Hepatitis B virus (HBV) immunoglobulin effect on HBV and hepatitis D virus reactivation after liver transplantation

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Background: Post-liver transplantation (LT) use of hepatitis B virus immunoglobulin (HBIG) is still debated in the era of highly effective nucleos(t)ide analogues. This study aims to compare presence of hepatitis B virus surface antigen (HBsAg) and HBV-DNA/HDV-RNA replications post-LT, depending on HBIG administration.

Methods: We divided patients into 125 HBV and 57 HBV/HDV-cohorts. They were operated in various centers around the world before April 1, 2018 into HBIG and non-HBIG groups. In the HBV-cohort, the HBIG-group had 31 patients, non-HBIG-group had 76 patients. Eighteen patients were not sure of their HBIG status. All patients were taking either entecavir, tenofovir alafenamide or tenofovir fumarate on a continuous basis. Any patient that suffered viral reactivation due to non-compliance was removed from analysis. The data was processed in GraphPad, Prism (GraphPad, San Diego, CA, USA).

Results: In the HBIG-group, HBsAg was tested in 20 patients and detected in three (15%), while HBV-DNA tested in 15 and was positive in two (13.33%). In non-HBIG-group, HBsAg was tested in 42 and detected in nine (21.42%), HBV-DNA was tested in 52 and detected in eight (15.38%). In HBV/HDV-cohort, 14 patients received HBIG and one (20%) had HDV-RNA replication out of five tested. Non-HBIG group had 34 patients, out of 18 tested six (33%) had HDV-RNA replication.

Conclusions: It appears that the HBsAg is found in 15%-21% patients post-LT. We found no statistically significant difference between HBIG and non-HBIG groups in terms of HBsAg positivity, HBV-DNA ($P=0.37$) and HDV-RNA ($P=0.22$) replications. This was especially true for HBV replication. However, we cannot rule out usefulness of HBIG therapy in terms of HDV replication, where number of PCRs performed were low in both HBIG and non-HBIG groups. Limiting factors were the absence of pre-LT viral load information and lack of standardized viral replication tests for this study.

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