EFFICACY AND SAFETY OF AUTOLOGOUS BONE MARROW CELL THERAPY IN TREATMENT OF ACUTE MYOCARDIAL INFARCTION

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ABSTRACT

Acute myocardial infarction has been increasing worldwide and many patients suffer due to this event. The ischemia that occurs to the infarcted heart leads to poor recovery of the function of the left ventricle. The explosion of interest in bone marrow derived cells recently has led to increasing number of its use. There are numerous numbers of studies that have examined its efficacy in treating and improving outcomes in patients who are having acute myocardial infarction. Although many conventional treatment modalities have been used in improving the outcome of myocardial infarction, the prognosis still remains poor. The purpose of this study is to evaluate the efficacy and the safety of bone marrow cells in treating acute myocardial infarction in both men and women. The importance of this study is that the outcome will be able to guide the clinicians on deciding or advising patients regarding the best method and safe approach to treat them. This would be able to improve the quality of life of many heart disease patients. A Structured Literature Review was done and total of 10 journals were collected based on specific inclusion and exclusion criteria. The journals were chosen based on related keywords using the MESH terms like bone marrow cells, stem cells, mesenchymal stem cells, progenitor cells, mononuclear cells, acute myocardial infarction, cardiac ischemia, cardiovascular disease, coronary heart disease, ischemic heart disease and angina. Multiple journal databases were used to aid in collection of the papers such as Pubmed, Medline, Cochrane Library, Ebscohost and Science direct. Quality assessments of these journals were also done based on the JADAD scoring. Out of 10 studies, 8 studies showed that there were significant improvement in left ventricular performance as well as quality of life and mortality of patients after acute myocardial infarction with the use of autologous bone marrow cells. The outcome were measured using left ventricular ejection fraction, determination of size of infarct, improvement in echocardiography and left ventricular end diastolic internal diameter. There were also some studies that showed improvement in regional myocardial function after the administration of bone marrow cell therapy. There were only 2 studies that did not show any improvement in left ventricular ejection fraction after administration of bone marrow cells. There were no side effects reported up to date and therefore bone marrow cells are effective and safe in treatment of acute myocardial infarction. In conclusion, bone marrow cells are safe and can improve the outcome of acute myocardial infarction.