Molecular detection of hepatitis E virus (HEV) in liver biopsies after liver transplantation.

We aimed to determine the rate of hepatitis E virus (HEV) infection, a recently increasingly recognized disease in the Western world, in liver transplant patients by direct molecular testing of liver tissue. A RT-PCR assay was designed for detecting the HEV open reading frame (ORF) 2/3 gene region in formalin-fixed, paraffin-embedded tissues, and applied to all liver biopsies (n=683) taken 4 weeks or later from all patients (n=282) after liver transplantation of two large academic centers. HEV-RNA was detected in ten biopsies from four different patients (rate: 1%). Histology in early HEV infection was variable including cases with only few hepatocellular apoptoses, no or only minute inflammation. Hepatitis lasted for at least 6 months in 3/4 patients. Serologic testing for HEV-RNA in a subcohort (159 patients) was positive in five patients (rate: 3%), resulting in an overall HEV detection rate of 3% (8/282). In case both liver tissue and sera of a patient were available from the same time period, all cases tested positive in one material were also tested positive in the other material, respectively. All patients had de novo
autochthonous infection with HEV genotype 3. Our data confirm that HEV infection is a relevant cause of liver injury after liver transplantation. Molecular testing for HEV in routinely processed transplant liver biopsies is powerful for evaluating patients with elevated transaminases of unknown origin. Histology of HEV infection under immunosuppression in the early phase is distinct from HEV infection in immunocompetent individuals. Modern Pathology advance online publication, 21 November 2014; doi:10.1038/modpathol.2014.147.