The immune system's role in hepatitis C recurrence after liver transplantation

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A new study pinpoints certain aspects of the immune system that may play a role in the recurrence and progression of hepatitis C virus (HCV) after liver transplantation. The study is in the April issue of *Liver Transplantation*, a journal published by John Wiley & Sons.

Hepatitis C virus (HCV), which can lead to cirrhosis and liver cancer, is the leading indication for liver transplantation in the U.S. Unfortunately, the infection almost always recurs, and in about 30 percent of cases, it causes cirrhosis in the transplanted liver within five years.

Researchers don't know exactly why some patients fare worse than others, but have been trying to understand the causes. They suspect it is related to the immunological response to HCV which involves natural killer (NK) cells and the killer cell immunoglobulin-like receptors (KIR) which recognize HLA Class I antigens.

Researchers, led by Francesca Poli of Italy, examined the role of KIR genotypes and their HLA ligands in both HCV disease recurrence and its progression after liver transplantation. They retrospectively studied 151 donor-recipient pairs for transplants that occurred between 1991 and 2001. They examined liver biopsies from the recipients that were taken at 1, 3, 5, 7 and 10 years post-transplant to determine when hepatitis recurred, the degree of fibrosis and the progression to cirrhosis.

They found that hepatitis was more likely to recur when the KIR-HLA-C ligands were mismatched between donor and recipient. Also, the

presence of KIR2DL3 in the recipient correlated to progression to liver fibrosis.

"Our preliminary data indicates that KIR2DL3 positive recipients would be better assigned a matched donor for the HLA-KIR ligands in order to reduce the risk of developing severe fibrosis after liver transplantation," the authors report.

"In summary," they conclude, "the results presented in this study have shown that disparity for HLA-C allotypes between recipient and donor may increase the risk of recurrence of hepatic inflammation and evidence the importance of the KIR2DL3 receptor in the development of the disease."

They suggest these factors might be considered when selecting an HCV positive liver transplant candidate, to optimize the use of the limited number of organs available.

An accompanying editorial by Lucy Golden-Mason of the University of Colorado says that the study reveals interesting associations and the results could have important implications.

"Identifying variables before liver transplantation that predict more aggressive HCV recurrence is of importance, in particular in the context of donor organ shortage," she concurs.

"Overall," she concludes, "the data supports the model that a genetic component contributes to natural killer cell mediated control of virus as well natural killer cell mediated hepatic injury in the setting of liver transplantation for HCV."

More information:

Article: "KIR Genotype and KIR-HLA C Ligand Compatibility Affect the Severity of HCV Recurrence Following Liver Transplantation." Espadas de Arias, Alejandro; Haworth, Simone; Belli, Luca; Burra, Patrizia; Pinzello, Giovambattista; Minola, Ernesto; Boccagni, Patrizia; Torelli, Rosanna; Scalamogna, Mario; Poli, Francesca. Liver Transplantation; April 2009.

Editorial: "NK Cells Play Divergent Roles in Shaping the Outcome of HCV Recurrence Following Liver Transplantation." Golden-Mason, Lucy. Liver Transplantation; April 2009.

Source: Wiley (news : web)