HEPATITIS B RNA AND CORE RELATED ANTIGEN IN HIV-HBV COINFECTION

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Background:
HBV core related antigen (HBcrAg) and HBV RNA are potential surrogate markers for intrahepatic HBV covalently closed-circular (ccc)DNA and have not been well assessed in people with HIV-HBV infection.

Methods:
People with HIV-HBV co-infection naïve to ART were recruited in a prospective study. Liver fibrosis was measured by biopsy and transient elastography (TE) and blood and liver samples taken pre- and following HBV-active ART. Liver HBV cccDNA was quantified using droplet digital PCR, and Plasma HBcrAg and HBV RNA using a chemiluminescence assay and high throughput test respectively.

Results:
Participants (n=37) were followed for a median 3.4 years of ART (n=18). They were mainly young men with median CD4+ T cell count pre- and on ART of 360 and 645 cells/μL respectively. At baseline, most had mild liver fibrosis (95% F0/F1). At baseline 61% and on-ART 28% were HBeAg positive. At baseline cccDNA was quantified in 22 (11 with follow up) and HbcrAg/HBV RNA in 30 (17 with follow up). All markers were lower in HBeAg negative versus positive both pre- and on ART ($p<0.005$). Pairwise comparison pre- and on ART showed no change in cccDNA (n=11) or HBV RNA (n=17) while HBcrAg decreased (n=17; p=0.034).

Pre-ART HBV RNA correlated with cccDNA in eAg positive participants (n=16, r=0.54, p=0.041). In eAg negative participants cccDNA was negative in 5/6 (3 negative HBV RNA). On ART both HBcrAg and HBV RNA correlated with cccDNA (n=17; r=0.81, $p<0.0001$; r=0.77, p=0.0002 respectively) and in HBeAg negative (n=12; r=0.58, p=0.042; r=0.59, p=0.046 respectively).

Conclusion:
Following HBV-active ART in people living with HIV-HBV co-infection, there is no change in cccDNA or HBV RNA. On ART HBV RNA and HBcrAg correlate with cccDNA including amongst HBeAg negative participants, consistent with HBV monoinfection.

Disclosure of Interest Statement:
No pharmaceutical grants were received in the development of this study. Some assays were performed in-house by Abbott Laboratories at their own expense. This is reflected by their inclusion as authors in the abstract.