



Effectiveness of human adipose-derived stem cell therapy pretreated with hepatocyte growth factor in liver fibrosis mouse model

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Abstract

Background: Adipose-derived stem cells (ADSCs) have the potential therapeutic impact on the liver fibrosis. Hepatocyte growth factor (HGF) is pivotal for damage repair with its anti-apoptotic, anti-fibrotic and cell migration-promoting effect. In this study, the therapy with HGF-pretreated hADSCs was expected to enhance the therapeutic effect in the amelioration of liver fibrosis compared with untreated hADSCs.

Method: HGF-hADSCs were prepared by culturing hADSCs for seven days in the medium added HGF.

HGF-hADSCs transplantation was performed to investigate the therapeutic effect of these cells on carbon tetrachloride (CCl₄)-induced liver fibrosis in a mouse model.

Results: After seven days and fourteen days of cell transfusion, HGF-hADSCs ameliorated the liver fibrosis. The results showed the attenuation of the liver injury (ALT level), the down-regulation of procollagen-1 (7 days, 3-fold; 14 days, 6.7-fold) and alpha -smooth muscle actin (alpha-SMA) expression (7 days, 10-fold; 14 days, 2-fold), and the histological improvement. Notably, there was the significant difference in the procollagen-1 between HGF-hADSCs and untreated hADSCs groups. Thus, the therapy with HGF-hADSCs was more efficient in the liver fibrosis treatment compared with untreated hADSCs.

Conclusion: HGF pretreated hADSCs have a potential therapy in the treatment of liver fibrosis.

Keywords

Adipose-derived stem cell, hepatocyte growth factor, liver disease, liver cirrhosis, mesenchymal stem cell

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