

Influence of COVID-19 on HCC Patients and its Reverberations

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Abstract

The COVID-19 outbreak has affected worldwide in the grievous way. The victims of COVID-19 who are having previous ailments are more prone to severe condition and death. Hepatocellular Carcinoma (HCC) is one such liver cancer which needs timely treatment and care. HCC patients are more susceptible to severe Corona Virus infection and should be treated with priority. The current work is a review on the influence of COVID-19 on HCC patients.

Keywords: COVID-19; Chronic hepatitis B (CHB); Hepatocellular Carcinoma (HCC); Liver Function Test (LFT); Pandemic; Severe Acute Respiratory Syndrome Corona Virus 2(SARS-CoV-2)

Introduction

The COVID-19 global pandemic has established a massive challenge for healthcare systems. Since there is a need for critical care and service to COVID-19 patients, cancer patients have been affected by unavailability of immediate care in case of severe stage. HCC is a malignancy which is diagnosed in critical stage when the survival time is limited, and it needs immediate attention and treatment. If the HCC patient is exposed to corona virus, the condition may still worsen. Also lack of timely medical services can influence the health condition in a serious way. The current work focusses on study of COVID-19 influence on both COVID effected HCC patients and Non-COVID HCC patients with respect to medical services and treatment.

Literature Review

The essential services and resources necessary for HCC patients have been deviated due to COVID-19 situation. The treatment for HCC also gets complicated as COVID-19 causes dysfunction of organs. There is a need for proper management of medical help so that the cancer patients are less exposed to COVID-19.

A research discussed about the impact of COVID-19 on liver cancer patients both during and after pandemic. The authors gave review about the parameters that gets affected for HCC patients due to COVID-19 infection. There were elevations in Liver Function Test (LFT) attributes like aminotransferase (ALT), aspartate aminotransferase (AST), hyper bilirubinemia, increase in gamma glutamyl transferase, alkaline phosphatase (ALP). Patients with severe COVID-19 worsened the degree of hepatic dysfunction. HCC was also due to drug related hepatotoxicity. Severe COVID-19 cases were treated with antibiotics, antivirals and supporting agents, which increased the liver enzyme levels, ALT/AST which lead to rick of toxic hepatitis. The study made a review of data from various COVID affected areas of the world. According to the data, HCC patients were delayed for the treatment, alternative methods to surgery were adopted by the practitioners for HCC treatment. Management of HCC was carried out by prioritizing the treatment based on the stage or severity of disease. The ailment was treated by modularizing the treatment method to Early-stage HCC, Intermediate-stage HCC, Advanced-stage HCC to maintain distancing and keep the patient's exposure minimum to COVID-19. The imaging studies was carried out by practitioners through virtual meetings and only critical cases were considered for surgical resection. (Figure 1)

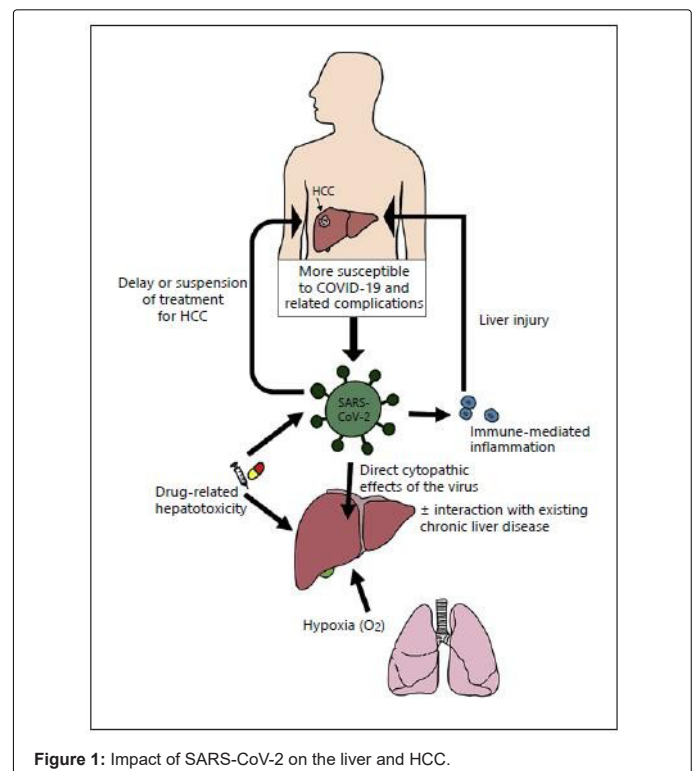


Figure 1: Impact of SARS-CoV-2 on the liver and HCC.

Figure 1 shows the impact of COVID-19 on patients affected with HCC [1].

HCC is primary hepatic malignancy that requires multi-disciplinary strategy for the diagnosis and treatment. The approach involves

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surgical oncology, hepatology, radiation oncology, transplant surgery and interventional surgery. HCC is a primary hepatic malignancy that is leading cause of death due to tumor burden and patient factors. A rapid review has been carried to study that developed guidelines to manage the patients with liver disorder in the view of COVID-19 pandemic [2]. The scarcity of medical resources such as operating room, radiation therapy, chemotherapy care, shortage of personal protection equipment, medical personnel was considered in the review which affected the high-risk HCC patients. There may be possible increase in morbidity and mortality rate due to COVID-19 which is a result of combination of diagnosis of cancer and comorbidities. The data that are been published showed that the patients with comorbidities are at increased risk who need intensive care unit, ventilators in priority and are prone to death. HCC is often accomplished by comorbidities and are susceptible to COVID-19 easily. In the review BCLC 0, A, B, C stage was recommended for HCC diagnosis and treatment. (Figure 2)

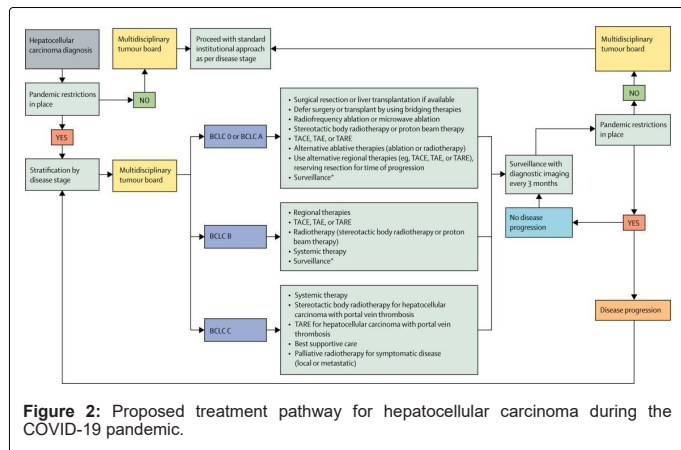


Figure 2 was proposed by the authors for the treatment of Hepatocellular Carcinoma (HCC) [3].

It is very much essential to focus on all kinds of health ailments during the COVID-19 pandemic. Liver being one of the prominent parts of the human body requires special attention as it may get deranged due to consumption of high dose drugs for the corona treatment. A work was carried out where in a panel called The Asia-Pacific Working Group for Liver Derangement was formed. This working group carried out the survey at Asia-Pacific region where the liver disease is more prevalent and with the special focus on the patients who are prone to the risk of liver derangement. The research focused on management of liver disorder during the pandemic considering various scenarios like: should pharmacological treatment be continued for COVID-19 patients with liver derangement? Is it necessary to get the liver function tested for all COVID-19 patients? the drug-drug interaction risk when patients are treated for liver disease and COVID-19, the recommended treatment and precaution for NAFLD (Non-Alcoholic Fatty Liver Disease) patients who are exposed to COVID-19, managing HCC patients during the pandemic, carrying out screening for COVID-19 patients, the safety and precautionary measures that has to be taken for patients in case of liver transplantation and the care that has to be taken after transplantation, whether there is a requirement of admitting the cirrhosis patient into intensive care unit if at all he develops respiratory disorder due to COVID-19. Since COVID-19 is a new pandemic, the authors in the study needed more data for better understanding of COVID-19 impact on liver and its adequate management [4].

The COVID-19 outbreak not only have affected immediate treatment for critical medical conditions, but also made huge difference in medical education and practice as well. A study focused on discussing the impact of COVID-19 on medical and gastroenterological education. With the rapid spread of pandemic, the whole education system in many contagious areas encountered compulsory shutdown of in-person activities to conform with social distancing. Huge number of student population stopped their participation in educational field. The institutes and universities had to suspend their in-person teaching and switch to online coaching to ensure continuity of the education. The COVID-19 demanded restructuring of medical education. Apart from critical oncological and cases with urgent requirements, elective procedures like surgical intervention, outpatient visits were reduced and eliminated. This also affected faculty interns, medical practitioners, and medical students from the area of gastroenterology from gaining more knowledge through regular case studies and practice. The practitioners in charge of emergencies like gastrointestinal bleeding, end stage liver disease etc., continued to serve. The paper suggested two solutions for effective implementation of endoscopic training in the COVID-19 era. First one is the augmentation of virtual training, webinars by specialists which can improve the theoretical knowledge of endoscopy. The second suggestion was a proposal to implement simulation-based training. The disruptions can be reduced by undertaking contingencies [5]. COVID-19 being declared as global pandemic, has changed the priorities in treatment of many diseases. A work was carried out which gave the importance for surveillance of HCC in Chronic Hepatitis B (CHB) virus infected patients. The work gave outcomes that must be considered as guidance in the current pandemic. Chronic hepatitis B infection is one of the prominent reasons and risk factor for development of HCC. HCC is most noted with highest influence in Africa and Asian regions. HCC can occur because of various components such as cirrhosis, CHB, and underlying liver damage. As HCC is a result of Hepatitis B virus (HBV) which is an oncogenic virus, it can transpire even in the absence of cirrhosis and advanced liver damage. The article highlighted the significant clinical facets in terms of Chronic hepatitis B (CHB) virus and Hepatocellular Carcinoma (HCC). The work discussed the ongoing espionage guidelines and risk stratification models that can be developed for CHB patients thereby limiting the initiation of HCC by CHB. The work also overviewed the influence of COVID-19 infection on the HCC and the lessons to be learnt from the crisis [6]. COVID-19 is linked to Severe Acute Respiratory Syndrome Corona Virus 2 (SARS-CoV-2) which marked by the droplet contamination from expeditious man-to-man transmission. A review was carried out where in medical records of 1524 patients from a hospital in Wuhan, China was studied. The data included clinical, demographic and treatment information of patients who were admitted in Medical Oncology and Department of Radiation. The reviewers gave a hypothesis that cancer patients are more vulnerable to the SARS-CoV-2 viral epidemic and the poor immune system of the patients also contributes to the disease progression. Most of the cancer patients exposed to the pandemic were more than 60 years with multiple comorbidities. The number of visits of the cancer patients to the hospital resulted in increase in the infection. The work proposed that vigorous actions to be taken minimize the visiting frequency of the cancer patients with the ongoing pandemic. The authors suggested that proper protocols should be followed to isolate the cancer patients requiring treatment that can reduce the risk of SARS-Cov-2 infection [7].

A working group of Japan Association of Molecular Targeted Therapy (JAMTT) for HCC, gave the guidelines for treatment of HCC in

COVID-19 outbreak [8]. Treatment varies according to the stage of HCC and various other factors and scenarios. The treatment prioritized by scrutinizing the situation and the health condition of the patient [9]. Cancer prone patients are at higher risk of getting affected by COVID-19 as their immune system is weakened because of anticancer treatments such as chemotherapy and other high dose medicines [10]. They need to be treated in COVID-19-free hospitals. The working group discussed different scenarios that must be considered to carry out the therapy for HCC patients. Patients who need liver transplant and surgical resection may be taken on priority [11]. Patients should be tested for COVID-19 before surgery. Patient who have comorbidities are easily vulnerable to COVID-19, so they must avoid from resection and treated with medicines by postponing the surgery. Radiofrequency ablation (RFA) therapy can be carried out based on the tumor characteristics and admitted the hospital only in urgent case [12]. The patients can be treated with tumor suppression therapy instead if there is lack of necessary amenities in the COVID-19 free hospitals. Trans arterial chemoembolization (TACE) should be carried based on stage of tumor. It is mandatory to evaluate the risks, complications, and benefits of TACE before taking decision about the treatment. Patients who can take advantage of systemic therapy can be considered based on performance status [13]. The no of hospital visits can be reduced and visiting interval can be increased by treating them with telephone-based consultations. Hepatic arterial infusion chemotherapy (HAIC) can benefit the patients who are not responding to the systemic therapy or advanced vascular invasion. Patients with comorbidities cannot be considered for this treatment as they get easily exposed to COVID-19 infection. The JAMTT working group developed a CONTINGENCY GUIDE due to two reasons. First, there were shortage of resources in some areas of Japan and lack of in-patient beds to treat HCC patients due to rapid spread of COVID-19. Second, it was important to be prepared for the situation as the pandemic spreads rigorously thereby making it immensely essential to assess how to carry out treatment for HCC when there is decline of necessary services in healthcare centers [14]. With the surge in international public health emergency, cancer patients are special population who cannot be ignored. The immunity of cancer patients will be suppressed after undergoing multiple anti-tumor treatments and are more susceptible to SARS-CoV-2 infection. The data of 9 cancer patients who are infected by SARS-CoV-2 was collected from a hospital and studied. The disease was also called Novel Corona Virus Infected Pneumonia (NICP). The clinical characteristics of patients were analysed. The study indicated that severity of the disease is more in aged group and cancer comorbidity did not had direct link in extreme cases [15].

Conclusion

The work gave review about the influence of COVID-19 on HCC infected patients. The work discussed on the clinical characteristics, effects on liver enzymes, tumor characteristics which were affected by COVID-19 infection. The current survey explained the challenges being faced by healthcare industry in accommodating the HCC infected patients. HCC patients were easily vulnerable to COVID-19 infection due to lack of immunity as they undergo anti-cancer treatments along

with consumption of high dose medicines. Various case studies were carried out in the surveyed paper that gave protocols to administer cancer patients requiring immediate attention and thereby reducing the risk of exposure to infection. The current work assessed papers that delivered the approaches to manage the treatment of HCC and related liver derangements during COVID-19 pandemic.

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