Single high-dose erythropoietin administration immediately after reperfusion in patients with ST-segment elevation myocardial infarction: results of the Erythropoietin in Myocardial Infarction Trial

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Résumé en anglais	Background Preclinical studies and pilot clinical trials have shown that high-dose erythropoietin (EPO) reduces infarct size in acute myocardial infarction. We investigated whether a single high-dose of EPO administered immediately after reperfusion in patients with ST-segment elevation myocardial infarction (STEMI) would limit infarct size. Methods A total of 110 patients undergoing successful primary coronary intervention for a first STEMI was randomized to receive standard care either alone (n = 57) or combined with intravenous administration of 1,000 U/kg of epoetin β immediately after reperfusion (n = 53). The primary end point was infarct size assessed by gadolinium-enhanced cardiac magnetic resonance after 3 months. Secondary end points included left ventricular (LV) volume and function at 5-day and 3-month follow-up, incidence of microvascular obstruction (MVO), and safety. Results Erythropoietin significantly decreased the incidence of MVO (43.4% vs 65.3% in the control group, P = .03) and reduced LV volume, mass, and function impairment at 5-day follow-up (all P < .05). After 3 months, median infarct size (interquartile range) was 17.5 g (7.6-26.1 g) in the EPO group and 16.0 g (9.4-28.2 g) in the control group (P = .64); LV mass, volume, and function were not significantly different between the 2 groups. The same number of major adverse cardiac events occurred in both groups. Conclusions Single high-dose EPO administered immediately after successful reperfusion in patients with STEMI did not reduce infarct size at 3-month follow-up. However, this regimen decreased the incidence of MVO and was associated with transient favorable effects on LV volume and function.
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