TRANSPLANTATION OF HEMATOPOIETIC STEM CELLS CAN CHANGE THE INTENSITY OF LIVER CELLS’ APOPTOSIS IN PATIENTS WITH ALCOHOLIC LIVER CIRRHOSIS

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Introduction: Stem cell therapy is a promising technology for treating liver cirrhosis. Main source of these cells is bone marrow. The current method of aspiration of bone marrow under general anesthesia is inadvisable in patients with liver failure. Hematopoietic stem cells (HSCs) can be collected from blood stream with a non-invasive harvesting technique.

Aims & Methods: In this clinical trial we checked safety and efficacy of autologous HSCs from peripheral blood in patients with alcoholic liver cirrhosis and their influence to apoptosis intensity of liver cells. We examined liver biopsy specimens of 11 alcoholic cirrhosis patients (Child-Pugh class A and B). Biopsies were taken before the injection of autologous HSCs mobilized by granulocyte-colony-stimulating factor (G-CSF) into celiac trunk, 3 and 12 months after the procedure. Formalin-fixed, paraffin-embedded liver biopsy preparations were stained immunohistochemically with antibodies against Bcl-2, the anti-apoptotic protein.

Results: In the biopsies that were taken before the transplantation of HSCs we have seen many Bcl-2 positive cells in portal tracts. They were localized in liver parenchyma and in inflammatory infiltrates around the portal tracts. Positive cells could be divided into 3 types of cells: inflammatory cells with round or oval nucleus, cells with processes (sinusoidal cells) and single hepatocytes. We also observed weak expression of Bcl-2 in cholangiocytes. Three months after transplantation the number of positively stained cells significantly decreased. Nevertheless, twelve months after transplantation the amount of cells expressing anti-apoptotic protein grew up again, but didn’t reach the level of first biopsies.

Conclusion: The analysis showed that the HSC treatment had no side effects. These results might indicate an intensification of inflammatory cells’ apoptosis as a result of HSCs therapy. However, the effect of treatment remains only a few months and it is necessary to repeat the procedure.

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