

CORRESPONDENCE

Dupilumab in atopic dermatitis patients with chronic hepatitis B

Dear Editor,

Chronic hepatitis B virus (HBV) infection is a major cause of cirrhosis and hepatocellular carcinoma, affecting 370 million people worldwide.¹ It can also lead to death in de novo acute hepatitis or reactivated HBV infection caused by immunosuppressive drugs. In the field of dermatology, treatment with biologics for psoriasis and other conditions including JAK inhibitors for atopic dermatitis (AD) has become a therapeutic issue due to the risk of viral reactivation in HBV carriers and de novo HBV-related hepatitis in previously infected individuals.² AD is one of the most common inflammatory skin diseases, affecting 15%-20% of patients in developed countries. Dupilumab, an inhibitor of IL-4 and IL-13, is a highly effective biologic that controls skin rash and itching in AD. Screening for HBV is necessary when choosing cyclosporine or baricitinib for systemic treatment of AD. However, dupilumab clinical trials did not include HBV-positive patients due to the exclusion criteria,³ and there is no reported evidence that dupilumab is safe for HBV infection. Only one study reported dupilumab use in HBV-positive patients receiving entecavir for the infection.⁴

Here, we aimed to investigate the safety of dupilumab in HBV patients. The study was approved by the Ethics Review Board of Hyogo College of Medicine. Of the 112 AD patients who started dupilumab at the Department of Dermatology, Hyogo College of

Medicine from April 2018 to July 2020, HBs antibodies (HBsAb) were measured in 103 patients; of these, six patients (5.8%) were HBsAb positive. Of six, one had previously received the HBV vaccine and was, therefore, excluded from the study. Table 1 details the clinical course of the five patients diagnosed as HBV carriers or previously infected individuals because they had no history of vaccination. We ensured the safety of the treatment by routinely performing HBV-DNA quantification by TaqMan PCR in all patients. Entecavir was not administered to any of the patients. Patient 2 had a history of acute hepatitis at the age of 26 years and was regularly followed up for HBV by a local physician every 6 months. In addition, only this patient became weakly positive for HBV-DNA (<2.1 log copies/ml, <1.30 log IU/ml) during the follow-up. The patient was referred to a hepatologist, but there were no abnormalities in liver function, and HBV-DNA became negative again with only follow-ups. Recently, we reported that dupilumab selectively suppresses Th2 (type 2) immune responses but has little impact on Th1 immune responses.⁵ Given that HBV suppression occurs primarily through a Th1 immune response, we hypothesize that dupilumab is unlikely to induce HBV reactivation. In summary, dupilumab was given to HBV-positive AD patients without any major problems. Our report suggests that, with careful monitoring, dupilumab can be administered to HBV-positive patients.

TABLE 1 Clinical characteristics of the patients with atopic dermatitis and chronic hepatitis B virus infection treated with dupilumab

Patient	Age	Gender	Blood test			HBV-DNA TaqMan [®] PCR, After dupilumab administration										
			HBs Ag	HBs Ab	HBc Ab	0 w	4 w	16 w	28 w	40 w	52 w	64 w	76 w	88 w	100 w	
#1	59	M	-	+	+	-	-	-	-	-	-	-	-	-	-	-
#2	60	F	-	+	+	-	-	-	-	-	-	-	+	-	-	-
#3	47	M	-	+	+	-	-	-	-	-	-	-	-	-	-	-
#4	51	M	-	+	-	-	-	-	-	-	-	-	-	-	-	-
#5	60	F	-	+	-	-	-	-	-	-	-	-	-	-	-	-

Abbreviations: Ab, antibody; Ag, antigen; F, female; HBV, hepatitis B virus; M, male; w, weeks (a range of ± 6 weeks is allowed; blank spaces indicate no data).

Masako Matsutani and Yasutomo Imai contributed equally to this article.

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DECLARATION SECTION

Approval of the research protocol: The study protocol was approved by the Ethics Review Board of Hyogo College of Medicine and conformed to the ethical guidelines of the Declaration of Helsinki.

Informed Consent: N/A.

Registry and the Registration No. of the study/trial: 3273.

Animal Studies: N/A.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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REFERENCES

1. Abramson A, Menter A, Perrillo R. Psoriasis, hepatitis B, and the tumor necrosis factor-alpha inhibitory agents: a review and recommendations for management. *J Am Acad Dermatol.* 2012;67(6):1349–61.
2. Snast I, Atzmony L, Braun M, Hodak E, Pavlovsky L. Risk for hepatitis B and C virus reactivation in patients with psoriasis on biologic therapies: a retrospective cohort study and systematic review of the literature. *J Am Acad Dermatol.* 2017;77(1):88–97.e5.
3. Blauvelt A, de Bruin-Weller M, Gooderham M, Cather JC, Weisman J, Pariser D, et al. Long-term management of moderate-to-severe atopic dermatitis with dupilumab and concomitant topical corticosteroids (LIBERTY AD CHRONOS): a 1-year, randomised, double-blinded, placebo-controlled, phase 3 trial. *Lancet.* 2017;389(10086):2287–303.
4. Ly K, Smith MP, Thibodeaux Q, Beck K, Bhutani T, Liao W. Dupilumab in patients with chronic hepatitis B on concomitant entecavir. *JAAD Case Rep.* 2019;5(7):624–6.
5. Imai Y, Kusakabe M, Nagai M, Md P, Yasuda K, Yamanishi K. Dupilumab effects on innate lymphoid cell and Th cell populations in patients with atopic dermatitis. *JID Innov.* 2021;1:100003.

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