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Endothelial Progenitor Cells and Liver Cirrhosis

Fan Chen*

Department of Gastroenterology, China

***Corresponding author:** Fan Chen, Department of Gastroenterology, Fuzhou General Hospital, China

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ABSTRACT

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Endothelial progenitor cells (EPCs) are immature endothelial cells. Experiments showed that endothelial progenitor cell function was impaired in liver fibrosis [1]. Several previous studies demonstrated that EPCs can repair endothelial injury of hepatic sinusoidsa, reduce fibrosis and stimulate liver regeneration [2]. Clinical trials also suggested that EPCs are effective in the treatment of cirrhosis [3]. So EPCs can be used in the treatment of cirrhosis. Because EPCs share some characteristics of hematopoietic stem cells (HSCs), the indications for their treatment can be referred to HSCs [4]. However, some studies suggested that EPCs not only activate hepatic stellate cells to participate in the formation of fibrosis [5], but also contribute to sinusoidal endothelial vascular proliferation and promote liver fibrosis, thus aggravating portal hypertension [6]. Moreover, many experiments demonstrated that EPCs are involved in the formation of hepatocellular carcinoma, especially in the angiogenesis of tumors [5].

Thus, the use of EPCs in the treatment of cirrhosis should be cautious, and it is best to exclude the existence of hepatocellular carcinoma. In addition, clinical trials have found that changes in liver function and hepatic venous pressure gradient are directly related to the proportions of acLDL and vWF in EPCs after stem cell therapy [3]. Therefore, if possible, the acLDL and vWF of EPCs should be detected before treatment to assess the possibility of stem cell therapy aggravating portal hypertension and poor prognosis. Although studies demonstrated that bone marrow endothelial progenitor cells (EPCs) are superior to bone marrow mesenchymal stem cells in the treatment of liver fibrosis and similar to bone marrow-derived hepatic stem cells [7-8], there are some potential risks for EPCs in the treatment of liver cirrhosis. Hence, it is suggested that EPCs should be included in the scope of stem cells in reserve or adjuvant therapy for liver cirrhosis.

References

1. Shirakura K, Masuda H, Kwon SM, Obi S, Ito R, et al. (2011) Impaired function of bone marrow-derived endothelial progenitor cells in murine liver fibrosis. Biosci Trends 5(2): 77-82.
2. Sakamoto M, Nakamura T, Torimura T, Iwamoto H, Masuda H, et al. (2013) Transplantation of endothelial progenitor cells ameliorates vascular dysfunction and portal hypertension in carbon tetrachloride-induced rat liver cirrhotic model. J Gastroenterol Hepatol 28(1): 168-178.
3. D'Avola D, Fernández Ruiz V, Carmona Torre F, Méndez M, Pérez Calvo J, et al. (2017) Phase 1-2 pilot clinical trial in patients with decompensated liver cirrhosis treated with bone marrow-derived endothelial progenitor cells. Transl Res 188: 80-91.
4. Fan Chen (2017) Therapeutic srategies of sem cell transplantation for liver cirrhosis. Yangtze Medicine 1(2): 77-95.
5. Rautou PE (2012) Endothelial progenitor cells in cirrhosis: the more, the merrier? J Hepatol 57: 1163-1165.
6. Garg M, Kaur S, Banik A, Kumar V, Rastogi A, et al. (2017) Bone marrow endothelial progenitor cells activate hepatic stellate cells and aggravate carbon tetrachloride induced liver fibrosis in mice via paracrine factors. Cell Prolif 50(4): e12355.
7. Lan L, Liu R, Qin LY, Cheng P, Liu BW, et al. (2018) Transplantation of bone marrow-derived endothelial progenitor cells and hepatocyte stem cells from liver fibrosis rats ameliorates liver fibrosis. World J Gastroenterol 24(2): 237-247.
8. Lian J, Lu Y, Xu P, Ai A, Zhou G, et al. (2014) Prevention of liver fibrosis by intrasplenic injection of high-density cultured bone marrow cells in a rat chronic liver injury model. PLoS One 9(9): e103603.

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