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The role of passive HBV immunisation in HDV-reactivation in transplant patients

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Background.
The Hepatitis Delta Virus (HDV) causes the most pernicious form of hepatitis and liver cirrhosis which can be treated with liver transplantation (LT). But the virus can reactivate after the operation. To counter this, various prophylactic protocols exist which may or may not involve the administration of an immunoglobulin against the Hepatitis B virus surface antigen (HBIg) perioperatively used along with newer anti-HBV medication. The literature on the utility of HBIg in preventing the HDV reactivation is not unanimous, mainly because there were no studies that compare two groups of LT patients that either did or did not receive HBIg during the perioperative period. This study compares the two groups of liver transplanted patients based on wether they received a peri-operational HBIg or not, in order to assess its protective effect against the HDV-reactivation.

Methods
Fifty-seven HBV and HBV/HDV recipients who were at least 1-year post-transplantation on 2021-01-01 at a single center were enrolled in the study. The serological assays for HBsAg, Anti-HDV and qRT-PCR for HBV-DNA and HDV-RNA were performed. Individual interviews regarding the nucleoside analogue (NA) compliance and pre-op HBV/HDV status were conducted. The liver function tests (GPT/GOT) were conducted in patients. A Mann-Whitney non-parametric U test was used to determine statistical significance ($P<0.05$) of HDV reactivation between the groups. The data was processed on GraphPad Prism software.

Results
The HDV-RNA, HBV-DNA, HBsAg and Anti-HDV positivity in the HBIg-group (n=23) was 1 (4.3%), 4 (17.4%), 2 (8.7%) and 22 patients (95.6%) respectively, in the non-HBIg-group (n=34) the same was 2 (5.9%), 3 (8.8%), 4 (11.8%) and 33 patients (97.05%)

respectively. Upon interview, all reactivations were in patients who were non-compliant with NA regiment. All but two of 13 patients, who were said to be HBV monoinfected prior to the transplantation, were Anti-HDV positive.

Conclusions

We could not detect any HDV replication in the two study groups that was attributable to a spontaneous reactivation while being compliant to their NA regimen. High-efficacy NAs seem to be effective in maintaining suppression of HDV replication. Adherence to the NA regimen is more important than the administration of HBIg in the liver transplantation setting. The majority of recrudensent chronic hepatitis D cases are mild and are self limiting after 1-2 years of replication, as can be seen from the liver function tests of the patients with reactivation.

Keywords: HBV, HDV reactivation, Hepatitis B Immunoglobulin, liver transplantation.