Primary percutaneous coronary intervention (PCI) to recanalize an occluded artery has been the main treatment for acute myocardial infarction (AMI), but a substantial number of patients still develop large infarcts. Impaired microvascular reperfusion, which is evaluated by the absence of resolution of ST-segment elevation (ST resolution) on the 12-lead ECG following reperfusion therapy, is considered to be associated with worse final TIMI (Thrombolysis In Myocardial Infarction) flow grade and large infarcts. Furthermore, the measure of ST resolution has been reported to correlate with left ventricular function, survival, and reinfarction during long-term follow-up after both primary PCI and thrombolytic therapy. ST resolution occurs in 64–85% of patients, as shown in the Table.

Only a few previous reports have investigated the prevalence of ST segment re-elevation even though ECG is a standard and simple diagnostic modality. Matano et al reported that ST re-elevation occurred in 29% of the patients, but that there was no difference in ejection fraction (EF) at 1 month between the patients with and without ST re-elevation. In contrast, Okuda et al reported that ST re-elevation, despite initial ST resolution, occurred in 23% of the patients, and was associated with poorer EF at 6 months. They divided their patients into 3 groups (ST resolution without re-elevation, ST resolution with re-elevation, and no ST resolution), and showed the serial ECG changes (Figure). In this issue of the Journal, Cuenin et al report that 19% of 662 patients experienced ST segment re-elevation, but there were no differences in EF or death at 1 year between patients with and without re-elevation. Although the incidence of ST re-elevation was similar to that reported by Okuda et al, the effect on EF was inconsistent. Several differences between the 2 studies may have influenced the results. First, the timing of evaluation for ST re-elevation was different. Most previous studies evaluated ST resolution within several hours after reperfusion therapy, and ST resolution was consistently associated with better clinical outcomes. The mechanism of ST re-elevation is unclear and its occurrence suggests the possibility of re-infarction or pericarditis. In fact, stent...
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ST resolution is associated with worse EF, this point is elevation group. However, considering that an absence of initial ST resolution in their ST re-elevation. The timing of these phenomena following injury, inflammatory response, and edema may play a role in ST re-elevation. The timing of these phenomena following reperfusion therapy could differ, so the different time points used to assess ST re-elevation in the 2 studies may explain the conflicting results. Second, Cuenin et al included patients with an absence of initial ST resolution in their ST re-elevation group. However, considering that an absence of ST resolution is associated with worse EF, this point is unlikely to explain the different outcomes. Third, primary PCI was performed in only 60% of the patients in the report by Okuda et al, compared with all patients in the report by Cuenin et al. The different reperfusion strategy might have affected the results.

Cuenin et al makes us realize that surprisingly few reports have investigated the significance of ST segment re-elevation following primary PCI, even though ECG is a simple and accepted tool. In addition, the newer generation drug-eluting stents demonstrate superior clinical outcomes as compared with bare-metal stents. Further studies in the current PCI era are warranted to determine the effect of ST re-elevation on patients with AMI following primary PCI.

Conflicts of Interest
The author received remuneration from Abbott Vascular, Kaneka, Daiichisankyo, and Terumo.

References