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GUIDELINES

Liver transplantation and COVID-19 (Coronavirus) infection: guidelines of the liver transplant Society of India (LTSI)

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Abstract
The Liver Transplant Society of India (LTSI) has come up with guidelines for transplant centres across the country to deal with liver transplantation during this evolving pandemic of COVID-19 infection. The guidelines are applicable to both deceased donor as well as living donor liver transplants. In view of the rapidly changing situation of COVID-19 infection in India and worldwide, these guidelines will need to be updated according to the emerging data.

Introduction

COVID-19 infection is caused by the novel coronavirus named Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) that was first reported in Hubei, Wuhan province of China in December 2019 [1]. This illness is rapidly spreading throughout the world and more than 199 countries across the globe have been documented to have this infection. The World Health Organisation (WHO) declared COVID-19 as global Pandemic on March 11, 2020. There is a huge amount of emerging data almost on a daily basis which makes it difficult to summarise the information on a given time point.

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The disease transmission is primarily by human to human contact, with droplet route being the principal mode of spread [2]. Recent evidence has not completely ruled out the possibility of airborne spread [2]. In addition, the virus has been shown to be present in faeces even after the respiratory samples become negative [3]. Transmission has been shown to occur during the incubation period and from asymptomatic infected persons.

The estimated case fatality ratio thus far is approximately 2%, but the true ratio may vary [4]. Mortality appears to be age dependent, with the highest rates among older adults (Age 50–59: 1.3%, 60–69: 3.6%, 70–79: 8%, 80 + : 14.8%) [5].

General comments in relation to liver transplantation

There is a concern that immunocompromised patients are at a greater risk of morbidity and mortality due to COVID-19 infection, although data on liver transplant patients is limited at present [6]. It is anticipated that transplant recipients may have a greater viral burden and shedding resulting in greater infectivity and potential spread to other individuals, including healthcare workers. There is a risk of donor to recipient transmission of COVID-19, both from deceased donors and living donors. The risk of donor-derived infection would depend upon donor exposure, infectivity in the incubation period, degree and duration of viremia, and viability of the virus within blood or specific organ compartments [7].

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COVID-19 virus can remain viable and infectious in aerosols for hours and on surfaces up to days (depending on the inoculum shed) [8]. This raises the concern of nosocomial spread and superspreading events. In addition, patient-to-patient and patient-to-healthcare worker infection have been described. Whether COVID-19 can be transmitted parenterally is not known, nevertheless, screening of all blood donors should be done. Preventing transmission from an infected patient to a healthcare worker and vice versa is of great importance. Current recommendations are for both droplet and airborne precautions for infection control in the hospital setting. In general, for the society emphasis should be given on recommended preventive measures against COVID-19 namely social distancing, frequent hand washing, cleaning frequently touched surfaces, following cough etiquettes, etc.

The impact of immunosuppression in the post-transplant setting is currently not known and further data is needed before any specific recommendation can be made. It is expected that due to immunosuppression post-transplant, infected patients may have more intense and prolonged shedding of virus. This will also increase the risk of viral transmission among healthcare workers. Antivirals for COVID-19 will be available in very near future, and drug–drug interactions with immunosuppressive medications will also need to be considered.

Need for liver transplant guidelines in India

There is an immediate need of guidelines for liver transplantation in India, both in deceased donor (DDLT) and living donor (LDLT) centres. These guidelines were formulated following a consensus executive meeting of the Liver Transplant Society of India (LTSI) held on March 22, 2020. The guidelines have the approval of the LTSI executive committee. These guidelines have been incorporated as national guidelines by the Indian Council of Medical Research (ICMR) on March 28, 2020.

Guidelines for issues specific to liver transplant in India

It was decided to formulate working advisory for various situations that are encountered by the liver transplant centres with an emphasis on the issues that are unique to India.

A. Status of doing liver transplant.

This is among the most important issue as any liver transplant related activity not only involves the donor and the recipient, but it involves a whole lot of individuals including doctors, paramedical staff, nurses, and patient attendants. To minimise the risk of COVID-19 exposure in the hospital setting, it was decided that liver transplant will be done judiciously as per the following criteria:

1. Moratorium on all non-urgent transplants till April 14, 2020 (which is likely to change as per the evolving situation of COVID-19 in India).
2. Acute liver failure (ALF)—can be done as usual after medical therapy has failed. Standard indications for patient selection in ALF to be followed.
3. Acute on Chronic Liver failure (ACLF with organ failure—decision for transplantation should be based on individual centre's discretion. Standard indications for patient selection in ACLF to be followed.

B. Deceased donor liver transplant (DDLT).

1. Elective DDLT should be done only if donor is COVID-19 negative, and recipient is from the same city. Air travel should be avoided. However, with current National lockdown and a ban on both domestic and international travel, DDLT will need to be limited to the same city.

C. Living donor liver transplant (LDLT).

1. LDLT should be done for urgent cases after thorough counselling as LDLT imposes a risk on the healthy donor with hospital admission. LDLT also exposes the various potential donors who may need to be screened with the intent of liver donation.

D. Testing for COVID-19.

1. All donors (deceased and living donor) and recipients should be tested for COVID-19 at the time of urgent transplant. The testing should be done as per standard guidelines by the individual centres, and from approved laboratories. It is expected that the turnaround time for the test will be reduced shortly.

E. Immunosuppression strategy.

Although there is a concern that organ transplant patients may be at a higher risk of COVID-19 infection, there is no evidence as of now to modify the immunosuppression protocol. Standard immunosuppression should be followed in the post-transplant period till further data is available.

F. Follow up post-transplant.

1. Patients should follow up with their respective centres as usual. It is strongly encouraged that patient should avoid hospital visits for routine follow up and consult online via telemedicine.

2. However, those patients with post-transplant emergencies should attend hospital as usual and should be provided with necessary standard care by the transplant team.
3. Recipients with symptoms such as fever, cough and breathing difficulty should be evaluated for suspected COVID-19 infection as per the national guidelines.

G. Care of sick recipients on waitlist.

1. The management of recipients for various medical complications to be continued in the hospital, including ICU admissions.

H. Prophylactic medications for COVID-19.

1. At present, there is no recommendation for prophylactic medications or vaccinations for transplant patients. However, newer medications against COVID-19 are likely to be available soon.

I. Advisory for transplant recipients for COVID-19.

1. All transplant recipients should be sent an advisory from the respective transplant centre regarding various do's and don'ts for the prevention of COVID-19 infection.

J. Testing of transplant professionals.

1. This should be done selectively if there has been a positive case of COVID-19 in the concerned hospital.

Summary

These guidelines provide a direction to the transplant centres across the country to deal with liver transplantation during this evolving pandemic of COVID-19. The guidelines are applicable to both deceased donor as well as living donor liver transplants. However, it should be noted that the present situation of COVID-19 infection is changing rapidly in India and worldwide, and new data is emerging frequently. Hence these guidelines will need to be updated accordingly.

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