

A Review of Pharmacological Prevention of Peri-and Post-Procedural Myocardial Injury After Percutaneous Coronary Intervention

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Abstract : The concept of myocardial injury, although first recognized from animal studies, is now recognized as a clinical phenomenon that may result in microvascular damage, no-reflow phenomenon, myocardial stunning, myocardial hibernation and ischemic preconditioning. The final consequence of this event is left ventricular (LV) systolic dysfunction leading to increased morbidity and mortality. The typical clinical case of reperfusion injury occurs in acute myocardial infarction (MI) with ST segment elevation in which an occlusion of a major epicardial coronary artery is followed by recanalization of the artery. This may occur either spontaneously or by means of thrombolysis and/or by primary percutaneous coronary intervention (PCI) with efficient platelet inhibition by aspirin (acetylsalicylic acid), clopidogrel and glycoprotein IIb/IIIa inhibitors. In recent years, percutaneous coronary intervention (PCI) has become a well-established technique for the treatment of coronary artery disease. PCI improves symptoms in patients with coronary artery disease and it has been increasing the safety of procedures. However, peri- and post-procedural myocardial injury, including angiographical slow coronary flow, microvascular embolization, and elevated levels of cardiac enzyme, such as creatine kinase and troponin-T and -I, has also been reported even in elective cases. Furthermore, myocardial reperfusion injury at the beginning of myocardial reperfusion, which causes tissue damage and cardiac dysfunction, may occur in cases of the acute coronary syndrome. Because patients with myocardial injury is related to larger myocardial infarction and have a worse long-term prognosis than those without myocardial injury, it is important to prevent myocardial injury during and/or after PCI in patients with coronary artery disease. To date, many studies have demonstrated that adjunctive pharmacological treatment suppresses myocardial injury and increases coronary blood flow during PCI procedures. In this review, we highlight the usefulness of pharmacological treatment in combination with PCI in attenuating myocardial injury in patients with coronary artery disease.

Keywords : coronary artery disease, percutaneous coronary intervention, myocardial injury, pharmacology

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