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Commentary

# Effect of Hepatitis B Virus Infection on Anti-Programmed Death Receptor-1

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## ABOUT THE STUDY

Around 75% of those with chronic Hepatitis B Virus (HBV) infection live in Southeast Asia and the Western Pacific. There is growing evidence that chronic HBV infection is strongly correlated with the expression of Programmed Death-Ligand 1 (PD-L1) in tumour cells, which raises the possibility that the virus may have mediated the body's immune response. The HBV X Protein upregulates the level of Einophil Chemotactic Protein-1, affecting Eosinophil Function, including Macrophage Polarisation and Normalisation Of The Tumour Vasculature, which are known to promote Tumour Rejection. Additionally, the HBV X protein downregulates the Level Of Interleukin (IL)-6, Interleukin (IL)-1, and Interleukin (IL)-18, promoting inflammatory damage. Patients with prior Hepatitis Virus Infection are typically excluded from clinical trials because of the possibility of inadequate treatment effects, increased toxicity, and worry about viral reactivation, especially in those testing Immune-Mediated Therapy. But among cancer patients, Hepatitis Virus Infection, particularly HBV, is fairly common. According to a prospective multicenter study, 0.6% of 3000 newly diagnosed cancer patients had concurrent HBV infection and 6.5% of those had a history of HBV infection.

Data on the effectiveness of ICIs in HBV patients are unfortunately scarce and mostly found in case reports and case series. Hepatitis viruses' impact on the prognosis of patients receiving ICIs is still unknown as of this writing. Therefore, more research is required to determine how HBV affects patients' reactions to ICIs.

The objective of this retrospective cohort study was to assess how HBV infection affected the prognosis of cancer patients receiving Anti-PD-1 therapy. To examine the predictive and prognostic role of HBV infection in oncology clinical practice, we divided the cohort into HBV and Non-HBV groups. 14 days before the start of PD-1 inhibitor treatment, baseline patient characteristics and laboratory results were evaluated. Medical records were used to gather information on sex, age, HBV infection status, Eastern Cooperative Oncology Group (ECOG) score, primary tumour, PD-1 inhibitor substance, prior therapy, and treatment method.

After the first cycle of ICIs, treatment response was assessed every 6 to 8 weeks using contrast-enhanced computed tomography or magnetic resonance imaging. According to the Response Evaluation Criteria in Solid Tumors (RECIST) v.1.1, tumour efficacy was measured as either a complete (CR) or partial (PR) response, as well as Stable (SD) or Progressive (PD) disease. The presence of either a CR or PR was used to define the Objective Response Rate (ORR). The total of the Disease Control Rate (DCR) was established as CR, PR, and SD.

The chi-square or Fisher's exact tests were used to determine the significance of the comparison between categorical variables in the HBV and Non-HBV groups. From the start of PD-1 inhibitor treatment until the date of cancer-related death or last contact, Overall Survival (OS) was measured. The duration between the start of the first treatment and the date of PD, a cancer-related death, or the last follow-up was called Progression-Free Survival (PFS). To examine survival, the Kaplan-Meier and log-rank tests were applied. Significant was defined as a 2-tailed P value.05. Graphs were created using GraphPad Prism 8.0.2, and statistical analyses were carried out using SPSS Statistics v.26 (IBM) and R v.3.5 (R Core Team, R Foundation for Statistical Computing).

The study included 120 patients with advanced solid tumours who were being treated with PD-1 inhibitors. By adjusting for tumour type, which may have an effect on treatment efficacy and survival, we used PSM to reduce bias. The fundamental characteristics 43 patients (35.8%) with HBV infection and 77 patients (64.2%) without HBV infection made up the unmatched cohort. Patients in the HBV group were significantly older than those in the control group (P=.002), with a median age of 55 years. The most prevalent tumour types included Melanoma (n=12; 10.0%), Lung Cancer (n=27, 22.5%), Esophageal Cancer (n=13), and Liver Cancer (n=36; 30.0%). Furthermore, there were notable variations in tumour types between the two groups (P .001) as well.

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## CONCLUSION

This study is the first to admit that HBV infection has no appreciable impact on the efficacy or survival of cancer patients taking PD-1 inhibitors. Therefore, HBV infection shouldn't be a barrier to receiving ICI therapy. During or after ICI therapy, regular HBV DNA monitoring and antiviral prophylaxis are advised. To enable more patients to benefit from investigational agents, clinical trial eligibility criteria should be altered as more data on the tolerability of ICIs in patients with HBV are gathered. Prospective studies are required to confirm this conclusion.