

Autophagic changes of the endothelial progenitor cells carried with fibrin glue after transplantation into the infarcted myocardium.

[Chinese]

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Publication Date: 2013

Abstract:

Objective: To investigate autophagic changes endothelial progenitor cells (EPCs) carried with fibrin glue after transplantation into the infarcted myocardial and to explore effects of autophagy on maintaining the implanted cells to survive and fibrin on protecting the cells. **Methods:** The model of myocardial infarction was established with ligating the anterior descending branch of the left coronary artery of rats. The EPCs sorted from human umbilical cord blood were injected into the myocardium at the normal region, periphery of the infarcted region and infarcted region. After transplantation for two hours, the tissues at injection sites were removed, the semithin sections were prepared. Distribution of the EPCs carried with fibrin glue were examined. After positioning the implanted cells, the ultrathin sections were prepared. The changes of the autophagic structures in EPCs and compatibility of fibrin with EPCs and myocardium were evaluated. **Results:** Compared with the normal region, the autophagic EPCs in the periphery of the infarcted region increased, and the autophagic structures in the cells increased. In the infarcted region, EPC autophagy enhanced significantly, and necrosis or apoptosis occurred in some cells. Compatibility of fibrin with EPCs and myocardium was good. The implanted cells in fibrin glue extended well, some EPCs adhered to cardiomyocytes. **Conclusion:** When EPCs are transplanted into the periphery of the infarcted region, mild ischemia induces autophagy of the cells, which is beneficial for maintaining survival of the transplanted cells. Carrying EPCs with fibrin glue may avoid of cell lose and promote cell survival.