFV, cytokine levels, and coronary plaque stability has not been studied extensively. This study aimed to investigate the impact of EFV and cytokines in plasma on coronary plaque stability.

Methods: Patients who were undergoing coronary angiography and dual-source CT were enrolled in the study from February to October 2013. EFV, spot plaque, necrosis, and low-density lipoprotein cholesterol were calculated from CT scans using software provided by Siemens Medical Solutions. Fasting blood samples were collected for biochemical examination and cytokine quantification by ELISA. Statistical analyses were performed using SPSS 19.0.

Results: (1) Compared with those of the non-CAD group, the low-density lipoprotein cholesterol (LDL-C), body mass index (BMI) and EFV of CAD group were significantly higher, while high-density lipoprotein cholesterol (HDL-C) demonstrated the opposite trend (P<0.05). (2) Compared with those of the non-CAD group, the levels of plasma tumor necrosis factor-α (TNF-α) and interleukin-6 (IL-6) were higher in CAD group, while plasma adiponectin levels were significantly lower (P<0.05). (3) The levels of plasma matrix metalloproteinase-9 (MMP-9), pregnancy associated plasma protein-A (PAP-A), and leptin in the vulnerable plaque group were significantly higher than those of the stable plaque group, while C-reactive protein (CRP) and CYP3A7 were lower in the vulnerable plaque group as compared with the stable plaque group (P<0.05). (4) EFVs in the CAD group were higher than those of the non-CAD, and EFVs in the vulnerable plaque group were higher than those of the stable plaque group (P<0.05). (5) EFVs were positively correlated with plasma TNF-α, IL-6, soluble P-selectin (sP-selectin), MMP-9, PAPP-A, and leptin levels, and adiponectin and CTRP-9 levels demonstrated negative correlations (P<0.05); however, when normalized to BMI, the correlation between EFV and TNF-α, IL-6, and sP-selectin levels weakened (P=0.05). (6) EFVs and the plasma levels of TNF-α, IL-6, MMP-9, PAPP-A, and leptin are associated with CAD and the stability of plaque, while plasma adiponectin and CRP-9 have found to confer protection against CAD and plaque. EFVs were positively correlated with plasma MMP-9, PAPP-A, and leptin, while plasma CRP-9 and adiponectin exhibited negative correlations. Both EFV and plasma inflammatory cytokine levels were shown to affect CAD severity and plaque stability.

Conclusions: The incremental value of hybrid cardiac imaging resides in the accurate localization of myocardial perfusion defects and subending coronary arteries. So it may facilitate the identification of haemodynamically significant coronary artery stenoses and thereby guide clinicians on the appropriate treatment strategy for CAD.

GW25-e2200
Blood neopterin and endothelin levels in patients with coronary heart disease
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Objectives: To investigate the serum neopterin and endothelin levels in patients with coronary heart disease (CHD), to implore the probable mechanism of immune and endothelium function in CHD.

Methods: The levels of neopterin and endothelin in 56 patients who were divided into two groups, (control group, n=16) and (patient group, n=40) confirmed by coronary angiography, were measured. The relationship between the levels of neopterin, endothelin, and the number of narrow artery in coronary heart disease patients was also analyzed.

Results: The levels of neopterin in patients was higher than that in control group (respectively 15.16±7.44 nmol/L, and 8.38±4.69 nmol/L, P<0.01). It got more higher with the number of diseased coronary artery in patients got more (r=0.378 P<0.05). The levels of endothelin in patients was higher than that in control group (respectively 93.41±27.35 pg/mL and 67.58±20.04 pg/mL, P<0.01). But it got not higher with the number of diseased coronary artery in patients got more (r=0.298, P=0.05). The levels of neopterin got much higher with the levels of endothelin increased. There was a positive relationship between neopterin and endothelin levels in the patients (r=0.330, P<0.05).

Conclusions: Neopterin and immune may take part in the pathophysiological process of CHD and they also affect the endothelium function.

GW25-e4543
The relationship of thyroid function and the severity of coronary artery in patients with coronary artery disease
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Objectives: To evaluate thyroid function in hospitalized patients with coronary heart disease (CHD) and to explore the relationship between free thyroxine (FT3) level and the severity of coronary artery stenosis in CAD patients.

Methods: A total of 238 CAD patients who were admitted into our hospital during 2012 to 2014 were selected to perform serum thyroxine levels. The first purpose was to explore the thyroid function in patients with coronary heart disease. Then patients with hyperthyroidism, hypothryoidism, subclinical hyperthyroidism and subclinical hypothyroidism were excluded, the remaining patients were divided into normal FT3 group and low FT3 group. The second purpose was to compare the general clinical condition and the severity of coronary artery in the two groups of patients.

Results: (1) Among 238 CAD patients, 2 cases with hyperthyroidism (0.84%), 11 cases with hypothryoidism (4.62%), 3 cases with subclinical hyperthyroidism (1.26%), 5 cases with subclinical hypothryoidism (2.10%), and 23 cases with low T3 syndrome (10.50%). Low T3 syndrome is most common thyroid dysfunction in patients with CAD. (2) Patients with low FT3 had higher level of total cholesterol (TC) and apolipoprotein E (ApoE) than normal FT3 group (P<0.05), meanwhile they also had higher level of creatinine (P=0.007) and NT-proBNP (P<0.001) than normal FT3 group. (3) Low FT3 patients had higher proportion of three-vessel disease than normal FT3 group (P<0.001).

Conclusions: The low T3 syndrome is most common thyroid dysfunction in patients with coronary heart disease, and patients with low FT3 are more likely to multi-vessel involvement.

GW25-e5211
The relationship between serum TNF-α and sICAM levels and the severity of coronary artery diseases
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Objectives: To identify the role of tumor necrosis factor-alpha (TNF-α) and soluble intercellular adhesion molecule (sICAM) in the process of coronary artery disease and assess the correlation between TNF-α and sICAM levels and the severity of coronary artery diseases (CAD).

Methods: The serum concentration of TNF-α and sICAM were measured in peripheral blood (vena radiales) of 30 patients with acute myocardial infarction (AMI), 30 with stable angina pectoris (AP), and 30 control cases (Con) who were healthy subjects. For patients with AMI, the blood samples were obtained in 24 hours after acute myocardial infarction. For patients with AP, the blood samples were obtained in 24 hours after the latest angina pectoris. All the blood samples were obtained in the fasting state. The serum concentration of TNF-α and sICAM were measured by enzyme-linked immunosorbent assay. The general data were recorded, such as gender, age, history of disease, and smoking. One-way ANOVA and Pearson correlation coefficient were used to analyze the results.

Results: There was no significant difference in gender, age, history of disease, and smoking among the three groups (P>0.05). The TC, TG, LDL levels of AMI and AP groups were significantly higher than the Con group (P<0.05), but there was no significant difference between AMI and AP group (P>0.05). The serum concentrations of TNF-α and sICAM (aggl) in patients with AMI were higher than the AP and the Con subjects (P<0.01). And the AP group was higher than the Con group (P<0.01). TNF-α: AMI 0.46±0.44, AP 0.076±0.023, Con 0.059±0.012, sICAM: AMI 1.37±0.44, AP 0.75±0.25, Con 0.47±0.25 (P<0.01). In the three groups, the levels of TNF-α and sICAM were positively correlated (r=0.634, P<0.01).

Conclusions: TNF-α and sICAM were involved in the process of coronary artery diseases. They were positively correlated with the severity of CAD.

GW25-e1396
The Significance of Plasma Macrophage Migration Inhibitory Factor (MIF) for the Future Risk Evaluation of Major Adverse Cardiac Events in Patients With Acute Myocardial Infarction
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Objectives: Macrophage migration inhibitory factor (MIF) has been implicated in the pathological process of coronary atherosclerotic heart disease (CAD). We explored the plasma MIF level and studied its predictive value of major adverse cardiac events in CAD patients.

Methods: There were 126 patients with acute myocardial infarction (AMI), 154 patients with unstable angina (UA), 40 patients with stable angina (SA) who were recruited from First Affiliated Hospital of Xi’an Jiaotong University from January 2012 to December 2013. At the same time, 116 control patients with coronary angioigraphy negative and without heart disease history were selected. The next day morning, fasting venous blood were collected. Plasma MIF levels were measured by ELISA. All patients were followed up for a period of around 1 year. The endpoint events were defined as major adverse cardiac events (MACE), including cardiac death, non-fatal myocardial infarction, and target vessel revascularization (TVR).

Results: The plasma MIF levels were significantly higher in CAD than in control patients (11.12 (6.81, 11.86) vs. 4.42 (3.15, 6.50) ng/ml, P<0.01). Patients with AMI were much higher in MIF than UA (17.51 (13.28, 26.90) vs. 7.89 (5.41, 11.66) ng/ml, P<0.01) and SA patients (15.71 (13.28, 26.90) vs. 7.68 (4.60,10.98) ng/ml, P<0.01). During the period of follow up, 17 patients with AMI or UA who had lower MIF level experienced endpoint events. Multivariate logistic regression analysis revealed that the increment of MIF levels (per 10 ng/ml MIF) resulted in a markedly reduced risk for MACE (OR=0.78, 95% CI 0.61-1.04) in AMI patients. Kaplan-Meier plots for MACE-free survivals showed a significant difference between higher and lower MIF levels in AMI patients (Logrank=2.375, P<0.01). Corrected by traditional cardiovascular risk factors, circulating MIF in acute stage still played a notable protective effect in AMI patients (HR=0.78, 95% CI 0.61-1.04).

Conclusions: Plasma MIF levels are significant higher in CAD group, especially in AMI patients. AMI patients with much higher MIF level in acute stage have fewer MACE events than those patients who have lower MIF level. Acute stage MIF level can be an independent prognostic predictive factor for AMI patients.

GW25-e0508
Effects of impaired glucose metabolism on heart rate variability in patients with coronary atherosclerotic heart disease
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Objectives: The effects of impaired glucose metabolism (IGM) on heart rate variability (HRV) in patients with coronary atherosclerotic heart disease have been less studied. The study aimed to compare the heart rate, HRV and the circadian variation of heart rate and blood pressure in patients with combined coronary atherosclerotic heart disease and impaired glucose metabolism, the patients with coronary atherosclerotic heart disease, and the normal control; to investigate the relation between different levels of HbA1c and the parameters of HRV in coronary atherosclerotic heart disease patients with different levels of HbA1c.

Methods: The study population consisted of three groups: 129 patients with combined angiographically documented coronary atherosclerotic heart disease and IGM (Group CAD + IGM), 207 patients with angiographically documented coronary atherosclerotic heart disease (Group CAD), and 76 normal subjects (Group Control). We divided the group CAD + IGM into 2 subgroups according to the levels of HbA1c (Group HbA1c>7.0%, and Group HbA1c<7.0%). All subjects’ clinical data, fasting blood results, LVEF, and the features of coronary artery lesions by coronary angiography or coronary 320-slice CT were collected. All subjects underwent a 24-hour dynamic electrocardiography monitoring. The 24-hour means heart rate, time domain and frequency domain parameters of HRV were collected.

Results: There was a significant decline of 24-hour values of all HRV parameters in group CAD + IGM vs group CAD and group Control, with the highest in controls. The intermediate in group CAD, and the lowest value in group CAD + IGM. SDNN, SDANN, SDNN-index, RmsSD, PNN50 and TP, VLF, LF, HF were significantly different among these three groups (P<0.05). The mean heart rate of group CAD + IGM, group CAD, and group Control showed a trend of gradually reducing. The mean heart rate presented a marked day-night pattern in all three groups, with a decline in nighttime and a increase in daytime. The variation trend among three groups had a significant difference (P<0.05). The 24-hour values of all HRV parameters between the subgroup HbA1c>7.0% and subgroup HbA1c<7.0% did not show significant differences.

Conclusions: Patients with coronary atherosclerotic heart disease present a cardiac autonomic nervous dysfunction. Impaired glucose metabolism can make a further exacerbation on the cardiac autonomic nervous dysfunction of these coronary artery diseases. The heart rate variability in these patients with CAD + IGM and CAD groups presented a significant different in day night pattern in all three groups, with a decline in nighttime and an increase in daytime. But the nighttime heart rate in group Control decreases to a significantly lower level than those in the other two groups. The 24-hour values of all HRV parameters between the subgroup HbA1c>7.0% and subgroup HbA1c<7.0% do not show significant differences.