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Letter to the Editor

“Strategies of liver transplantation during the second wave - based on lessons learnt from the first wave of the SARS- COV2 pandemic”



March 2020 heralded an unprecedented healthcare situation in the form of COVID-19 pandemic. Travel restrictions were imposed allowing only the very sick to reach hospitals and healthcare geared up to cope with the pandemic. Indian Council of Medical Research (ICMR) advisory was to operate on emergencies only. The transplant community too evolved their treatment guidelines to cater to their patients [1]. Only severely decompensated patients suffering from Acute-on-Chronic Liver Failure (ACLF), Acute Liver Failure (ALF) and Hepatocellular Carcinoma (HCC) were scheduled for transplant as a delay in their surgery could have been detrimental. During this period from April 2020 to Nov 2020, only 75 living donor liver transplants (LDLT) were performed compared to 155 in the previous year during same period.

During this period, mandatory testing for SARS-CoV-2 was done prior to hospitalisation as well as prior to undertaking surgery. Several urgent transplants were deferred when their asymptomatic donors incidentally tested COVID RT-PCR positive on pre-operative evaluation. After two weeks of quarantine and two weeks of additional observation and evaluation for post COVID-19 sequelae the surgeries were rescheduled. One of these was a young girl with Caroli's disease with decompensated liver failure, prepared for ABO incompatible LDLT with induction therapy (rituximab) followed by plasmapheresis. A day prior to surgery, her donor (sister), asymptomatic otherwise was detected to have SARS-CoV-2 infection, on protocol testing, leading to a deferral of transplant. In the absence of any donor in the family or of deceased donor liver graft, the young girl's condition deteriorated as she developed recurrent episodes of cholangitis and sepsis requiring repeated hospitalizations. She was eventually transplanted after 7 weeks after repeating induction protocol.

Another five patients who needed an urgent transplant were detected COVID RT-PCR positive during their preoperative evaluation. Three of them recovered from COVID-19 and could be transplanted later. However, 2 decompensated and died without transplant. One liver transplant (LT) patient with fulminant fungal sepsis and multi organ failure also developed COVID-19 during the convalescent phase of surgery and succumbed to respiratory failure and sepsis on post operative Day (POD)70 despite intensive supportive management.

With the lifting of travel restrictions, a surge of patients with decompensated liver disease presented to the hospital. 110 LDLTs were done at our centre between December 2020 and March 2021. We are also now witnessing a large number of post transplant patients with SARS-CoV-2 infection as second wave is raging across India. Among the patients who underwent LT during this pandemic, 9 patients became infected with SARS-CoV-2. Five of these patients are being treated in our hospital, the others are under monitored care in home isolation. Two of them developed COVID-19 associated

pneumonia which was managed with prone ventilation and were tracheostomised. One of them has been discharged after recovery in three weeks while the other succumbed due to fulminant respiratory failure on day 10 of illness. Shortage and hence fluctuating oxygen supply is another problem that we are facing in the management of COVID patients with hypoxia. For immunosuppression CNIs (calcineurin inhibitors) were continued, steroids were given as per COVID-19 treatment protocol and mycophenolate mofetil was stopped in patients with moderately severe and severe COVID-19.

With the availability of vaccination for COVID-19, there is perhaps a need to encourage vaccination of post-transplant patients on immunosuppression, especially three months after transplant, once dose of immunosuppressive medications is reduced although experience with non-SARS-CoV-2 vaccines and data with COVID-19 vaccines has suggested poor seroconversion rates in transplant recipients and patients with liver cirrhosis [2,3].

Since there is no substantial data about the vaccine mediated immune effects on a transplant recipient, vaccinated post LT recipients need to be kept under close follow-up with regular testing of liver enzymes for 3-6 months to detect any immune mediated graft rejection [4]. Live virus-based vaccines should also be avoided as is the practice in other immunosuppressed patients [5]. There should be a policy to vaccinate all patients with CLD, as they are likely to decompensate on acquiring SARS-CoV-2 infection and those scheduled for transplant in order to develop sufficient immunity prior to transplant [4,6].

During the first wave of SARS-CoV-2 infection, immunosuppression had seemed to be protective against severe COVID-19 and mortality in transplant recipients. A higher mortality was seen with advanced age and comorbidities in these patients [7]. As pandemic is continuing our understanding of COVID-19 in transplant recipients and protective response of vaccination is still evolving and should improve with time.

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