Therapeutic Potential of Monteplase in Acute Myocardial Infarction as a Powerful Thrombolytic Agent for Pretreatment of Coronary Intervention

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ABSTRACT

Thrombolysis with conventional thrombolytic agents followed by percutaneous coronary intervention (PCI) had no impact on the treatment of acute myocardial infarction (AMI). However, the development of mutant type plasminogen activator (mt-PA) has prompted us to reassess the combination of thrombolysis and PCI. Monteplase (Eisai, Co. Ltd., Tokyo, Japan) is a newly developed mt-PA that can be administrated as a single intravenous bolus injection. We initiated a clinical trial [Combining Monteplase with Angioplasty (COMA)] to evaluate the effectiveness of monteplase followed by PCI. The AMI patients were randomly assigned to receive PCI following pretreatment with a single bolus intravenous injection of monteplase or direct PCI without monteplase. The initial coronary angiography prior to PCI showed that 36.2% of patients in the monteplase group achieved Thrombolysis in Myocardial Infarction (TIMI) 3 flow in the infarct-related artery, compared with in only 7.9% of patients in the direct PCI group ($P < 0.0001$). During 24 months following PCI, major cardiac events occurred in 27.7% of patients in the monteplase + PCI group, and in 46.7% of patients in the direct PCI group without monteplase ($P < 0.05$). Thus, the ideal strategy for the treatment of AMI is the administration of monteplase upon arrival at a community hospital with a prompt transfer to a tertiary center for PCI.