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Immediate vs. Delayed Percutaneous Coronary Intervention for Spontaneously Reperfused ST Elevation Myocardial Infarction

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Introduction: Primary percutaneous intervention (PCI) in patients with ST elevation myocardial infarction (STEMI) has been shown to improve clinical outcomes. Appropriate timing for PCI in STEMI patients presenting with clinical features of spontaneous reperfusion (SR) is not well established.

Method: All STEMI patients admitted to our hospital during 2008 were included and divided into 3 subgroups: Patients who underwent primary PCI and had TIMI 3 flow in infarct related artery (IRA) on initial angiogram defined as SR-immediate PCI. Patients with clinical and ECG features for SR in whom PCI was delayed, defined as SR-delayed PCI. Patients who underwent primary PCI and had TIMI flow<3 in IRA, defined as non-SR. We compared 3 groups for procedural success (defined as TIMI 3 and Myocardial Blush Grade 3 at the end of the procedure), peak troponin T levels, in-hospital and 30 days MACE (composite of death, MI, or urgent revascularization).

Results: 128 patients were included, 26 in SR-immediate PCI group, 33 in SR- delayed PCI group and 69 in the non-SR group. There were no significant differences in baseline characteristics among subgroups. Procedural success rate was significantly lower (p=0.023) in non-SR group, 78% compared to 96% in the SR-delayed PCI group and 93% in the SR-immediate PCI group (p=0.123 for comparison between the SR groups). Mean peak troponin T value was significantly higher in the non-SR group (6.6ng/ml,p<0.001) but no difference between SR groups (2.2ng/ml vs. 2.6ng/ml,p=0.559). No significant differences in in-hospital and 30 days MACE were noted between SR groups (3.8% vs. 3%, p=0.866). Conclusion: For STEMI patients with spontaneous reperfusion, procedural success rates or clinical outcomes are not different whether PCI is performed immediately or delayed. It seems that postponing PCI in those patients is valid approach that entails very low rates of urgent interventions. Larger studies and longer follow up are needed to confirm our findings.