

New Strategies of Primary PCI for STEMI: Results From Recent Trials

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The damage inflicted on the myocardium during acute myocardial infarction (AMI) is the result of 2 processes: ischemia and subsequent reperfusion injuries. During the last 3 decades, therapies to reduce ischemic injury have been widely incorporated into clinical practice. Introduction of reperfusion therapy by primary percutaneous coronary intervention (PCI) has resulted in improved outcomes for patients presenting with ST-segment elevation myocardial infarction (STEMI). Despite the obvious advantages of primary PCI, acute restoration of blood flow paradoxically also jeopardises the myocardium. This phenomenon, termed reperfusion injury, leads to lethal cell death and has been estimated to account for up to half of the ultimate infarct size. Prevention of reperfusion injury may help to improve outcome following primary PCI. In the recent few years, few interventions have successfully passed the proof-of-concept stage. Despite overall disappointing, there exist some promising strategies, including ischemic post-conditioning, remote ischemic conditioning, and pharmacological conditioning with focus on adenosine, cyclosporine A, glucose–insulin–potassium, exenatide, atrial natriuretic peptide and metoprolol and cooling. In this review, we examine contemporary therapies aimed to protect ischemic myocardium during reperfusion. And also, this paper will also provide a short overview of the recent randomized trials, such as the TOTAL trial, and ongoing studies that address this issue, such as the CIRCUS Study and DANAMI 3 trial.