Intrasplenic or Subperitoneal Hepatocyte Transplantation to Increase Survival after Surgically Induced Hepatic Failure?

Background: As a basis for future clinical questions, we evaluated the efficacy of hepatocyte transplantation in a surgical model using a subperitoneal or intrasplenic approach for cell implantation.

Methods: In rats, acute liver failure was induced by subtotal heptectomy. Series of allogenic hepatocyte transplantations were performed by varying cell number, site, and sequence of cell transplantation. Results: Following subperitoneal or intrasplenic cell implantation subsequent to liver surgery, no survival benefit was achieved when compared to the control groups. However, intrasplenic cell implantation 24 h prior to liver surgery revealed a statistically significantly higher animal survival (72 vs. 29%). Conclusion: According to our experience, both timing and site of cell implantation played an important role in hepatocyte transplantation. Intrasplenic hepatocyte transplantation 1 day before liver surgery showed the best results in terms of survival. Consequently, we were able to establish a model of hepatocyte transplantation which may be the basis for further investigations evaluating potential treatment modalities to overcome deleterious postoperative liver insufficiency.

Stichworte: Liver surgery; Acute liver failure; Hepatocyte transplantation