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Bone marrow mesenchymal stromal cells transplantation for the correction of liver fibrosis: Dose and terms values

Elistratov Pavel Alexeevich
First Moscow State Medical University, Moscow

Liver fibrosis (cirrhosis) is a consequence of chronic liver disease characterized by replacement of liver tissue by fibrosis, scar tissue and regenerative nodules (lumps that occur as a result of a process in which damaged tissue is regenerated), leading to loss of liver function. In our research we try to select a necessary conditions, dose and terms values to treat liver fibrosis (LF) with transplantation of allogeneic bone marrow mesenchymal stromal cells (MSCs) and evaluate the effectiveness of these techniques.

LF was modeled on 5 groups of Wistar rats (n=90). In groups 1 – 4 rats got different doses of MSCs at the different days during development of their disease. Group 5 served as a control (LF without MSCs).

In all groups LF was detected already on 3rd and 10th days. In group 5 LF increased to 60-90 days, but stopped to grow more to 120th day. Immunohystochemical studies revealed a two-phase dynamics both the development of LF and resorption of the connective tissue, especially expressed in group 2 (MSCs injection was performed twice, on 3rd and 10th days, total dose 5×10^6).

Transplantation of MSCs for the LF promotes resorption of connective tissue in the liver, which has a two-phase dynamics. The most effective was the transplantation of MSCs at the early stage of development of LF in a dose of 5×10^6 cells. At the late stage of LF-development the effect of connective tissue resorption probably may be achieved by using of higher cell doses (10 million MSCs).

Biography

Elistratov Pavel Alexeevich has finished Moscow State University at 2007 and completed his Ph.D at the age of 26 years in A.N.Bach Institute of Biochemistry Russian Academy of Sciences, Moscow, and now he works at Sechenov First Moscow State Medical University in the Biomedical Research Department. He has published 2 articles in peer-reviewed journals and had 1 patent RF for his study on obtaining of recombinant proteins.

Flora85@yandex.com