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再生医療 間葉系幹細胞を用いた 肝疾患再生医療の現状

Status of cell therapy for liver diseases using mesenchymal stem cells

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Summary

Mesenchymal stem cell (MSC) therapies have been used in clinical trials in various fields. MSCs are easily expanded, show low immunogenicity, can be acquired from medical waste, and have multiple functions, suggesting their potential applications in a variety of diseases using autologous or allogeneic cells, including liver disease. The effects of MSCs are widely reported such as ; in response to inflammatory cytokines, MSCs help prepare the microenvironment by producing immunoregulatory factors that modulate the progression of inflammation by affecting dendritic cells, B cells, T cells, and macrophages. MSCs also produce a large amount of cytokines, chemokines, and growth factors, including exosomes that stimulate angiogenesis, prevent apoptosis, block oxidation reactions, promote remodeling of the extracellular matrix, and induce differentiation of tissue stem cells. These mechanisms are thought to be involved in liver disease, especially in liver cirrhosis. In this paper we review the status of MSC therapy for liver diseases.

肝疾患の背景

肝臓は、本来再生能力が非常に高い臓器として広く知られているが、ウイルス、薬物、アルコール、自己免疫などにより急性障害を受けたり、慢性的にB・C型肝炎ウイルス、アルコール、非アルコール性脂肪性肝炎 (non-alcoholic steatohepatitis ; NASH)、自己免

疫性肝炎、原発性胆汁性胆管炎などにより障害を受けると肝不全に陥る。慢性的に障害を受け肝に高度の線維化を来し、多くは肝萎縮を来す病態は肝硬変と呼ばれ、臨床上大きく以下の三つの点で問題になる。一つ目は、肝臓は様々な働きがあり、一般的には化学工場と例えられるが、その代表的な働きとして、蛋白、脂肪、糖などの代謝、解毒、凝固因子の産生、胆汁の産