Percutaneous coronary intervention in acute myocardial infarction: from procedural considerations to long term outcomes

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Chapter 13

Letter by Delewi et al. regarding article “Adult Bone Marrow Cell Therapy Improves Survival and Induces Long-Term Improvement in Cardiac Parameters: A Systematic Review and Meta-Analysis”

Ronak Delewi, Jan J. Piek, Alexander Hirsch

To the Editor

Jeevanantham et al. present an interesting and comprehensive meta-analysis on adult bone marrow cell (BMC) therapy in patients with ischemic heart disease.1 A total of 50 studies (enrolling 2,625 patients with acute myocardial infarction or chronic ischemic heart disease) identified by database searches through January 2012 were included. We have read the article with great interest and appreciate its contribution to our current understanding of BMC therapy in patients with coronary artery disease. However, we feel that some aspects of the study merit further discussion.

As stated by the authors in the method section they included 1) randomized controlled trials or cohort studies with a control group; (2) studies conducted in patients with acute myocardial infarction or chronic ischemic heart disease; (3) studies conducted in patients who received percutaneous coronary intervention or thrombolysis or coronary artery bypass surgery; and (4) studies in which patients in the intervention arm received BMC therapy either via intracoronary injection or intramyocardial injection. Considering these criteria it is unclear why 3 of the largest randomized controlled trials (Bonami trial, HEBE trial, Regent trial) on intracoronary cell therapy in acute myocardial infarction are not included in this meta-analysis.2-4 These trials included respectively 200, 200 and 101 patients. In the present meta-analysis, there are only a few randomized controlled trials with comparable sample size and including these studies would have increased the sample size by ≈20%. None of these three trials showed a benefit of cell therapy with regard to left ventricular ejection fraction and volumes. Potentially, including these trials would change the overall results of the meta-analysis. In addition, one study seems to be included twice (Janssens et al and Herbots et al). It appears that MRI and echo data from the same study population of 67 patients is reported in two separate papers.5

Also, the authors conducted several subgroup analyses including the number and type of injected BMCs attempting to identify the potential factors that may influence the observed benefits. We agree with the authors that these are important questions. However, the processes that occur in the myocardium early after myocardial injury differ substantially from the chronic situation. The supposed mechanisms of cell therapy (i.e. enhanced angiogenesis, reduction in apoptosis, activation of cardiac stem cells) may differ in patients with an acute myocardial infarction as compared to patients with ischemic cardiomyopathy. Separate subgroup analyses for these distinct entities could provide a clearer picture of the potential benefit of BMC therapy and increase the impact of the presented data even more.
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