Transient Exacerbation of ST-Segment Elevation Upon Reperfusion in Acute Myocardial Infarction

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To evaluate the frequency of ST-segment increase upon reperfusion during acute myocardial infarction, we retrospectively examined continuous ST-segment recordings from the VERMUT multicenter study of noninvasive detection of reperfusion by dynamic vectorcardiography.

We studied 92 patients with acute myocardial infarction treated by intravenous thrombolysis (n = 74) or primary angioplasty (n = 18) within 6 hours of onset of symptoms. Continuous monitoring of the ST-vector magnitude (60 ms after the J point) was performed using a signal-averaged vectorcardiographic system with averaging periods of 1 minute (the MIDA-system, Ortivus Medical, Täby, Sweden). Emergency coronary angiography was performed on all patients providing the acute patency status of the infarct-related artery within 90 minutes of the start of thrombolysis or before and after primary angioplasty. An exacerbation pattern was defined as a stable ST-vector magnitude for at least 10 minutes followed by an increase of at least 80 mV and a subsequent fall to <50% of the peak value.

The prevalence of ST-segment exacerbation according to treatment and patency at 90 minutes is shown in the table below.

	Exacerbation (n)	No Exacerbation (n)
Thrombolysis (n = 74)		
Patent	17	45
Occluded	0	12
Angioplasty (n = 18)		
Patent (postangioplasty angiogram)	9	7
Occluded (postangioplasty angiogram)	0	2

ST-segment exacerbation after reperfusion was only rarely seen in patients with non-Q wave myocardial infarction as compared to Q wave myocardial infarct (8% vs 27%; $P < .01$). In all patients undergoing angioplasty, exacerbation was temporally related to reperfusion. Examination of QRS vector loops showed that exacerbation was not related to intraventricular conduction disturbances.

Exacerbation of ST-segment elevation is frequently observed in patients with an acute myocardial infarction. It seems related to the reperfusion of occluded coronary arteries. Whether it is associated with increased myocardial damage (reperfusion injury) remains hypothetical.

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