

5th World Congress on **Cell & Stem Cell Research**

March 23-25, 2015 DoubleTree by Hilton Chicago - North Shore, USA

Autologous bone marrow stem cell transplantation contributes to exercise capacity recovery after acute myocardial infarction

M.M. Micheu, N. Opreescu, L. Calmac, D. Pitic, A.Scarlatescu, M.Dorobantu
Clinical Emergency Hospital of Bucharest, Romania

Objective: To assess the effect of autologous bone marrow stem cell (ABMSC) therapy in patients with ST-segment elevation myocardial infarction (STEMI) and impaired left ventricular ejection fraction (LVEF) as regards exercise capacity.

Methods and materials: This pilot study was conducted on 18 patients hospitalized for a first STEMI treated by successful primary percutaneous coronary intervention (PCI) and LVEF < 40%. All the patients have received the standard of care treatment, and were followed-up using the same methods, comprising 6-minute walking test with assessment of heart rate, blood pressure and Borg Scale before and after the test, 1 and 3 months after STEMI. In the ABMSC group, 50 ml of bone marrow were harvested 7 to 13 days after PCI. After density gradient separation, the mononuclear bone marrow cell suspension was delivered via intracoronary route in the catheterisation laboratory during the same day.

Results: There were no adverse effects related to stem cell therapy during 3 months follow-up period. In stem cells treated group, the 6-minute walk distance increased significantly (from 271.14 ± 99.92 m at one month follow-up to 311.57 ± 79.83 m at 3 months after myocardial infarction, $P < 0.05$), while in control group the improvement didn't reach the limit of statistical significance (297.18 ± 71.71 m to 330.83 ± 47.94 , $P > 0.05$).

Conclusions: We observed a positive effect of autologous bone marrow stem cell therapy in STEMI patients with severe systolic function impairment regarding exercise capacity. Larger studies are required in order to reveal the intimate mechanisms of action and the real magnitude of this favourable effect.

Acknowledgement: This paper is supported by the Sectoral Operational Programme Human Resources Development (SOP HRD), financed from the European Social Fund and by the Romanian Government under the contract number POSDRU/159/1.5/S/137390.

Notes: