



A Case of Acute Hepatitis B Accompanied by COVID-19 Infection

COVID-19 Enfeksiyonunun Eşlik Ettiği Bir Akut Hepatit B Olgusu

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ABSTRACT

In coronavirus disease-2019 (COVID-19) infection, the liver is one of the most affected organs. Preliminary data suggest that patients with pre-existing liver disease have worse outcomes. Therefore, the prognosis of COVID-19 in patients with chronic liver disease has been examined in many studies. Most studies have been conducted in patients with chronic hepatitis B virus infection. However, there is no research on acute hepatitis B and COVID-19 to date. In the literature, only two cases have been reported. Both patients died of fulminant liver failure. Herein, we describe a case with acute hepatitis B that was later infected with severe acute respiratory syndrome-coronavirus-2. The patient's clinical course was stable, there was no worsening, and full recovery was achieved. This case showed that the prognosis is not always unfavorable in cases of acute hepatitis B accompanied by COVID-19.

Keywords: Acute hepatitis B, liver, COVID-19

ÖZ

Koronavirüs hastalığı-2019 (COVID-19) enfeksiyonunda karaciğer en çok etkilenen organlardan biridir. Konuyla ilgili ilk çalışmalar, altta yatan karaciğer hastalığı olanların daha kötü prognozlu olduğunu göstermiştir. Bu nedenle kronik karaciğer hastalığı olan hastalarda COVID-19 prognozu farklı çalışmalarda incelenmiştir. Bu çalışmaların çoğu kronik hepatit B virus enfeksiyonu olan hastalarda yapılmıştır. Şu ana kadar akut hepatit B ve COVID-19 ile ilgili herhangi bir araştırma bulunmamaktadır. Literatürde sadece iki olgu bildirilmiştir. Her iki hasta da fulminan karaciğer yetmezliğinden ölmüştür. Bu yazıda akut hepatit B nedeniyle takip edildiği sırada şiddetli akut solunum yolu yetmezliği sendromu ile enfekte olan bir olguyu sunduk. Hastanın kliniği stabil seyretti, kötüleşme olmadı ve tam iyileşme sağlandı. Bu olgu COVID-19'un eşlik ettiği akut hepatit B olgularında prognozun her zaman kötü olmayacağını göstermiştir.

Anahtar Kelimeler: Akut hepatit B, karaciğer, COVID-19

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Introduction

The coronavirus disease-2019 (COVID-19) pandemic has had a significant impact on global health, leading to a range of clinical manifestations. Among these, liver injury has been observed in a substantial proportion of infected patients, both with and without pre-existing liver disease. Elevated aminotransferases have been reported in 14% to 58% of hospitalized COVID-19 patients (1). While typically mild, severe cases of acute hepatitis have also been mentioned (2). The pattern of elevation frequently involves aspartate aminotransferase (AST) being greater than alanine

aminotransferase (ALT). To date, two patients with COVID-19 and acute hepatitis B have been reported as (3,4). Here we present a case of acute hepatitis B accompanied by COVID-19 infection.

Case Report

A 48-year-old woman was admitted to our hospital with complaints of fatigue and jaundice for 3 days. Upon initial examination, the sclera and skin were yellow and urine was dark. She had a medical history of villous adenomas and was negative for hepatitis B surface antigen (HBsAg) 4 months before

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undergoing surgical intervention. On admission, laboratory findings revealed leukocytes count of 10,500 cells/McL, AST of 1,050 IU/L (normal: 0-50), ALT of 1,192 IU/L (normal: 0-50), gamma-glutamyl transferase of 251 IU/L (normal: 0-38), alkaline phosphatase of 522 IU/L (normal: 30-120), total bilirubin: 13 mg/dL and international normalized ratio: 1 and C-reactive protein, sedimentation rate and procalcitonine were all normal. For further investigation regarding elevated liver enzymes, the patient was hospitalized in the infectious disease service. The patient reported no history of alcohol intake, herbal supplementation, or medication use. In blood analysis, HBsAg, hepatitis B e antigen (HBeAg), and anti-HBc IgM were positive. Other serology for Epstein-Barr virus, human immunodeficiency virus, hepatitis A, C, D, and E were all negative. No hepatosplenomegaly was noted on ultrasound. Five days later, she developed new onset cough and loss of smell and taste. Initial nasopharyngeal swab PCR testing for severe acute respiratory syndrome-coronavirus-2 was negative. However, two days later, the swab test was repeated and the result was positive. Her family members were infected with this virus, although they all received 2 doses of mRNA COVID-19 vaccine. Chest computed tomography was normal. No additional treatment was administered for COVID-19 infection, and no clinical worsening was observed. During hospitalization, liver enzyme levels gradually decreased and liver functions improved over 2 months, while serum hepatitis B virus (HBV)-DNA levels also decreased to 65 in the first month (Figure 1). Serum HBV-DNA levels decreased to 65 IU/L during the first month. She was discharged from the hospital after clinical and biochemical improvement. The patient cleared the infection and developed protective antibodies, namely negative HBsAg and positive hepatitis B surface antibody. On follow-up, no recurrence was observed for 6 months.

Discussion

Hepatitis B virus primarily affects the liver and leads to several diseases including hepatitis, cirrhosis, and hepatocellular carcinoma. HBV can interact with other viruses, affecting clinical outcomes. Hepatitis C virus and delta virus tend to suppress the replication of HBV. HIV and SARS-CoV-1 can exacerbate liver injury and cause poor clinical outcomes (5,6). Although SARS-CoV-2 can cause liver injury, its interaction with other viruses is not clearly understood.

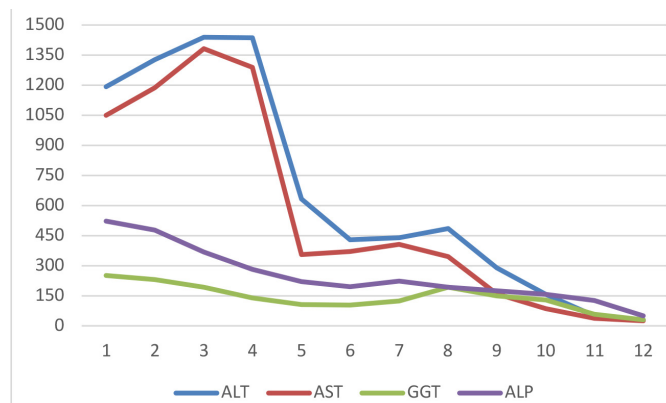


Figure 1. The fluctuation of hepatic enzyme levels

ALT: Alanine aminotransferase, AST: Aspartate aminotransferase, GGT: Gamma-glutamyl transferase, ALP: Alkaline phosphatase

In COVID-19 infection, many studies are limited to chronic HBV infection. Guan et al. (7) reported 32.1% of patients with hepatitis B infection had severe COVID-19 infection compared with 15.7% of patients who had no preexisting hepatitis B. Another relevant study showed that liver injury in patients with COVID-19 and chronic HBV co-infection was related to the severity and poor prognosis of disease (8). On the other hand, Lin et al. (9) found no significant differences in the discharge rate or duration of hospitalization, and inactive HBV carriers with SARS-CoV-2 co-infection are at a higher risk of abnormal liver function tests. However, it remains unclear whether SARS-CoV-2 co-infection may accelerate liver injury in patients with chronic HBV infection.

Literature reports on acute HBV and COVID-19 co-infection are scarce. There are two reports regarding acute HBV and COVID-19 co-infection (3,4). The first case presented with fulminant liver failure and was diagnosed with COVID-19 infection without lung involvement at the same time. The second was a 24-year-old man who had fulminant liver failure. The patients were not vaccinated and died in the hospital due to a severe and rapid course of illness. The authors suggested that COVID-19 may have caused the disease to progress to fulminant hepatitis. Contrary to these reports, our patient had a favorable outcome and the co-infection did not lead to worsening of the disease progress.

COVID-19 is a viral disease that may cause serious morbidity and mortality. To prevent the disease, various vaccines have been developed and administered to people worldwide. Although some side effects have been observed, they displayed a high level of efficacy and safety in all populations (10). In this case, although the patient received two doses of COVID-19 vaccination, she was infected with the virus and experienced a mild infection. In this case, the patient had received two doses of COVID-19 vaccination, which might have contributed to the favorable outcome.

In the pathogenesis of HBV infection, HBV-specific T-lymphocytes play an important role in liver inflammation and viral clearance. Although SARS-CoV-2 mainly acts on lymphocytes, especially T-lymphocytes, it is unclear how COVID-19 can affect HBV infection (11,12). In many studies, there is some evidence for a risk of HBV reactivation among co-infected patients who were given immunosuppression therapy during COVID-19 infection (13).

Acute hepatitis B may be more severe in patients co-infected with other viruses. Our findings reveal that COVID-19 may not worsen the progression of the disease. However, more studies are needed to clarify this issue.

Ethics

Informed Consent: It was obtained.

Peer-review: Externally peer-reviewed.

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