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Non-alcoholic fatty liver disease in chronic hepatitis B patients

To the Editor,

We read the article by Ceylan et al. (1) in a recent issue of Turkish Journal of Gastroenterology with great interest. The incidence of non-alcoholic fatty liver disease (NAFLD) with chronic hepatitis B (CHB) patients is high in our country (2). Cindoruk et al. (3) revealed that NAFLD does not affect the success of the pegylated interferon alpha-2A treatment in patients with CHB. Similarly, it is very important to show that NAFLD does not affect the virological response of entecavir and tenofovir in the article by Ceylan et al. (1). Comorbidities like NAFLD that reduces the effect of antiviral treatment should be brought under control. Studies reveal that NAFLD has no effect on the antiviral treatment response.

The patients who exhibit a virological response to tenofovir treatment demonstrate a 2-fold frequency for steatohepatitis (1). If the same result can be shown to more patients, it might reveal the superiority of tenofovir to entecavir. Thus, tenofovir treatment might be used in CHB patients with NAFLD in our country. The study by Ceylan et al. (1) detected 76 patients with NAFLD that had a lower viral load than those without NAFLD; this is an interesting result when we compare it with that of previous studies. The result of this study, which reveals the relationship between hepatitis b vırus (HBV) DNA and the development of NAFLD through sterol regulatory element-binding protein-1c, is in contrast with that of a study by Ceylan et al (1). On the other hand, serum high-density lipoprotein (HDL) and HBV DNA load was a predictor of the development of NAFLD for 43 young patients with a low body mass index (1). Within the meaningful confidence interval, an odds ratio of <1 means that risk factor is protective against disease (4). And this study reveals that low serum HDL and HBV DNA load is a protective factor for the development of NAFLD. In that case, if there is no risk factor belongs to patient, low HBV DNA levels may protect the development of NAFLD. Hence, it may be misleading to think NAFLD suppresses viral load.

We believe that how NAFLD suppresses the viral load should be further clarified. Zhang et al. (5) have demonstrated that NAFLD suppresses the genotype B HBV infections. However, the mechanism of this pathway is unclear. Genotype D HBV infection has a higher incidence rate in our country. Thus, it is not enough to explain the mechanism of this pathway on the basis of the study by Ceylan et al. (1). In conclusion, further studies are required to determine the causes and consequences of the presence of NAFLD with CHB patients.

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REFERENCES

1. Ceylan B, Arslan F, Batırel A, et al. Impact of fatty liver on hepatitis B virus replication and virologic response to tenofovir and entecavir. Turk J Gastroenterol 2016; 27: 42-6. [CrossRef]
2. Altıparmak E, Koklu S, Yalinkilic M, et al. Viral and host causes of fatty liver in chronic hepatitis B, World J Gastroenterol 2005; 11: 3056-9. [CrossRef]
3. Cindoruk M, Karakan T, Unal S. Hepatic steatosis has no impact on the outcome of treatment in patients with chronic hepatitis b infection. J Clin Gastroenterol 2007; 41: 513-7. [CrossRef]
4 Aktürk Z, Acemoğlu H. Sağlık Çalışanları İçin Araştırma ve Pratik İstatistik. 2. Baskı. Anadolu Matbaası. İstanbul, 2011.
5. Zhang Z, Pan Q, Duan X-Y, et al. Fatty liver reduces hepatitis B virüs replication in a genotype B hepatitis B virus transgenic mice model. J Gastroenterol Hepatol 2012; 27: 1858-64. [CrossRef]

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Author's Reply

To the Editor,

We thank for the comment on our article. It is proposed that the rate of non-alcoholic fatty liver disease (NAFLD) is increased in patients with HBV (1). HBV X protein (HBx) has been shown to increase the transcription of sterol regulatory element-binding protein-1c (SREBP-1c) which promote NAFLD by means of stimulating the synthesis of fatty acid (1).

On the other hand, it has been shown that the HBV DNA levels decreased in animal models of liver steatosis (2). In other words, while liver steatosis suppresses HBV replication, increased serum HBV DNA levels seem to cause liver steatosis. However, as indicated in epidemiological trials, the effect of host factors such as age and obesity on liver steatosis is more than the effect of HBV replication (3). Increased number of FAS receptors on the surface of hepatocytes causes more hepatocyte apoptosis in cases with liver steatosis due to metabolic syndrome, which in turn results in decreased viral replication (4). Also in our study, after host factors such as age and weight have been mathched, it has been shown that serum HBV DNA levels were low in patients with liver steatosis (5). When we consider the previously conducted studies, we think that, instead of interpreting this situation as low HBV replication causes liver steatosis, saying that liver steatosis suppresses HBV replication would be more rational.

Viral response was better in patients with steatohepatitis at the end of six months of tenofovir therapy in our study. However, the evidence was not strong enough due to low number of patients with steatohepatitis. Furthermore, we can conclude that, tenofovir was not superior to entecavir when the patients with or without steatohepatitis were compared to each other for the viral response at one year of therapy. Therefore it doesn't make sence to prefer tenofovir for the treatment of patients with chronic hepatitis B infection.

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REFERENCES

1. Kim K, Kim KH, Kim HH, Cheong J. Hepatitis B virus X protein induces lipogenic transcription factor SREBP1 and fatty acid synthase through the activation of nuclear receptor LXRalpha. Biochem J 2008 1; 416: 219-30.
2. Zhang Z, Pan Q, Duan X-Y, et al. Fatty liver reduces hepatitis B virus replication in a genotype B hepatitis B virus transgenic mice model. J Gastroenterol Hepatol 2012; 27: 1858-64.
3. Poortahmasebi V, Alavian SM, Keyvani H, Norouzi M, Mahmoodi M, Jazayeri SM. Hepatic steatosis: prevalence and host/viral risk factors in Iranian patients with chronic hepatitis B infection. Asian Pac J Cancer Prev 2014; 15: 3879-84.
4. Feldstein AE, Canbay A, Angulo P, et al. Hepatocyte apoptosis and fas expression are prominent features of human nonalcoholic steatohepatitis. Gastroenterology 2003; 125: 437-43.
5. Ceylan B, Arslan F, Batırel A, et al. Impact of fatty liver on hepatitis B virüs replication and virolojik response to tenofovir and entecavir. Turk J Gastroenterol 2016; 27: 42-6.