Successful Embolization Protection Using GuardWire System for Acute Myocardial Infarction: Multicenter Registry in Japan

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Background: Distal embolism is one of the major complications during percutaneous coronary intervention (PCI) for acute myocardial infarction (AMI). These complications may be potentially mitigated by distal protection. The GuardWire system (GS) consists of an occlusion balloon which is inflated distally allowing ‘protected’ PCI has recently become available. Aim: To evaluate the efficacy and safety of this device, we studied a total of 212 patients (male 69.8%) of AMI who underwent PCI using GS. The GS was successfully placed in all of the cases. Gross inspection of the filter after retrieval demonstrated macroscopic emboli including thrombus in 93.9% of patients. Results: See table. Conclusion: The preliminary results suggest that PCI for AMI using GS is technically feasible, safe and early clinical outcomes appear to be favorable. 6 months and 1 year follow-up clinical outcome will be available at time of presentation.

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Relationship Between Acute Hyperglycemia and Microvascular Injury After Primary Coronary Angioplasty for Acute Myocardial Infarction

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Background: Previous studies have reported that acute hyperglycemia is associated with adverse outcomes after acute myocardial infarction (AMI). The aim of this study was to examine the relationship between acute hyperglycemia and microvascular injury after primary coronary angioplasty for AMI. Methods: We studied 106 patients with a first anterior wall AMI who underwent primary coronary angioplasty within 12 h of onset. Coronary flow velocity parameters were assessed immediately after reperfusion using a Doppler guidewire. We evaluated the presence of systolic flow reversal (SFR), diastolic deceleration time (DDT), and coronary flow reserve (CFR) as markers of microvascular injury. We defined severe microvascular injury as the presence of SFR and DDT <600 ms. Results: Acute hyperglycemia, defined as a blood glucose level of >190 mg/dl at admission, was found in 35 patients (33%). In patients with acute hyperglycemia, the presence of SFR was more frequent, DDT was shorter, and CFR was lower. By regression analysis, the blood glucose level significantly correlated with DDT (r=0.43, p<0.0001). Multivariate analysis showed that acute hyperglycemia was an independent determinant of severe microvascular injury (odds ratio 7.36, p<0.015). Conclusions: Acute hyperglycemia is related to severe microvascular injury, resulting in larger infarct size and worse left ventricular function. This may partly account for adverse outcomes after AMI in patients with acute hyperglycemia.