

Myocardial revascularization after myocardial infarction using endothelial progenitor cells combined with fibrin gel. [Chinese]

Authors: Adila A., Zhao L., Zhou X.-R., Liu F., Chen B.-D., Ma Y.-T.

Publication Date: 2014

Abstract:

Background: Studies have shown that fibrin glue can promote the survival of myoblast grafts, reduce infarct size and induce neovascularization of infarct zone. Objective: To understand the condition of revascularization of infarcted heart muscle using endothelial progenitor cells combined with degradable fibrin glue materials. Methods: A total of 27 Sprague-Dawley rats were randomized into three groups, 9 rats in each group: Non-myocardial infarction group, immediate transplantation group and 1-week post-infarction transplantation group. Then, these three groups were sub-grouped into two groups, respectively: endothelial progenitor cells+fibrin glue group (experimental group) and fibrin glue group (control group). At 3 and 8 weeks after transplantation, the rats were sacrificed in each group. The revascularization and function of infarcted heart muscle were observed by microscope, immunohistochemistry and echocardiography. Results And Conclusion: Under the microscope, there were some lax connective tissues between the heart and chest in the experimental groups, but no difference existed between the experimental and control groups. The heart structure was normal relatively and difficult to be distinguished between the experimental and control groups histologically and immunologically, and there was no angioma, vascular malformation and tumor. The number of revascularization of heart muscle showed no difference between experimental and control groups as well as between different experimental groups. Additionally, there was no significant difference in cardiac function between experimental and control groups. Although there are no positive results of endothelial progenitor cells, we will modify and improve the strategy and believe that the cell delivery system is of benefit and efficacy.

