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Editorial

Organ donation and COVID-19: Should precautionary principle still apply?



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Since March 2020, the COVID-19 pandemic has had a very heavy impact on health systems worldwide. During this time, organ procurement and transplantation activity has also declined sharply with a considerable impact on the waiting list for organ transplantation (OT) [1].

Several factors may explain the decline in transplantation activity:

- Decrease in the number of organ donors and recipients

Due to a massive influx of COVID-19 patients, some hospitals have had to resort to triage [2], to the detriment of the admission in intensive care of both potential donors and perioperative transplant recipients.

- Risk of COVID-19 severity

The immunosuppressive treatments used for OT seem to put recipients at particular risk of severe COVID-19 disease [3]. Despite descriptive publications regarding COVID-19 in organ recipients include heterogeneous patients, the rate of severe COVID-19 disease seems to be far higher than in the general population: 15–100% of COVID-19 organ recipients need an hospitalisation in intensive care units, 20–56% require mechanical ventilation, and 5–40% die [4]. It appears to be a maximum risk in the early phase of transplantation, during immunosuppressive induction with lymphocytes depletion [5,6].

- Risk of contamination of recipients

Contamination of recipients with SARS-CoV-2 can occur from two ways: from external transmission during the

hospitalisation required for transplantation [7] or from the infected transplanted organ. The risk level of donor-recipient transmission is still unknown, but the risk of severe post-transplant COVID-19 was considered to outweigh the expected benefit of the transplant.

For this last reason, many national transplant agencies have decided to suspend the use of organs from potential organ donors with symptomatic COVID-19 or SARS-CoV-2-positive RT-PCR test around the world. Such a decision is a direct application of the *precautionary* principle in relation to the significant scientific uncertainty regarding the probability of viral transmission by the infected donor and the potential severity of the disease developed by the infected recipient. If the probability of transmission were known, the *prevention* principle would apply, requiring the promotion of actions to reduce that probability below an acceptable risk threshold.

The application of the precautionary principle is justified here by the proven plausibility of such viral transmission during transplantation. But the application of the precautionary principle must be limited to risks that are unacceptable [8]. Is the contamination of a recipient *de facto* unacceptable under any circumstances? Unacceptability refers to values and expresses a moral judgment. Who has the authority to make such a judgement: society, national transplant agencies, the donor physician and/or the transplant surgeon, the informed patient who refuses to consent to take such a risk for himself?

It should not be forgotten that, unlike the ecological dangers to future generations, for which the precautionary principle was initially established, the danger of viral transmission during organ transplantation does not concern the whole current population or future generations, but at most a few people who are sufficiently ill to require an organ transplant. In these circumstances, it is appropriate to consider the proportionality of a systematic application of a generalised precautionary principle to all COVID-19 positive donors and, consequently, to all patients awaiting transplantation. From this point of view, could we not rather reflect upon applying a principle of prevention of the risks of unacceptable and unaccepted contamination by the recipients, by collecting their consent beforehand, following the example of patients who consent to receive a graft from a circulatory-dead donor rather than from a brain-dead donor?

To reduce uncertainty, the search for elements to understand the situation is the responsibility of the researcher. Medical

literature describes several cases or case series of solid OT from donors with a recent history of COVID-19 or SARS-CoV-2 positive RT-PCR test. These data of low methodological quality and very low level of evidence are difficult to compile in a comprehensive manner and to synthesise.

The systematic review of the literature by Martinez-Reviejo et al. [9] provides a global view of all published experiences worldwide. The case reports and case series are heterogeneous and include different types of organs, donors and recipients, but the results are encouraging by showing that transmission of the virus during organ transplantation from an infected donor is not systematic. However, the publication of multiple clinical cases in the form of a systematic review does not affirm anything other than a less than 100% risk of transmission. No well-constructed prospective clinical trials including COVID-19 organ donors are available. Therefore, there is no data that allow national transplant agencies to move from a precautionary to a prevention principle.

In order to sustain transplantation activity, we urgently need data regarding the appropriateness of COVID-19 positive organ donors. Data from the systematic review of the literature encourage the development of prospective protocols. Several questions remain, such as the risk according to the different variants, the intensity of viral replication, the efficacy of immunisation by vaccination before transplantation, the efficacy of prophylaxis by monoclonal antibody treatment. . . All of these issues are additional directions that we need to explore. Future trials will clarify the donor CT threshold value of the COVID-19 RT-PCR and the circulating antibodies level to minimize the risk of transmission. Recipients could be selected based on the level of antibodies produced in response to prior vaccination, and could receive prophylactic treatment during and after transplantation to minimize the risk of developing severe viral disease.

The benefit-risk ratio about COVID-19 organ donor must be continuously reassessed, taking into account recent data of literature, the evolution of the pandemic, recipient immunisation, therapeutic advances and loss of chance on waiting list.

Conflicts of interest

The authors have no conflict of interest to declare.

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