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COVID-19 pandemic and its implications on elimination of hepatitis by 2030: Current and future prospects

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Abstract

Purpose: The purpose of this paper was to discuss the challenges and difficulties faced by health agencies in meeting the WHO objective of eliminating hepatitis amid the COVID-19 pandemic. In addition, this paper also elucidates the various solutions to these problems, so that a realistic way forward can be determined in order to deal with this chronic problem in an effective and timely manner.

Methodology: This was a theoretical paper.

Findings: The present world is witnessing an unprecedented global calamity in the form of COVID-19 pandemic. The impact of the contagion is so immense and wide-spread that it has practically brought the best economies and healthcare systems of the world to the verge of collapse. With the entire world focusing on the pandemic itself and its consequences, the emphasis on other major health issues has dwindled considerably. One of those essential and magnanimous tasks is the universal campaign for the elimination of hepatitis. The Global Health Sector Strategy (under the umbrella of WHO) has identified five key areas in which significant efforts are required in order to eliminate hepatitis from the world by 2030, which will be discussed in detail in this paper.

Recommendations: Amid the COVID-19 pandemic, a targeted effort is required by health agencies and other stake holders in order to eliminate hepatitis from the world by 2030. This would include satellite (point of care) testing for chronic viral hepatitis, application of telecommunications technology for treatment and follow-up, and practically educating primary care physicians to treat non-emergent and uncomplicated cases instead of referring them to specialist clinic.

Key words: *COVID-19, pandemic, contagion, hepatitis elimination.*

Introduction

The world at large is facing a major challenge in the form of the coronavirus pandemic (COVID-19). Beginning in late 2019, this so far has intense deleterious repercussions not only on the healthcare and economic infrastructure of the entire globe, but has also disrupted the social life of many communities, both in the developed as well as under-developed countries. With many minor and major businesses shutting down and already meagre job opportunities, many people have ended up losing their occupations and are now finding it difficult to make both ends meet. Due to an overwhelming strain produced by the contagion on the existing global healthcare machinery, countries across the world are shelving their "non-emergent" medical services and focusing more towards tackling the pandemic and its complications. Major budget reallocations have been made by health authorities of the different nations to handle this universal issue, regardless of their income status. However, this action, it is feared, could eventually lead to increased burden of other medical illnesses which are already prevalent.

Chronic viral hepatitis and its associated complications carry a high mortality and morbidity (1). As per the World Health Organization (WHO), 325 million people living on this planet have chronic viral hepatitis, with approximately 257 million individuals being affected with chronic hepatitis B virus (HBV) and about 71 million cases of chronic hepatitis C virus (HCV) infection (2). Data from Pakistan, a country with the second largest burden of hepatitis C, have shown an overall 40% escalation in the rates of HCV antibody positivity. Health infrastructure is not very well-equipped in offering appropriate testing and treatment services to those suffering from this chronic illness, with high rates of nosocomial infections occurring in below par operational healthcare facilities further worsening the clinical situation (3).

To confront this major threat to public health, Global Health Sector Strategy (GHSS) was proposed and adopted by the WHO in 2016. In a nut-shell, the primary aim of implementing this strategy was to reduce the incidence of hepatitis from 6-10 million cases to 0.9 million cases, and to decrease the per annum hepatitis-related deaths from 1.4 million to 0.5 million, by 2030 (4). However, even much before the start of the pandemic, very few countries were truly on track to attain the goals laid out by the GHSS for the elimination of hepatitis, despite the fact that more than 80 countries developed national plans to eliminate HCV (1). Needless to say, both financial and logistical obstacles created by the COVID-19 pandemic are apparently making these targets even less achievable than before.

The new all-oral therapy for HCV has promising results. Having said that, rich and poor states alike are struggling to afford its exorbitant cost, and Hepatitis C has been "everyone's problem" for a short period of time. However, as happened in the case of tuberculosis (TB), HCV in years to come could be restricted to the underprivileged population living in low and middle-income countries. So, how can we, particularly in this pandemic era, stop HCV from going down the same track as TB, necessitating a modified global policy for HCV elimination 50 years from now (5)?

General considerations

In the initial phases of the pandemic, a wide-scale survey was conducted in 32 different countries, organized by the World Hepatitis Alliance (6). This survey was aimed to identify the major hurdles in globally eliminating hepatitis. The participants were various hepatitis groups as well as

individual healthcare professionals working at the fore-front. Majority were of the view that COVID-19 had profoundly affected the overall hepatitis care services. The other commonly encountered problems were lack of access to testing centers, and difficulty in delivering optimal therapy for hepatitis, especially in the middle and lower-income countries, which were already struggling in the pre-pandemic era due to lack of adequate resources (7). The survey ascertained that the main reason for this logistic issue was the redistribution of both healthcare amenities and skilled personnel to combat the contagion.

The Global Health Sector Strategy (GHSS) on viral hepatitis was designed to take into consideration all five types of viral hepatitis (namely hepatitis A, B, C, D and E). However, key emphasis has been on hepatitis B and C, due to their overwhelming encumbrance on the global health system (8). The strategy identifies the following principal domains where efforts and active interventions are needed to comprehensively eliminate hepatitis from the world by 2030:

1. **Vaccination for HBV**
   Vaccination in general is one of the most effective and economical way for disease prevention (9). The world is fortunate enough to have a safe, cost-effective and equally efficacious vaccine for HBV, projected to prevent more than 200 million deaths by 2030 if infants and newborns receive the immunization at the right time (10). However, compliance and follow-up remains an issue, as 3 doses are recommended at different time intervals. Similarly, "vaccine hesitancy" (i.e. delay or outright refusal of vaccination by end-users despite its availability) is also an important factor resulting in compromised outcomes of mass HBV vaccination programs (11). Also, many newborns are deprived from getting immunized due to births taking place at home, especially in the lower income countries.
   The current COVID-19 pandemic poses an even bigger threat to these vaccination efforts, very much like it has done to other important medical services (12). Vaccination access will further get difficult as most people will limit their movement due to the fear of COVID-19 spread, and home births will get more preference as compared to deliveries at healthcare facilities.
2. **Prevention of HBV transmission from mother to child**
   HBV (in contrast to HCV), can be easily transmitted vertically from infected mother to her offspring. One of the important aspects of curtailing the spread of HBV is by ensuring the fact that every child receives the HBV birth dose vaccine at the right time i.e. within 24 hours of birth (13). According to the WHO, by 2030, 90% of the children should timely receive this vaccine. However, as of 2015, only 38% of the newborns were administered the vaccine as birth dose (8). In some African countries, where HBV prevalence remains high, immunization coverage is extremely low, again due to high proportion of home deliveries and also because of certain doubts in the minds of medical staff and health policy makers regarding the importance of birth dose (14). Having said that, there has been a tremendous increase over the period in vaccination coverage in certain parts of the world, especially the Western Pacific region (15).
   Another essential step in reducing the risk of vertical transmission of HBV is regular follow-up and testing of pregnant women, and starting appropriate anti-viral therapy in those with high viral load of HBV DNA (16). As HBV transmission is still possible despite

completion of vaccination schedule (especially in women with high viral load), the additional use of hepatitis B immune globulin (Hb Ig) has been shown to further decrease neonatal HBV infection rate (16). As mentioned above, COVID-19 is expected to severely disrupt the already running vaccination programs in different countries, as well as creating logistic difficulties for proper testing and follow-up of pregnant mothers with HBV. In addition, the added cost associated with anti-viral therapy and Hb Ig is becoming a major issue during these financially harsh times. All these factors, it is feared, may lead to significantly increasing number of new chronic HBV infections among children born in years to come.

3. **Safety of injections and blood products**

   One of the major reasons of HBV and HCV spread in the community is the use of unsafe injections. In the past few years, there has been an overall significant progress in the use of safe healthcare injection practices. However, in developing countries, reused syringes are still increasingly being utilized by general practitioners and even unqualified "healthcare service providers" who are practicing in different rural and even urban areas. In Pakistan, for example, the average number of injections per individual per year is extremely high, ranging anywhere from 8.2 to 13.6 (17). Also, many general practitioners are in the habit of administering injectable drugs without appropriate clinical indications.

   Safety of blood transfusions is also a matter of great concern, especially in the low- and middle income countries. At the time of planning the GHSS on viral hepatitis four years ago, it was noted that blood donations were not appropriately being screened for transfusion-related infections by a significant number of countries (8). Therefore, much effort is required to improve the screening of blood and blood products, at the same time warranting the safety of blood donors and making certain that the donated blood is being utilized in the right manner. In the wake of the current pandemic, there is a high likelihood that all these endeavors of ensuring injection and blood products safety are severely compromised, putting a large population at risk of acquiring chronic viral hepatitis.

4. **Harm reduction for injection drug users**

   In the global effort of eliminating hepatitis by 2030, another important (yet not very well acknowledged) step is harm reduction in people who inject drugs (PWID). As expected, HBV and HCV is highly prevent in this population (8). This increased prevalence is also found in the incarcerated and men who have sex with men (18). In the GHSS, it has been stressed that the number of sterile injections provided to PWID should be increased from 20 to 300 (18). Unfortunately, with social distancing and isolation precautions taken for COVID-19, harm reduction program has also been negatively affected. In the United Kingdom, for example, a significant number of people couldn't find access to these harm reduction programs as a result of stringent lock-down strategies (19). Also, many of these people have become more financially deprived in this global pandemic crisis, leading to increased destitution and further unsafe injection and sexual practices (20).

5. **Appropriate testing and treatment HBV and HCV**

   One of the most important intervention in breaking the chain of new infections of HBV and HCV is diagnosing these infections at an early stage so that the right treatment can be timely started, hence preventing serious liver-related complications like ascites and hepatocellular cancer. However, realistically speaking, majority of the people living with

HBV and HCV infections are not even aware of their diagnosis (5,19). Additionally, population living in low-middle income countries has limited access to viral hepatitis testing and anti-viral therapy as cost remains a major issue for many of these patients (21). As a result, a very small proportion of the people infected with chronic HBV and HCV infection receives appropriate anti-viral therapy. For HCV treatment, however, many low-middle income countries like Pakistan have benefitted greatly with the introduction of direct acting antivirals (DAAs) in generic forms at an affordable price (22).

The criteria for treatment in chronic HBV cases is different as it requires data regarding various laboratory parameters like hepatitis B e antigen status, HBV DNA values and concomitant hepatitis Delta infection, as well as imaging studies like ultrasonography and fibrosis evaluation. Hence, the proportion of patients requiring nucleoside therapy may be much less than expected (23). Nevertheless, owing to the high risk of de novo hepatocellular cancer in patients with chronic HBV infection, such individuals need to be kept under regular surveillance and anti-viral therapy should be commenced at the appropriate phase of the disease.

Authorities have already warned that even a one-year delay in different hepatitis programs across various countries affected by the pandemic can result in considerable increase in mortality related to these chronic infections and their complications (24). Lock-downs and strict isolation policies have made it difficult to find new cases of viral hepatitis. The general practitioners and primary care physicians are the key personnel who deal with most of the cases of chronic HBV and HCV (25). As the efforts of this front-line staff are more inclined towards fighting the contagion, treatment of viral hepatitis has been neglected.

Hepatitis elimination efforts in these challenging times: An opportunity in every crisis

The COVID-19 pandemic is undoubtedly the defining moment in our lives and the greatest challenge we have encountered since the Second World War. The virus emerged in Asia late last year, and very quickly has spread to almost every continent. Cases in Africa, the Americas, and Europe are on the rise. In order to curtail the disease spread, travel restrictions, contact tracing and quarantine measures are being enforced by various countries, in addition to imposing ban on large congregations and meetings such as weddings and sports events. Despite these efforts, the pandemic is spreading fast and continues to pose a threat to healthcare systems worldwide. There is a fear that the WHO vision of eliminating hepatitis by 2030 may well get sabotaged. If immediate and timely measures are not taken, we will have many new infections with viral hepatitis in years to come, including millions of children born with hepatitis B. This will undoubtedly place an enormous burden on health budget, leading to disastrous consequences.

Despite the far-reaching negative impact of COVID-19 on viral hepatitis elimination, there are flickers of opportunity. The greatest prospect is to unite in efforts on war footing to help each other so that the devastation is limited. At the time of writing this review, the corona vaccine has already been developed and is currently available for the general public in few countries, whereas in other places it is accessible only for selected group of recipients like health care professionals, people in nursing homes and elderly. The efficacy of currently available vaccines for COVID-19 may be questionable at this point in time. However, it is imperative that majority of the world's population gets vaccinated in the next few weeks to months, in

order to minimize the severity and deleterious effects of the contagion. The vaccine may soon be available for the masses, however that needs to be seen as a great challenge. Bearing the cost of the vaccine and ensuring its proper distribution would be one of the paramount tasks for the global community in months and years to come. In this regard, a cheaper version of the vaccine which is as effective would be of tremendous help. The hepatitis elimination target of 2030 may be severely affected by the magnitude of the calamity, but health care strategists must act now to limit the crisis as much as possible with the involvement of WHO and hepatitis alliance to be on target for 2030.

From a practical standpoint, it is imperative to promptly regionalize elimination efforts, such as utilization of point of care testing for both B and C (rapid oral HCV antibody test, reflex nucleic acid testing and HCV core antigen test) and provision of medication. Effective use of telemedicine services can also potentially facilitate enhanced care delivery for populations which are difficult to reach, besides serving as an effective platform for patient education. Primary care physicians can also play an important role in this regard. Instead of referring these patients to specialist centers and potentially increasing unnecessary exposure to SARS CoV-2, these physicians can themselves provide safe and effective anti-viral therapy, particularly for hepatitis C (26). Coalescing extensive COVID-19 surveillance with contact tracing strategies have been commenced in many countries, with testing for viral hepatitis and other diseases. Politically, the pandemic has brought the use of mass testing, contact tracing, and vaccination to the fore, and there is optimism that success in these domains can be used to emphasize the tangibility of viral hepatitis elimination (19).

Conclusion

COVID-19 has, despite all its undesirable predicaments, provided the world an opportunity to work collectively and ultimately revolutionize healthcare and economic machinery. With health resources in various countries under extreme pressure, legislators and health service providers on the forefront must put their acts together to make sure that other demanding and highly prevalent heath issues like hepatitis are dealt with the same insight and determination.

Though seems like a dream, the idea of hepatitis elimination by 2030 is still conceivable. Now is the time to take action and benefit from the opportunities the “new world order” has provided to us, so that the world can get rid of the menace of viral hepatitis for good. With less than 10 years to go, every moment is precious.

Recommendations

1. Health authorities of the world should get their acts together in this era of a global health calamity to carry out focused efforts for eliminating hepatitis.
2. With the availability of a reasonably effective vaccine for COVID-19, all individuals (especially high risk groups) should be encouraged to receive the vaccine unless absolutely contraindicated.
3. Following steps should be taken in order to minimize travel and unnecessary exposure to COVID-19:
    a. Point of care testing for chronic viral hepatitis

b. Maximum utilization of tele-medicine services

c. Effective and dedicated training of primary care physicians to manage and treat uncomplicated chronic viral hepatitis as an alternative to specialist referrals.

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