

Methods A total of 228 acute coronary syndrome (ACS) patients were randomly divided into standard statin group (SSG, n=115) and intensive statin group (ISG, n=113). Patients in SSG received 20 mg simvastatin and patients in ISG received 80 mg simvastatin for 7 days before PCI. TIMI grade flow (TGF), corrected TIMI frame count (CTFC) and TIMI myocardial perfusion grade (TMPG) of the intervened vessel were recorded before and after stent deployment. Plasma level of CK-MB and cTnI were measured before and 24 h after the procedure.

Results The TGF after stent deployment was significantly improved with less TIMI 0–1 patients and more TIMI 3 blood flow in ISG than in SSG (all $p<0.05$). Patients with no reflow phenomenon were less in ISG ($p<0.001$). The CTFC was lower in ISG than SSG ($p<0.001$). TMPG was also improved in ISG than SSG ($p=0.001$). 24 h after the procedure, although PCI caused significantly increase in CK-MB, the elevated CK-MB value was lower in ISG than SSG (18.74 ± 8.41 vs 21.78 ± 10.64 $p=0.018$). Similar changes were also found with regard to Troponin I (0.99 ± 1.07 vs 1.47 ± 1.54 , $p=0.006$). No myocardial infarction was found. Among them, myocardial necrosis was detected in 13% of the patients in SSG, while 4.4% in ISG ($p=0.021$). Myocardial infarction was found in 4.4% in the patients in SSG and 0.9% in ISG ($p=0.213$).

Conclusion Intensive statin pretreatment for 7 days before PCI can further improve myocardial blood perfusion, protect myocardium from ischaemic injury.

e0525 **PROTECTIVE EFFECT OF SIMVASTATIN COMBINED WITH ANISODAMINE ON MYOCARDIAL PERFUSION IN SWINE NO REFLOW MODEL**

doi:10.1136/hrt.2010.208967.525

Fu Xianghua, Jia Xinwei, Wang Yanbo, Wang Xuechao, Zhang Jing, Fan Weize, Hao Guozhen. *The second Hospital of Hebei Medical University, Shijiazhuang, Hebei, China*

Objectives To evaluate the preventive effect of simvastatin combined with anisodamine on myocardial perfusion in no reflow, and to probe the possible mechanism.

Method Totally 16 minipig of 30–40 Kg were randomly divided into anisodamine groups (A, n=8) and anisodamine plus simvastatin group (A+S, n=8). Pigs in Group A+S were pretreated with oral simvastatin for 7 days, while pigs in A groups were given placebo. Seven days later, CAG was performed, and the doppler wire was used to record blood velocity. The pressure of aorta (Pa) was monitored. PMBS was injected to establish no reflow model. Anisodamine was injected into the LAD 2 min before PBMS was injected. The TIMI blood flow, TMPG and CTFC were recorded to evaluate the myocardial perfusion. The sample of myocardium in ischaemic zone and normal zone were measured. Blood sample was taken before and after the experiment to measure the level of CK-MB, cTnI and hs-CRP. The percent of necrotic myocardium was calculated by myocardium stain method.

Results The TIMI blood flow and TFCs were better in Group A+S ($p<0.05$). The Pa was increased in both groups after PMBS injection at the early stage ($p<0.01$), and then it began to decrease in Group A ($p<0.05$), while it remained its high level in Group A+S ($p=0.042$). The bAPV was increased in both groups, which was more obvious in the Group A after PMBS injection. After the injection of PMBS, the hAPV was significantly decreased in both groups ($p<0.01$), but it was still higher in group A+S ($p=0.000$). The CFR was continuously decreased after the PMBS injection ($p<0.05$), but it was higher in Group A+S ($p=0.025$). The h-MR was further increased ($p=0.024$), with no difference between two groups after the PMBS injection. The level of serum cholesterol was similar between the two groups ($p=0.063$). CK-MB, TnI, hs-CRP and MDA were

increased after the experiment, with the higher levels in Group A. NO was also increased ($p=0.000$), with the higher level in Group A+S ($p=0.006$). SOD was decreased ($p=0.000$) in both groups, with lower level in Group A ($p=0.000$). The infarcted size in group A was larger than that in A+S group ($p<0.05$).

Conclusion Simvastatin combined with anisodamine can significantly improve myocardial blood perfusion and protect the myocardium against ischaemic injury during PCI. The possible mechanism involves improving of coronary haemodynamics, anti-inflammation and antioxidation.

e0526 **PROTECTIVE EFFECTS OF INTENSIVE STATIN PRETREATMENT ON RENAL FUNCTION IN PATIENTS WITH ACUTE CORONARY SYNDROME UNDERGOING PERCUTANEOUS INTERVENTION**

doi:10.1136/hrt.2010.208967.526

Fu Xianghua, Jia Xinwei, Wang Yanbo, Wang Xuechao, Zhang Jing, Fan Weize, Hao Guozhen, Jiang Yunfa. *The Second Hospital of Hebei Medical University, Shijiazhuang, Hebei, China*

Objectives To evaluate the protective effects of higher dose statin on renal function and the incidence of CIN.

Methods 228 patients with acute coronary syndrome undergoing delayed percutaneous coronary intervention were randomly divided into standard statin group (SSG n=115) and intensive statin group (ISG n=113). Patients in SSG were given simvastatin 20 mg/day and patients in ISG were given simvastatin 80 mg/day for at least 7 days before PCI, Serum creatinine was measured at admission, 24 h and 48 h after PCI, and the Creatinine clearance was calculated. The levels of hs-CRP, ICAM-1 and P-selectin were also measured.

Results Serum creatinine underwent significant increase after PCI, the peak value occurred at 24 h, and then began to decrease. At 48 h after PCI, the creatinine level significantly decreased ($p<0.001$) to baseline level in ISG, whereas in SSG the creatinine level failed to decrease significantly. Serum creatinine at admission was not significantly different between the two groups, but at 24th and 48th hour after PCI, it were lower in ISG than SSG ($p<0.05$ at 24th hour and $p<0.001$ at 48th hour). The creatinine clearance significantly decreased after PCI, the lowest value occurred at 24 h, and then it began to increase. In SSG, the creatinine clearance increased significantly ($p=0.03$) at 48 h, but still significantly lower than baseline level. In ISG, the creatinine clearance increased significantly ($p<0.001$) at 48 h and recovered to the level at baseline. Creatinine clearance improved much more in ISG at 24 and 48 h than that in SSG ($p<0.001$ at 24th hour and at 48th hour). Although procedure caused significant increase in hs-CRP, P-selectin and ICAM-1 ($p<0.001$), the increase in ISG was smaller than SSG ($p<0.001$).

Conclusion Pretreatment with intensive statin dosage before PCI can further decrease the occurrence of CIN. This benefit may be associated with the lowering of hs-CRP, P-selectin and ICAM levels.

e0527 **INTRAVASCULAR ULTRASOUND CRITERIA FOR THE ASSESSMENT OF THE FUNCTIONAL SIGNIFICANCE OF INTERMEDIATE CORONARY ARTERY STENOSIS**

doi:10.1136/hrt.2010.208967.527

Cheng Xunmin, Jiang Shisen. *Cardiology Department, Nanjing General Hospital of Nanjing Military Command of Pla, Nanjing*

Introduction In recent years, intravascular ultrasound (IVUS) has evolved as a valuable adjunct to angiography. IVUS allows precise tomographic measurement of lumen area and plaque size, distribution and, to some extent, composition. It is essential in clinic decision

making. Myocardial fractional flow reserve (FFR_{myo}) is a special index of the functional severity of coronary stenosis. Although the application of FFR_{myo} to assess intermediate coronary lesion is widely performed in some centers in developed countries, its use in China was lagged. Because it is relatively expensive to measure FFR_{myo} , it will be beneficial to save the expenses and to short operation time if CAG and IVUS criteria could be clinically used as tools to discriminate functional significant of intermediate stenosis.

Materials and Methods In 46 lesions of intermediate severity (eg, 40%–60% diameter stenosis) we assessed 1. by pressure wire: myocardial fractional flow reserve (FFR_{myo} , index of functional significance), and 2. by IVUS: minimal lumen cross-sectional area (MLA) and percent area stenosis at the lesion site. Receiver operating characteristic (ROC) curve analysis was performed to establish the best cut-off values of IVUS indexes (ie, MLA and percent area stenosis) that were most predictive of $FFR_{myo} < 0.75$.

Results FFR_{myo} in 46 lesions of angiographic intermediate stenosis ($49 \pm 11\%$) was significantly lower than it was in angiographic normal artery (0.83 ± 0.15 vs 0.97 ± 0.02 , $p < 0.01$). Fourteen lesions (30%) were functionally critical (eg, $FFR_{myo} < 0.75$). By regression analysis, percent area stenosis had a significant inverse correlation with FFR_{myo} ($r = -0.68$, $p < 0.01$). MLA showed a significant positive relation with FFR_{myo} ($r = 0.63$, $p < 0.01$). By ROC analysis, we identified an IVUS area stenosis $\geq 65\%$ (sensitivity 100%, specificity 72%), a minimal lumen cross-sectional area $\leq 4 \text{ mm}^2$ (sensitivity 93%, specificity 77%) to be the best cut-off values to fit with $FFR_{myo} < 0.75$.

Conclusion IVUS area stenosis $\geq 65\%$ and minimal lumen cross-sectional area $\leq 4 \text{ mm}^2$ reliably identified functionally critical intermediate coronary stenosis.

e0528 IMPROVEMENT IN DOOR-TO-BALLOON TIMES IN PATIENTS WITH ST-ELEVATION MYOCARDIAL INFARCTION IN BEIJING ANZHEN HOSPITAL

doi:10.1136/hrt.2010.208967.528

Song Li, Yan Hongbing. *Beijing Anzhen Hospital*

Background Guidelines recommend a door-to-balloon time (D2B) < 90 min for patients with ST-segment elevation myocardial infarction (STEMI) who undergo primary percutaneous coronary intervention (PPCI). Little is currently reported about systems of care to achieve this D2B performance in China. The objective of this study was to compare median D2B time and the percentage of patients treated within 90 min in Beijing Anzhen Hospital during two different periods.

Methods STEMI protocol to shorten D2B time in Beijing Anzhen Hospital in recent 2 years included activation of the cardiac catheterisation laboratory by the cardiologist in emergency department; all members of the intervention team use cell phones; catheterisation laboratory staff arrival within 20–30 min of activation; enhancing close integration of ambulance networks and hospital such as advance notification and pre-hospital ECG by ambulance crews; and bypassing the emergency room. Data were prospectively collected from STEMI patients admitted within 12 h of symptom onset and underwent PPCI during two different periods: in 2006 ($n = 138$) and in 2009 ($n = 156$). D2B times and its components were compared between two groups.

Results The median D2B time decreased from 120 min (IQR=88–150 min) in 2006 to 80 min (IQR=60–105) in 2009 ($p < 0.0001$). More precisely, subinterval time periods for the median door-to-ECG time decreased from 5 min in 2006 to 3 min in 2009 ($p < 0.0001$), the median door-to-sign the operation approval time decreased from 35 min in 2006 to 15 min in 2009 ($p < 0.0001$), the median sign-to-puncture time decreased from 80 min to 60 min ($p < 0.0001$), and the median puncture-to-balloon decreased from

25 min to 20 min ($p < 0.0001$). Importantly, the proportion of patients with D2B times < 90 min increased from 21.4% in 2006 to 65.7% in 2009 ($p < 0.0001$).

Conclusions D2B time decreased significantly from 2006 to 2009 in Beijing Anzhen Hospital. Accordingly, the percentage of patients treated within 90 min has dramatically increased from 2006 to 2009. Our experience demonstrates the effectiveness of process changes targeting timeliness of PPCI.

e0529 THE EFFECT OF PRIMARY PCI OF CULPRIT ARTERY ON EPICARDIAL FLOW IN NONCULPRIT ARTERY IN PATIENTS WITH ANTERIOR STEMI

doi:10.1136/hrt.2010.208967.529

Wang Jian, Yan Hongbing. *Beijing Anzhen Hospital*

Objective To study the effect of primary PCI of culprit artery on epicardial flow in Nonculprit Artery in patients with STEMI.

Methods Enrolled 401 Anterior STEMI patients underwent primary PCI and the culprit artery is LAD (the test group) enrolled 100 patients that Coronary artery angiography suggesting normal as the control group. To observe the differences of CTFC and MBG pre and post primary PCI in both culprit and nonculprit artery, and to observe CTFC and MBG in the control group.

Results Nonculprit artery (LCX)'s CTFC and MBG level in patients with Anterior STEMI were different from those in the control group before primary PCI, and after primary PCI, nonculprit artery (LCX)'s CTFC and MBG level were improved, but still not recovery to normal level.

Conclusion Nonculprit artery's perfusion May be impaired in patients with STEMI, nonculprit artery's perfusion May be improved after primary PCI, but still lower than those in the control group.

e0530 LONG-TERM FOLLOW-UP AFTER DRUG-ELUTING STENTS FOR PATIENTS WITH ST-SEGMENT ELEVATION MYOCARDIAL INFARCTION: A SINGLE CENTER STUDY

doi:10.1136/hrt.2010.208967.530

Zhao Yong, Yan Hongbing. *Beijing Anzhen Hospital*

Objective To evaluate the long-term efficacy and safety of DES in the setting of primary PCI in our single center.

Methods From September 2004 to November 2008, 464 patients undergoing primary PCI for STEMI were included at the 28th Division in Beijing Anzhen Hospital. The adverse events were compared among different types of DES.

Results The major adverse cardiac events (MACE, including sudden cardiac death, stent thrombosis, target lesion revascularization [TLR], target vessel revascularization [TVR], reinfarction and coronary artery bypass graft), all-cause death, major bleeding, anti-platelet therapy and secondary prevention of coronary heart disease of different types of DES were no significant differences. The cumulative incidence of MACE and stent thrombosis were 9.3% and 1.1% respectively, different types of DES were 9.4%, 5.1%, 5.9%, 6.6% ($p = 0.483$) and 3.1%, 0.0%, 0.0%, 0.0% ($p = 0.092$) respectively. The patients in the DES group had longer duration of dual anti-platelet therapy (average 16.2 ± 6.7 months). No major bleeding occurred in all patients with the long-term and low-dose aspirin (100 mg).

Conclusions Different types of DES have the same results in the setting of primary PCI, and were long-term safe and effective with a reasonable strategy for anti-platelet therapy and secondary prevention.