1003-90 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.

	AMI (n=212)
Characteristics of AMI	
Culprit: anterior location (%)	54.2
Cardiogenic shock (%)	19.8
Forester III, IV (%)	26.4
Peak CPK (mean)	2010
Clinical outcome	
Procedural success (%)	100
Clinical success (%)	100
No flow (%)	0
TIMI 3 post PCI (%)	100
In-hospital death (%)	0

1003-91 Evolution of Thrombolysis in Myocardial Infarction Myocardial Perfusion Grade During Primary Coronary Angioplasty in Acute Myocardial Infarction Predicts Long-Term Recovery of Left Ventricular Function

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Background: TIMI myocardial perfusion grade (MPG) reflects the integrity of microvasculature. We hypothesized that a combined analysis of MPG before and after PCI in AMI may reveal information on further recovery of left ventricular (LV) function. **Methods:** We evaluated 585 consecutive patients (pts, age 58,7±11 y) with ST-segment elevation AMI treated with PCI. Myocardial injury was expressed as area under the curve of CK-MB release in the first 48 hours (AUC). MPG was evaluated before and after PCI. The sum of ST-segment elevation (12-lead ECG) was obtained before and 30 minutes after PCI. LV Ejection fraction (EF) was evaluated by 2D echocardiography at 24 hours and 6 months after PCI. **Results**: Evaluation of MPG before and after PCI showed 6 different reperfusion patterns; I - MPG-0/1 before and after PCI, II - severe MPG deterioration (from 2/3 to 0/1), III - MPG improvement from grade 0/1 to 2, IV - mild MPG deterioration (from 2/3 to 2), V - MPG improvement from 0/1 to 3, VI - high MPG maintained (2/3 before and 3 after PCI). Results for AUC, proportion of pts with complete (>70%) ST resolution, and EF at 24h and 6mo by the reperfusion pattern are shown in the table. **Concusion:** Maintaining a high MPG throughout PCI in AMI or achieving a marked MPG improvement are both related to a mild, largely reversible, myocardial injury and implicate recovery of LV function. In contrast, lack of improvement of a poor MPG or severe deterioration of MPG are associated with a major myocardial injury and lack of LV function recovery at 6 months.

Reperfusion pattern	**I** (n=204)	**II** (n=11)	**III** (n=133)	**IV** (n=41)	**V** (n=122)	**VI** (n=74)
% pts with complete ST resolution	37.3 †	36.4 †	45.9 †	60.9 †	52.5 †	72.9 †
AUC [U/lxh]	3690±1840	3870±1975	2485±882*	2340±837**	2259±954*	2115±810**
EF-24h [%]	42 ±11 †	41±3 †	46±9 †	45±12 †	53±9 †	55±8 †
EF-6m [%]	39±10†,***	40±3 †	45±8 †	46±12 †	55±9 †,††	59±9†,***

*p<0,01 vs. I, **p<0,01 vs. II, †p<0,001 among I-VI; ††p<0,001 vs. I-IV; ***p<0,01 vs. EF-24h

1003-92 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.

	Hyperglycemia (+) (n=35)	Hyperglycemia (-) (n=71)	P value
SFR, %	63	24	<0.0001
DDT, ms	393±282	704±369	<0.0001
CFR	1.3±0.5	1.6±0.4	0.004
Peak CPK, IU/l	6099±2686	3735±2376	<0.0001
LVEF at 3 weeks, %	48±14	58±12	0.0003

1003-93 Outcomes Prediction With Continuous 12-Lead ST-Segment Recovery in ST Elevation Myocardial Infarction: Similarities or Differences With Thrombolytic Versus Direct Stenting Populations?

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Background:ST segment recovery reflects the speed, stability and quality of microvascular reperfusion in STEMI pts, and is highly predictive of clinical outcome. The relative comparability of this biomarker between reperfusion with lytic therapy vs. mechanical reperfusion with stenting, however, has never been reported.
Methods: Retrospective database review of a total of 21,223.4 hrs including 1,273,404 12-lead ECGs from 24 hr/pt digital ST-segment monitoring of 877 STEMI pts, 320 treated with primary stenting and 557 with lytic therapy compared Duke eECG Core Laboratory endpoints: 1) time to stable ST recovery (**STABLE**), as ≥50% recovery from peak ST levels lasting >4 hrs (minutes); 2) extent of ST recovery (>**70%ST**) as >70% recovery from peak ST levels at **STABLE** (%yes); 3) 3 hr ST deviation vs. time trend curve area (**AREA**) in uV-min; 4) late ST re-elevation (**LATE**) of >150uV over baseline after **STABLE** (%yes). Mortality and major adverse cardiovascular endpoints (**MACE)** of death, re-MI, new CHF and urgent CABG were defined by each trial's coordinating center, blinded to ST data. Core lab ST analyses were blinded to outcomes.
Results: MACE of 13.3% and 17.2% was seen with lytics and stenting, respectively. ST endpoints were:

ST Variables and Outcomes for Lytics and Stenting Therapy Groups

Variable	MACE Stent	No MACE Stent	P value	MACE Lytics	No MACE Lytics	P value
STABLE	132	81	.003	186	92	<.001
>70%ST	52.8	70.0	.006	42.0	65.1	<.001
AREA	8,837	5,654	.023	8,060	5,000	.011
LATE	23.9	9.2	.004	38.6	13.4	<.001

Conclusions: Considering differences in pt population size in stent and lytics groups, continuous ST-segment recovery endpoints are essentially equally predictive of outcome in STEMI pts undergoing either medical or mechanical intervention.