Letter to the Editor

Intracoronary infusion of bone-marrow derived mononuclear cells in acute myocardial infarction: Are outcomes influenced by the number of infused cells?

The meta-analysis by Ye et al. [1] has explored the effectiveness of intracoronary infusion of bone-marrow mononuclear cells in patients with acute myocardial infarction. Their results based on 11 randomised studies show that, in comparison with controls given no such infusion, this innovative intervention significantly improved left ventricular ejection fraction (LVEF) with mean improvement at ≥12 months of 4.84% (95% confidence interval (CI): 3.01–5.67%, p < 0.01). In a subgroup analysis, patients infused with ≥1 × 10⁸ cells showed a greater improvement than those given <1 × 10⁸ cells (improvements: 4.20% with 95%CI of 2.94–5.46% vs 3.47% with 95%CI of 1.58–5.37%, respectively). Delewi et al. [2] have recently published a quite similar meta-analysis in which more trials were examined (25 trials) because less selective inclusion criteria were adopted.

While the results of Delewi et al. agree with those of Ye et al., one interesting feature of both meta-analyses is that detailed study-specific information was provided on the number of infused cells.

To explore whether effectiveness is influenced by the number of infused cells, we applied standard meta-regression techniques [3–5] to re-examine the main results presented in these two meta-analyses (namely, the data of Fig. 2, panel A, 11 studies, of Ref. [1]). In both data sets, the endpoint was the percent improvement in LVEF measured either at six [2] or twelve [1] months.

Our results indicate that, in both data sets, the number of infused cells did not influence the extent to which LVEF was improved (Fig. 1). To explain the apparent discrepancy between our re-analysis of Ye et al.’s data and the interpretation that these authors offered of the results in their Table 2 (“more significant” improvement with ≥1 × 10⁸ cells), it should be noted that the both subgroups given, respectively, more or less than 1 × 10⁸ cells showed a significant improvement compared with the controls (with both p-values < 0.01). One cannot say however that the improvement in the former group was “more significant” than that in the latter group.

To address this comparison in effectiveness between two subgroups with different levels of infused cells, a direct statistical comparison is needed, and the one carried out in our analysis clearly shows that the number of cells had no influence (p = 0.719). Interestingly enough, this lack of influence of the number of infused cells was found

![Figure 1](image-url)
Intracoronary infusion of bone-marrow derived mononuclear cells in acute myocardial infarction: Are outcomes influenced by the number of infused cells?

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