

## LETTER TO THE EDITOR

# Management of heart transplant candidates in the time of COVID-19 pandemic: Looking for answers

To the Editor:

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)-associated coronavirus disease 2019 (COVID-19) pandemic is dramatically challenging the healthcare system. In the absence of optimal testing and effective treatments, physicians are forced to make decisions relying on scarce or even controversial evidence. Setting of solid organ transplant (SOT) candidates and recipients of clinical and organizational issues.

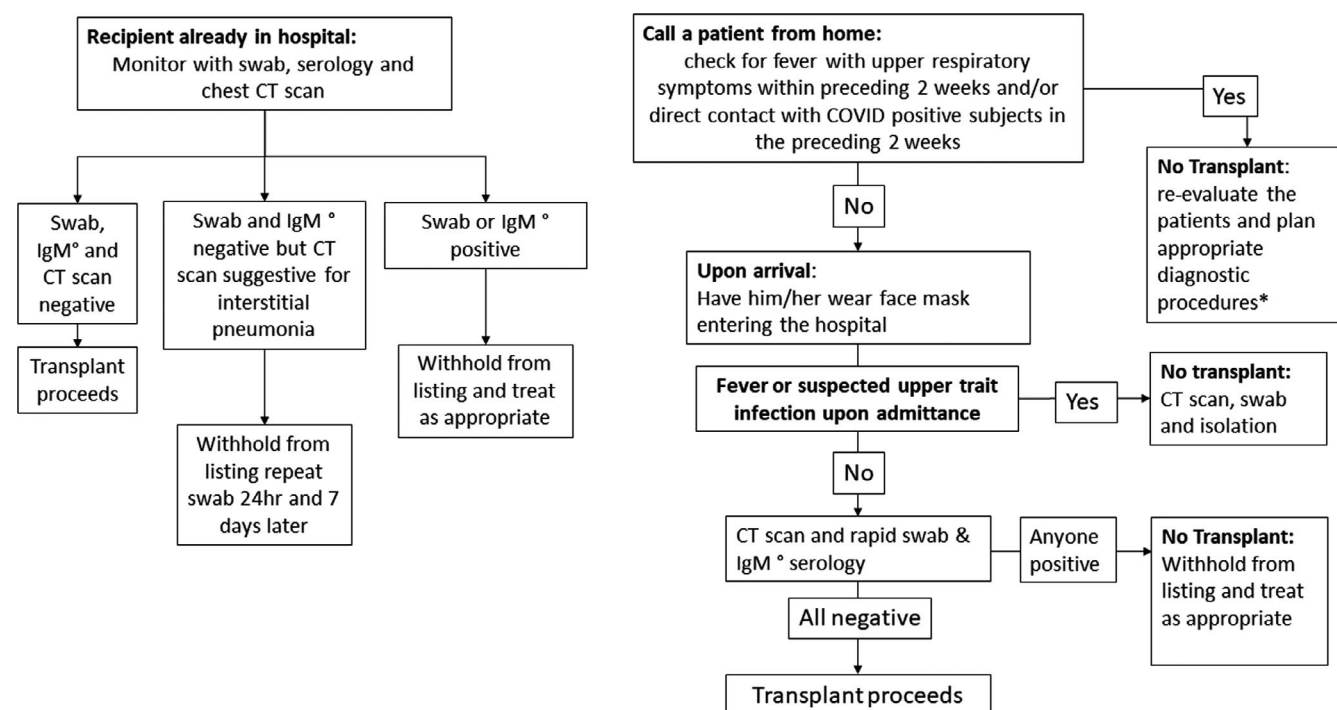
Recently, we have been consulted for heart transplant (HT) waiting list re-admission of a patient exposed to COVID-19 cluster and with nonspecific alterations on chest imaging.

Briefly, the patient was admitted on January 2020 at Cardiology Unit for severe heart failure requiring left ventricular assist device as bridge to transplant. Postoperative period was complicated by cardiac tamponade needing surgical revision with subsequent refractory severe right heart failure. Meanwhile, SARS-CoV-2 infection spread rapidly in the country and at the end of March, Italy developed the highest prevalence of confirmed COVID-19 cases outside

China. During the same period, the patient was re-evaluated for being reactivated in the waiting list. Although the patient had his usual dry cough and laboratory tests were not suggestive of infection, a screening chest-CT scan showed bilateral ground-glass opacification [Supporting document]. Contact with documented cases of COVID-19 had occurred during the previous week such investigations were performed.

We set a 1-week period of close in-hospital clinical and laboratory observation, under preemptive infection control precautions, during which consecutive nasopharyngeal swabs (NPS) on day 1, 4 and 7 were performed. Serological tests were not available at that time. Since clinical and laboratory findings remained unchanged, NPS were negative, and CT findings improved, the patient was re-activated in the waiting list and underwent HT few days later. Currently, the patient is on day +26 after HT in good clinical conditions, with no signs of lung infection and negative serology.

From this experience, we drew an algorithm for the potential management of HT candidates during COVID-19 outbreak (Figure 1).



**FIGURE 1** Proposal for clinical, instrumental, and laboratory algorithm to rule out active SARS-CoV2 infection in heart transplant candidates during hospitalization, or when called from home at the moment of organ availability, in the context of COVID-19 pandemic


Currently, the Italian Transplant Authority according to WHO indication<sup>1</sup> recommends donor screening by RT-PCR on NPS or bronchoalveolar lavage. Unfortunately, no specific indications are available for candidates.<sup>2</sup> Our case highlights some open questions regarding the management of SOT patients during COVID-19 pandemic. First, symptom-based screening alone can fail to detect a high proportion of infected patents. Moreover, clinical evaluation may be unfruitful to discriminate infection in patients with end-stage heart/lung disease, as these patients report respiratory symptoms that can be confused with COVID-19.<sup>3</sup> Second, interpretation of radiological findings in patients with preexisting cardio-pulmonary conditions may be difficult.<sup>4</sup> Third, rate of false negative NPS results may be up to 40%.<sup>5</sup> Therefore, to repeat the test seems to be advisable. However, the optimal number and the timing of repeating samples have to be established. In addition, reliability and role of serological assays in this setting have to be investigated yet.<sup>6</sup> Finally, incidence and clinical features of early posttransplant COVID-19 are unknown, as well as the efficacy and safety in this setting of the currently most promising antiviral and immunomodulatory drugs, such as remdesivir and tocilizumab.<sup>7</sup> Therefore, which are the elements to consider in balancing risk and benefit of transplantation during COVID-19 pandemic, and which is the optimal timing to allow transplantation after suspected or confirmed COVID-19? These are troublesome questions that transplant physicians are asked to answer. Sharing experiences may help in the management of these issues.

## KEYWORDS

COVID-19, heart transplant, solid organ transplant, transplant recipients

## DISCLOSURE

The authors of this manuscript have no conflicts of interest to disclose as described by the *American Journal of Transplantation*.

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