The effect of intracoronary reinfusion of bone marrow-derived mononuclear cells (BM-MNC) on all-cause mortality in acute myocardial infarction

Results in Brief

Cell therapy for myocardial infarction

A European consortium is testing the efficacy of a cell therapy approach for the treatment of acute myocardial infarction (AMI).

Following AMI, the necrosed area of the heart displays a limited regenerative response. Although long term prognosis has improved with the introduction of reperfusion therapies, in certain cases mortality can be high.

Over the past decade a number of studies have demonstrated the clinical efficacy of
administering autologous bone marrow derived mononuclear cells (BM-MNC) after an AMI. The EU-funded BAMI (The effect of intracoronary reinfusion of bone marrow-derived mononuclear cells (BM-MNC) on all-cause mortality in acute myocardial infarction) project wants to establish whether BM-MNC therapy is more beneficial than standard reperfusion therapy.

The consortium is conducting a Phase III multi-national, randomised and controlled study to demonstrate that an intracoronary infusion of autologous BM-MNC is superior compared to optimal reperfusion therapy alone. So far partners have compared different methods for bone marrow processing to deliver the desired mononuclear cell fraction. The optimal method for BM-MNC preparation has been further standardised so that it could be delivered in hospitals across the EU.

In addition, scientists have selected the best route for BM-MNC delivery. In the context of AMI, intracoronary infusion is usually employed to administer the cells since it is supported by evidence and safety data. The technique entails balloon angioplasty and cell infusion through an over-the-wire (OTW) balloon. The clinical trial will take place in eight participating countries with an additional 12 active satellite sites across Europe, which have recruited a total of 84 patients so far.

Taken together, the BAMI study will provide solid evidence on the efficacy of BM-MNC therapy in patients undergoing primary angioplasty. Considering the economic losses incurred from patient sick leave or incapacity to work due to chronic disease, an improved therapeutic intervention should reduce hospitalisation and mortality rates.

Keywords

Acute myocardial infarction, bone marrow derived mononuclear cells, reperfusion therapy, clinical trial

Project Information

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