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Research Article

Impact of COVID-19 on the Strategy for the Prevention and Elimination of Hepatitis B and Hepatitis C

Antonija Verhaz[1,2*]

[1]Clinic for Infectious Diseases, University Clinical Centre of the Republic of Srpska, Banja Luka, the Republic of Srpska, Bosnia and Herzegovina

[2]Department for Infectious Diseases, Faculty of Medicine, University of Banja Luka, Banja Luka, the Republic of Srpska, Bosnia and Herzegovina

***Corresponding author: Antonija Verhaz**

Clinic for Infectious Diseases, University Clinical Centre of the Republic of Srpska, Banja Luka, the Republic of Srpska, Bosnia and Herzegovina.

Tel: 065 649 350

Email: antonija@blic.net

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Abstract

The COVID-19 pandemic, since SARS-CoV2 was discovered in December 2019, has resulted in significant morbidity and mortality. Since then, several countries have witnessed the collapse of the health care system due to the great need to treat patients with COVID-19. At the global level, drastic measures have been taken to combat the spread of the virus. However, these measures have led to disruptions in other aspects of health care, diagnosis and treatment of other diseases and conditions. There is also a stalemate in achieving the ambitious goal set by the World Health Organization to eliminate viral hepatitis as a threat to public health by 2030. Hepatitis B and C are chronic conditions with a significant global burden, and COVID-19 has slowed or stopped many hepatitis elimination programs.

Keywords: COVID-19; Chronic hepatitis; World Health Organization

Introduction

In December 2019, the first case of severe acute respiratory syndrome attributed to SARS-CoV-2 was registered in Wuhan, China, and the disease was named COVID-19 [1]. The ensuing COVID-19 pandemic led to 6,189,593 million deaths by April 16, 2022 [2]. Hepatitis is a global public health challenge because every 30 seconds one person in the world loses their life as a result of hepatitis-related diseases. More than 1.1 million lives are lost each year as a result of Hepatitis B Virus (HBV) and Hepatitis C Virus (HCV) infection. Special emphasis is placed on viral hepatitis B and C, since they belong to the so-called "silent diseases" that pass for a long time without recognized symptoms. Long-term, untreated infection can cause severe liver damage [3,4]. Hepatocellular carcinoma as a result of untreated disease is constantly increasing, and most of them are detected at a stage too late for successful treatment. Testing for hepatitis B and C is the only way to timely detect the disease. The World Health Organization (WHO) estimated in 2016 that the number of people suffering from chronic hepatitis B in the world is 257 million [3], while 71 million people live with chronic hepatitis C [5]. It is estimated that in the world, especially in medium developed and underdeveloped countries, a significant part of the carriers of these viruses remains undiagnosed, due to the low level of testing and availability to health systems [4].

Although it is disputed whether chronic viral hepatitis affects the outcome of COVID-19 [6], worse outcomes with COVID-19 can be expected due to impaired immunity [7]. COVID-19 can also affect the liver and cause its damage, through the direct action of the virus, immune reaction and cytokine storm, and therapy with hepatotoxic drugs [8]. This is especially important for patients with chronic liver diseases in which the remaining liver function is reduced and there may be worsening of the underlying disease and decompensation, as well as the need for transplantation. Furthermore, the pandemic affected the availability of medical services, which is extremely important for the regular monitoring of patients with chronic liver diseases [9]. Due to the cytokine storm, which often occurs in COVID-19 and affects the severity of the clinical picture, both immunesuppressants and corticosteroids are used in the therapy of COVID-19. As a possible side effect of immunosuppressive therapy, reactivation of hepatitis B and C may occur [10]. This may be an important cause of increased morbidity and mortality in patients with previous HBV infection, as a more rapid increase in alanine aminotransferase levels after viral reactivation may lead to liver failure in some cases.

The World Health Organization, promoting the goals of the Global Health Strategy for Viral Hepatitis 2016-2021, which is the elimination of disease and death from hepatitis B and C by 2030, emphasizes the importance of prevention, testing, early detection and treatment of viral hepatitis as a threat to public health by 2030, but also the control of infection caused by the

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Human Immunodeficiency Virus (HIV) [3,4]. The Sustainable Development Goals include goals such as good coverage of HBV neonatal vaccination, prevention of mother-to-child transmission, and harm reduction programs for intravenous drug users, such as the distribution of sterile syringes and needle kits. The goals of eliminating HCV infection relate to increasing the level of testing of the risk population as well as the general population, implementing harm reduction programs and increasing the availability of new DAA (direct-acting antivirals) drugs. The current pandemic is seriously jeopardizing efforts to achieve these sustainable goals.

The CDC has issued guidance on postponing routine clinic visits as part of initial mitigation strategies for the COVID-19 pandemic [11]. Routine monitoring of laboratory findings, including liver function tests and blood counts, has been significantly reduced due to the increased priority given to tests for COVID-19 [12]. This is likely to result in higher rates of more serious adverse outcomes such as decompensated liver disease and hepatocellular carcinoma. Routine liver tests are also recommended for all patients with COVID-19 disease, especially those receiving remdesivir and tocilizumab, regardless of their baseline values [10]. Delays in health services during a pandemic can lead to delays in diagnosis and treatment, leaving people living with hepatitis B and C unaware of their disease status and vulnerable to the progression of liver disease, including cirrhosis and hepatocellular carcinoma, as well as the potential spread of the virus [13]. Due to interrupted and poor-quality treatment of viral hepatitis, there is an increased risk of an increase in the incidence of hepatitis B and C, which could increase transmission in the population and affect the development of resistance to antiviral drugs. An important role in the elimination of hepatitis is played by infectious disease specialists and family medicine doctors, who are now in the focus of the COVID-19 pandemic, and this change can further affect hepatitis elimination programs. Countries with few doctors will be more affected [14].

Goal

To assess the impact of the COVID-19 pandemic on the provision of viral hepatitis testing services at the Infectious Diseases Clinic of the University Clinical Center of the Republika Srpska Banja Luka, the number of registered chronic hepatitis B and C in the years of the pandemic compared to the previous period, and the availability of treatment with DAA drugs against hepatitis C during the pandemic.

Material and Methods

The results were obtained through a retrospective analysis of data from the diagnostic and treatment protocols of the Infectious Diseases Clinic of the University Clinical Center of the Republika Srpska Banja Luka as a reference institution for the treatment of viral hepatitis and HIV infection. The process of Voluntary and Confidential Counseling and Testing (VCCT) consists of pre-testing, testing and post-testing counseling for HIV/ HBV/ HCV viruses. The consultation center of the Clinic for Infectious Diseases is a reference center for voluntary, free and anonymous testing.

Results

The Clinic for Infectious Diseases of the University Clinical Center of the Republika Srpska in Banja Luka is a reference institution for the treatment of chronic viral hepatitis and HIV infection. About one million inhabitants gravitate to this region. The beginning of the pandemic in 2020 was also marked by a significant drop in the level of client testing in the clinic's Counseling Center compared to the years before the pandemic (Table 1).

According to the data of the Institute of Public Health of the Republic of Srpska, there are a higher number of reported cases of HBV and HCV infection in the years before the beginning of the pandemic that was declared on March 11, 2020 compared to the years during which the COVID-19 pandemic lasted (Table 2). In years of declining testing coverage, there is an increase in the number of reported cases of HIV infection.

The number of patients with chronic Hepatitis C (HHC) who were treated with modern DAA therapy is not significantly different between the years before and during the COVID-19 pandemic, table 3 shows.

Table 1: Number of tested clients in the office of the Clinic for Infectious Diseases.

Year	2017	2018	2019	2020	2021	2022	08/2023
Number of testing	70	134	181	10	69	33	64

Table 2: Number of registered persons infected with HBV, HCV and HIV.

Year	2017	2018	2019	2020	2021	2022	08/2023
*HBV	46	60	24	22	17	36	25
**HCV	28	22	49	10	7	25	12
***HIV	6	9	14	6	20	28	14

*HBV- hepatitis B virus
**HCV- hepatitis C virus
***HIV -human immunodeficiency virus

Table 3: Number of HHC patients treated with DAA.

Year	2017	2018	2019	2020	2021	2022	08/2023
Number	30	36	44	39	38	42	28

Discussion

The COVID-19 pandemic has had the greatest impact on the reduced availability of testing and the consequent reduction in the number of newly discovered cases of chronic viral hepatitis B and C. The fact that at a time of reduced coverage of testing, the number of detected HIV-infected persons is on the rise is worrisome. The Infectious Diseases Clinic has redirected most of its testing resources to patients with COVID-19. In order to maintain the quality of health care for patients with hepatitis B and C, a new visit protocol was created, which maintained the level of treatment for patients with chronic hepatitis C. Patients with chronic hepatitis B regularly receive antiviral therapy through the hepatology clinic. Because the continuity of the same had to be maintained. In order to control the pandemic, a number of aggressive measures were taken around the world that led to financial disruptions in hospitals and health services, often leading to the closure of testing clinics [15]. There have also been shortages of reagents for HBV and HCV due to disruptions in the global supply chain.

According to a study by the World Hepatitis Alliance, 99 countries received a survey to test access to viral hepatitis diagnostic and treatment services during the pandemic. Only 39 (30%) of the 131 analyzed responses showed that adequate information about COVID-19 was provided to people living with viral hepatitis in their country. The key issues identified in the survey were the closure or avoidance of testing services [16]. The primary reason for the decline in the use of outpatient services was attributed to the fear of infection with severe SARS-CoV 2. Similarly, a decline of 84% in HBV and 74% in HCV-positive patients attending hepatitis treatment clinics [15,16]. During the pandemic, there was a decrease in the number of clients who used testing services, and a more frequent interruption of hepatitis C

treatment [16]. An online survey conducted in Italy found that initiation of HBV and HCV treatment was delayed in 23% of centers, and even in patients considered to be at high risk of serious complications, treatment was initiated in only 20%-28 % of cases [17]. The disruption of the supply chain and the necessary reallocation of health resources have led to drug shortages for viral hepatitis, as reported by studies in Egypt [18], sub-Saharan Africa, and Pakistan [19]. In Italy, 26% of hepatology wards were converted into COVID wards, and 33% into bed reduction [17].

Although COVID-19 is primarily a respiratory disease, it can also affect other organs and organ systems, including the liver. Liver involvement is most often manifested by an asymptomatic increase in liver enzymes, while in people with chronic liver disease decompensation and liver failure may occur, as well as the need for an urgent transplant. People with chronic liver diseases, as well as people with liver transplants, are at increased risk of developing a severe clinical picture and a worse outcome of COVID-19. In transplanted patients suffering from COVID-19, it is especially important to adjust the immunosuppressive therapy to avoid interactions with the drugs used in the therapy of COVID-19. The American, European, and Asian Associations for the Study of Liver Diseases (AASLD, EASL, and APASL) recommend continuing therapy for chronic hepatitis B in patients already receiving it [20,21]. Patients with chronic HCV infection on antiviral drug therapy who have recovered from COVID-19 are also recommended to continue therapy. Patients with HBV or HCV infection, who are not yet on antiviral drug therapy, are advised to delay the initiation of therapy until recovery from COVID-19, except in case of clinical suspicion of advanced liver disease [10,20,21].

Conclusion

Reorganization of health systems and measures taken to contain the pandemic have resulted in slowing or delaying activities to achieve the goals of the World Health Organization to eliminate viral hepatitis by 2030. Therefore, efforts to eliminate viral hepatitis must continue as soon as possible. Despite the demands and adaptations of the COVID-19 pandemic, the health workers of the Viral Hepatitis Department of the Infectious Diseases Clinic made great efforts to ensure that the continuity of antiviral therapy for hepatitis patients was at the same level as before the pandemic.

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