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EFFECTS OF AUTOLOGOUS BONE MARROW MONONUCLEAR CELLS TRANSPLANTATION VIA CORONARY ARTERY IN PATIENTS WITH ACUTE MYOCARDIAL INFARCTION ASSESSED BY MRI

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Objectives The aim of this study was to use an 'one-stop' non-invasive imaging examination-MRI to evaluate the feasibility and safety of aBM-MNC transplantation in patients with acute myocardial infarction (AMI) undergoing percutaneous coronary intervention.

Methods We did a randomised, double-blind, placebo-controlled study in 60 patients (male=43, female=17, age 52.18 ± 4.98 years) with AMI. The patients were randomly divided into 2 groups (group A: PCI+ aBM-MNC, group B: PCI only). Preoperative global left ventricular functions and scar tissue were measured by MRI. The therapeutic effects were assessed by MRI 6-month after aBM-MNC transplantation.

Results ALL the patients were treated without major complications. There is no evidence of new ventricular arrhythmia or neoplasia. The LVEF was improved 28.5% in group A, while 18.4% in group B ($p < 0.01$), LVEDV/m² and LVESV/m² were decreased by 21.15 ± 3.96 ml/m² and 27.14 ± 4.48 , respectively, which were significantly different from that in group B (5.85 ± 6.18 ml ($p = 0.08$) and 9.18 ± 4.84 ($p = 0.04$)). The cardiac output (CO), cardiac index (CI) and cardiac mass (CM) didn't show significant difference between the two groups. Compared with group B, aBM-MNC group was associated with no significant reduction in myocardial infarct size (15.3% vs 12.7%, $p = 0.51$).

Conclusions Comprehensive in vivo CMR reveals reversed remodeling and improved systolic function and scar characteristics after aBM-MNC transplantation. PCI+aBM-MNC transplantation can lead to comparable improvements of left ventricle in acute myocardial infarction.