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The role of stem cells in liver diseases

An Essay
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Summary:

The scope of practice of liver diseases has expanded dramatically in the past decade, on the horizon is the full effect of the current epidemic of hepatitis C, which infected over four million people through contaminated blood transfusion and injection drug use. Preliminary experience with clinical hepatocyte transplantation during the past decade has provided proof of the concept that Cell therapy can be effective for the treatment of some liver diseases. Stem cells are unspecialized cells

that can self-renew indefinitely and that can also differentiate into more mature cells with specialized functions. The two main categories of mammalian stem cells are embryonic stem cells and adult stem cells. Liver repopulation with transplanted cells offers unique opportunities for treating a variety of liver diseases and for studies of fundamental mechanisms in cell biology. Thereupon, the field of liver cell therapy will begin to reap the promised fruit in the near future.

References:

- 1- Gouon-Evans V, Boussemart L, Gadue P, Nierhoff D, Koehler CI, Kubo A, Shafritz DA, Keller G: BMP-4 is required for hepatic specification of mouse embryonic stem cell-derived definitive endoderm. *Nat Biotechnol* 2006; 24: 1402-1411.
- 2- King NM, Henderson GE, Churchill LR et al: Consent forms and the therapeutic misconception: the example of gene transfer research. *IRB* 2005; 27: 1-8.
- 3- Shirahashi H, Wu J, Yamamoto N, et al: Differentiation of human and mouse embryonic stem cells along a hepatocyte lineage. *Cell Transplant* 2004; 13(3): 197-211.
- 4- Soto-Gutierrez A, Kobayashi N, Rivas-Carrillo JD, Navarro-Alvarez N, Zhao D, Okitsu T, Noguchi H, Basma H, Tabata Y, Chen Y, Tanaka K, Narushima M, Miki A, Ueda T, Jun HS, Yoon JW, Lebkowski J, Tanaka N, Fox IJ: Reversal of mouse hepatic failure using an implanted liver-assist device containing ES cell-derived hepatocytes. *Nat Biotechnol* 2006; 24: 1412-1419.
- 5- Teratani T, Yamamoto H, Aoyagi K, et al: Direct hepatic fate specification from mouse embryonic stem cells. *Hepatology* 2005; 41(4): 836-846.
- 6- Wolf LE, Zandecki J, Lo B: The certificate of confidentiality application: a view from the NIH Institution. *IRB* 2004; 26: 14-18.