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Transplantation of fetal progenitor cells in treatment of liver cirrhosis: From clinical trials to standard treatment method

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Abstract

Background: Progression of liver cirrhosis inevitably brings to the last chance of patient in life – liver transplantation. Unfortunately lack of liver donors is the cause for many such patients' death.Alternative of liver transplantation could be transplantation of fetal liver progenitor cells (FLPC), which is successfully tested in Ukraine and in India it is in the stage of clinical trials.

Objectives: Analysis ofbiosafety and effectivenessof fetal progenitor cells transplantation in liver cirrhosis.

Methods: Transplantation of FLPCwas performed in 67 patients with liver cirrhosis. Level of change in cirrhotic damage of the liver was evaluated in dynamics by the data of biopsies, fibroscan, and likewise by the results of CT, USG, MRT. Besides, biochemical parameters were analyzed whichcharacterizescholestasis, cytolysis and liver failure syndromes.

Results: Transplantation of FLPC showed effectiveness in 79% cases that is characterized by significant decrease in the parameters of density of liver ("E" reduced within one year from 71.5 to 7.6 Kpa), disappearance of portal hypertension and ascites, normalization of biochemical markers of liver damage.

Conclusion: The most effective transplantation of FLPC showed in alcoholic liver cirrhosis, ineffective – in liver cirrhosis caused by hepatitis C virus, and likewise in patients with terminal stage disease. Mechanism of therapeutic action of FLPC related with direct replacement effect, stimulation to division of hostpatients hepatocytes and eliminates the autoimmune component of the disease. Sharp increase of tissue collagenolytic activity describes the regression of liver cirrhotic changes.

Biography

Oleksandr L. Kukharchuk, M.D., Research Director of EmProCell Clinical Research Pvt. Ltd., visit-professor MGM University of Health Sciences, Mumbai, Professor of Medicine. Dr. Oleksandr L. Kukharchuk was specialized as "medical practioner" at Chernivtsi Government Medical Institute (Ukraine, Chernivtsi). CMSc. (Candidate of Medical Science) defended on 1989 in the session of specialized academy council at Kaunaski Medical Institute (Lithuania). D.M.Sc (Doctor of Medical Science) defended 1996 in the session of specialized academic council at Odessa Governmental Medical University (Ukraine). Associate Professor obtained on 1996, Professor obtained on 2001. 1982-1991: Assistant, Department of Pathophysiology Chernivtsi Government Medical Institute (Ukraine, Chernivtsi). 1991-1994: Senior Tutor, Normal Physiology with course of Pathophysiology at Chernivtsi Government Medical Institute (Ukraine, Chernivtsi). Head of the Central Research Laboratory and Senior Tutor of the Pathophysiology Department at Chernivtsi Government Medical Institute (Ukraine, Chernivtsi). 1994-1995: Head of Central Research Laboratory, Associate Professor of the Normal Physiology Department at Bucovinian Government Medical Academy (Ukraine, Chernivtsi). 1995-1997: Director of the Centre for Scientific-Medical Investigation at Bucovinian Government Medical Academy (Ukraine, Chernivtsi). 1997-2002: Head of the Normal Physiology Department at Bucovinian Government Medical University (Ukraine, Chernivtsi). 2002-2005: Research Director of the Centre for Embryonic Cells "EmCell"(Ukraine, Kiev). 2005-2006: Research Director of the Coordination Centre for Transplantation of Organs, Tissues and Cells of the Ukraine Health Ministry (Ukraine, Kiev). 2006-2010: Director of Coordination Centre for Transplantation of Organs, Tissues and Cells of the Ukraine Health Ministry; Chief Specialist of the Ukraine Health Ministry by specialization "Transplantology"; Research Director of Institute of Cell Therapy (Ukraine, Kiev); Director EmProCell Clinical Research Pvt. Ltd. (India, Mumbai). Dr. Oleksandr L. Kukharchuk is editor of the Journal "Transplantology". He is also well known for his work in the study field of immunological aspects of stem cell transplantion and aging theory-depletion of stem space. He is author of 14 patents, 238 scientific publications. Dr. Olexander L. Kukharchuk guided clinical trials for evaluation of fetal progenitor cells transplantation efficacy in diabetes mellitus, chronic lower limb ischemia, myocardiodystrophy, liver cirrhosis, male infertility, aging, pancreonecrosis, glomerulonephritis, rhemutoid arthritis, lupus erythematosus. He is author of the book "Stem cells: Experiment, Theory, Clinic. Embryonic, mesenchymal, neural, hematopoetic stem cells". Dr. Oleksandr L. Kukharchuk guide for fundamental and applied scientific research of Health Ministry Ukraine: "Study the growth factors interrelating central and peripheral regulatory mechanism of immunological reactivity and hemocoagulatory potential in the normal, endo- and exogenous intoxication", "Determine the criteria of efficacy and safety of transplanting organs, tissues, cells and develop its standards", "In experiments and clinicals, to determine effectiveness of transplantation of stem cells, tissues of embryo and exofetal material and tissue therapy by Filatov in immune and oncopathological process, pancreo- and colonogenic peritonitis, aging and dysfunction of reproductive system".