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SAFETY AND EFFICACY OF THROMBOLYSIS FOLLOWED BY EARLY PERCUTANEOUS CORONARY INTERVENTION VIA TRANSRADIAL ARTERY APPROACH IN PATIENTS WITH ST-SEGMENT ELEVATION MYOCARDIAL INFARCTION

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Objectives This study was to investigate the safety and efficacy of thrombolysis followed by early PCI via transradial artery approach in patients with ST-segment elevation myocardial infarction (STEMI).

Methods From September 2009 to March 2010, all consecutive STEMI patients within 12 h from symptom onset or thrombolysis in the Department of Cardiology of the Second Hospital of Hebei Medical University were enrolled. All eligible STEMI patients were divided into two groups according to patients received thrombolysis or not: early PCI group (E-PCI group, patients received thrombolytic agents in non-PCI capable hospital and immediately transferred to receive early PCI) and primary PCI group (P-PCI group, patients received primary PCI). Coronary angiography (CAG) and PCI were performed immediately after admission via transradial artery approach for patients in both groups with standard technique. According to the results of angiography, PCI was performed unless the blood flow of IRA achieved TIMI flow grade 3 without significant stenosis. Thrombus score, TIMI flow grade (TFG) of IRA before and after PCI, corrected TIMI frame count (CTFC), TIMI myocardial perfusion grade (TMPG) post PCI were analysed. Bleeding complications was also observed and evaluated. All patients were followed up for 6 months to assess major adverse cardiac events (MACE).

Results A total of 161 cases were enrolled, with 53 cases in E-PCI group and 108 cases in P-PCI group. The patients in E-PCI group were younger than those in P-PCI group (51.36 ± 12.24 vs 57.31 ± 9.87, $p=0.003$). The other baseline clinical characteristics such as gender distribution, baseline levels of serum BNP, SCr and Hb, and the medication therapies were similar between the two groups (all $p>0.05$). The mean time from symptom onset to thrombolysis was 3.62 ± 1.85 h in E-PCI group, and the time from thrombolysis to PCI was 5.13 ± 3.03 h. Compared to P-PCI group, the mean time from onset to PCI was longer in E-PCI group (8.75 ± 2.86 vs 6.03 ± 3.19 h, $p<0.001$). There were no differences in door to balloon time and IRA distribution between the two groups. Of the 53 patients treated with thrombolysis, 51 patients underwent early PCI when transferred to our hospital except two patients who only underwent CAG. In the P-PCI group, 106 patients underwent primary PCI, while two patients underwent CAG. Before PCI procedure, the thrombus score of IRA in E-PCI group was lower, and the percentage of TIMI 3 flow was higher (both $p<0.05$) compared to those in P-PCI group. TFG of IRA after PCI was similar, and there was no significant difference in the volume of contrast medium ($p>0.05$). However, cTFC of IRA post PCI in E-PCI group was lower than that in P-PCI group (28.12 ± 5.06 vs 30.89 ± 8.74, $p<0.05$), and rate of TMPG 3 in E-PCI group was higher than that in P-PCI group (82.8% vs 68.0%, $p<0.05$). All of the implanted stents were drug-eluting stents. No differences were found in the stent implantations between the two groups (all $p>0.05$). There was a trend toward lower in the peak value of serum CK-MB in E-PCI group. No significant differences were found in the incidence of bleeding complications and hospital stay between the two groups. There was a trend of better left ventricular function 7 days after PCI in E-PCI group than that in P-PCI group. After 6-month follow-up, the left ventricular function was improved in both the two groups (all $p<0.05$), and there was still a better trend in E-PCI group. Overall, there was no significant difference in 6-month MACE between the two groups ($p=0.977$).

Conclusions The myocardial perfusion and left ventricular function were better in patients underwent thrombolysis followed by early PCI, without increases of bleeding complications and incidence of MACE. It is safe and efficacious for STEMI patients to receive thrombolysis followed by early PCI via transradial artery approach.