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## Neonatal livers for the isolation of cells for liver cell therapy

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Hepatocyte transplantation is a promising alternative to orthotopic liver transplantation for the treatment of liver diseases; however, the shortage of donor organs available to isolate good-functional quality cells is a major limitation. Neonatal livers may be a potential source alternative to adult liver to obtain good-performing hepatic cells for hepatocyte transplantation, which has not yet been explored in depth. High-yield preparations of viable hepatocytes were isolated from 1 to 23-day-old liver donors, cryopreserved and banked, and cell integrity and functional quality assessment were performed after thawing. Neonatal hepatocytes showed better post-thawing recovery if compared with adult hepatocytes, as shown by the viability values not differing significantly from freshly isolated cells, a higher expression of adhesion molecules ( $\beta$ 1-integrin,  $\beta$ -catenin and e-cadherin), better attachment efficiency and cell survival, and a lower number of apoptotic cells. If compared to adult liver, the hepatocyte isolation procedure in neonatal livers also provides thawed cell suspensions with a higher proportion of hepatic progenitor cells (EpCAM+ staining), which could also participate in regeneration of liver parenchyma after transplantation. Additionally, when transplanted into the animal model of Crigler-Najjar disease (Gunn rat), an increased attachment and a long-term effect has been observed with newborn hepatocytes compared to adult ones. These results could imply important advantage to neonatal hepatocytes as a source of high quality cells to improve human hepatocyte transplantation applicability.

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