

## Short Communication

# Evaluating Organ Donation and Transplantation during Covid-19 Outbreak

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In December 2019, a case of coronavirus disease 2019 (COVID-19) in Wuhan, China was reported for the first time [1]. There is no agreement on the origin of the virus and following its vast outbreak in Wuhan, the disease has spread to other countries and has currently turned into a pandemic in the world [2]. On February 18, 2020, the first case of COVID-19 was confirmed in Iran and two patients died in Qom, Iran. Following the rapid outbreak of COVID-19 across the country, the full capacity of most general hospitals was allocated to fighting the coronavirus outbreak. There were 245, 688 severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) cases and 11, 931 deaths in Iran by July 8, 2020 [3]. Organ transplants have become very restricted in many clinical centers following the outbreak of SARS-CoV-2 virus. One reason is restrictions implemented to protect donors, recipients, their families and the medical staff. Also, a limited number of the existing ICU beds for potential donors and the recipients might have an unpleasant impact on organ donation centers leading to reduction in the number of transplants [4].

Generally, the decrease in organ transplantation increased the mortality of candidates. Therefore, we need to study and evaluate the possible ways of proceeding with transplants [5].

Accordingly, elucidating a comprehensive protocol and guideline

for organ transplantation during COVID-19 outbreak is essential. Three protocols were devised by COVID-19 Donation & Transplant Committee of Transplant and Disease Treatment Center affiliated to the Iranian Ministry of Health. The protocol edited on March 11, 2020 and April 21, 2020 includes the followings:

1. Organ transplant in cities strongly hit by SARS-CoV-2 virus is forbidden. If an eligible case of brain death is located in a city with high prevalence of COVID-19, the patient would either be transferred to a city with a lower prevalence rate or would undergo the procedure in a hospital exclusively assigned for organ transplantation. Also, all potential organ donors and recipient are being tested for SARS-CoV-2 virus.
2. Non-specific tests including CBC and CRP as well as specific tests like PCR, lung CT Scan and consultation for infectious diseases would be conducted for eligible brain death patients to find out if they have already developed SARS-CoV-2 virus or if they are transmitters. All tests should be conducted 72 hours prior to organ donation and if it gets longer, the tests would be repeated. Moreover, prospective donors with  $SPO_2 < 93\%$  suspicious radiographies would not be included as eligible donors.
3. All suspicious and confirmed cases of COVID-19 will be

Table 1: Total number of organ transplantation (N=94) during 5 months (21 December-20 May).

Month	Dec 21 – Jan 19	Jan 20 – Feb 18	Feb 19 – Mar 19	Mar 20 – Apr 19	Apr 20 – May 20
No. of Brain death case managed	11	13	9	0	5
Total of organ transplantation	30	28	23	0	13
Kidney	18	16	12	0	8
Liver	10	12	9	0	4
Heart	2	0	2	0	1

omitted from the donors' list.

- Travel history and communications of donors should be examined during the past two weeks. In case of having had contact with a suspicious or confirmed case of COVID-19, the donor would be omitted from the list. Brain death donors with positive history of contacting a suspicious or confirmed case of COVID-19 during the past two weeks would be considered borderline and placed on the list for emergency transplants.
- Pancreatic, intestinal and lung transplantations are forbidden during COVID-19 outbreak. Moreover, kidney transplants from living donors will not be allowed temporary. (Currently, the prohibitions are removed but healthcare protocols should be observed). Only liver transplants in acute liver cases and patients with MELD>20 and life-threatening complications are permissible. Heart transplant can also be conducted for patients with Intermix [1,2,6].

Until now, there has been no hospital exclusively allocated to transplantation and transplant donors/recipients in Iran; however, specific hospitals have transplant wards that are absolutely isolated, have their own specialized medical staff and have no contact with SARS-CoV-2 virus patients.

Organ donation was restricted at Organ Procurement Center of Sina Hospital upon the outbreak of COVID-19 in Iran. However, during the first months (Feb 19-Mar 19) of the epidemic in Iran, this center managed to complete 9 brain death cases and deliver them to the organ donation phase; also, a total of 23 organs were donated. Nevertheless, organ transplants were temporarily cancelled according to Transplantation Society (TTS) recommendations and high prevalence of COVID-19 and since April 20, 2020, the transplantation procedures are resumed [5]. Number of donations by organ type is demonstrated in Table 1.

Information on columns 1 and 2 refers to the pre-Covid19 outbreak reporting the activities of the center in normal conditions. Fortunately, none of the cases undergoing transplantation in the first month of COVID-19's outbreak was infected.

The recipients were quarantined during their hospital stay and only one family member (with negative tested for covid and without symptoms for during 2 weeks ago) was allowed to stay with the patient. Furthermore, physicians or medical staff with suspected COVID-19 could not visit the recipients [6]. Some other activities of Transplant and Diseases Management Center to support patients undergoing transplant surgery are:

- Accepting previous prescriptions of patients by drug stores to prevent their repeated referrals to physicians;
- Communicating with all patients and providing them with SARS-CoV-2 preventive instructions.
- Sending patients' medications to their houses (by some centers);
- Providing remote care for patients, if required.

Recipients undergoing transplant surgery would be followed up remotely via phone calls following their discharge from hospital and in case there were suspicions of COVID-19, required measures (such as RT-PCR, chest CT Scan and serology test) would be taken to make a definite diagnosis and the patient would be treated by a medical team consisting of an infectious diseases specialist and a nephrologist.

The COVID-19 Committee decided to temporarily restrict organ donation. This decision was made to support and protect lives of recipients, their families and the medical staff, though the consequences are inevitable and if the situation continues in the same manner, other decisions should be made because transplant waiting lists would get longer.

On the other hand, in order to support patients on the transplant

waiting list, recipients' coordinator contacts are given to all patients and in case of a problem, the coordinators are ready to assist the patients at any time.

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