LETTER TO THE EDITORS

Successful kidney transplantation after COVID-19

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To the Editors,

COVID-19, the ongoing pandemic caused by SARS-CoV-2, has had a dramatic impact on transplant systems in the most affected countries, namely Italy [1].

Preliminary data indicate that patients on hemodialysis therapy as well kidney transplant (KTx) recipients appear to be particularly susceptible to COVID-19 illness due to immunosuppression and coexisting conditions [2,3].

Currently, there is a lack of data concerning the biologic behavior, recurrence, and long-term morbidity of COVID-19 and there are no experiences of transplants in patients who have previously had COVID-19.

We report what is likely to be the first case of a KTx performed after a recent COVID-19 illness.

A 28-year-old Hispanic woman who had been suffering from membranous glomerulonephritis associated with arterial hypertension was on hemodialysis for eight years and had been placed on the waiting list for KTx.

On 28th of March, as a result of her partner developing COVID-19 and requiring hospitalization, she underwent a nasopharyngeal swab RT-PCR test which resulted SARS-CoV-2 positive. The only symptom was a mild dry cough with the chest X-ray appearing unremarkable.

The same day the patient was placed in isolation quarantine at home and was temporarily removed from our waiting list. Treatment with hydroxychloroquine, clarithromycin, and prednisone was administered for a week.

Two consecutive nasopharyngeal swabs RT-PCR tests resulted SARS-CoV-2 negative on 12th of April and 14th of April, respectively. On April 28th, after two more weeks of being asymptomatic, the patient was considered to have recovered from COVID-19 and was readmitted to the waiting list.

On the 11th of May, a compatible left kidney from a 46-year-old deceased donor was offered.

An RT-PCR test of bronchoalveolar lavage fluid (BALF) of the donor was SARS-CoV-2 negative.

Once we had verified that the recipient pre-operative RT-PCR nasopharyngeal swab was SARS-CoV-2 negative, we proceeded with the intervention. A standard straightforward kidney transplant was performed.

Immunosuppression included basiliximab and prednisone for induction, and tacrolimus and mycophenolate for maintenance.

On POD 5, the patient developed a Escherichia coli blood infection which resolved after ten days of i.v. ceftriaxone.

As shown in Table 1, we detected a viral seroconversion of the IgG while the IgM remained negative; all the swabs collected as well the plasmatic viral load persisted as SARS-CoV-2 negative.

On POD 15, the patient was discharged and she remains in healthy condition with normal renal function and was COVID-19 free after 60 days of follow-up.

Besides providing information regarding a KTx after COVID-19 recovery, we would like to underline some aspects that complicated our decision process to proceed with the transplant.

On the one hand, we felt that it was crucial to minimize the wait list suspension as we were dealing with a young patient, generally known to have longer wait list times and better outcomes with respect to older and sicker patients.

On the other hand, because the viral shedding time may be longer in dialysis patients with respect to healthy patients, we felt it was safer to wait four weeks before considering the patient potentially ready to receive a transplant, rather than the two weeks conventionally used for recovery in the general population.

Another crucial issue was the risk of misdiagnosis of persistence and/or reactivation of COVID-19 due to the limited accuracy of the RT-PCR test which is able to detect SARS-CoV-2 in only 50–70% of the

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Table 1. Main clinical features

	Tx day	POD 4	POD 10	POD 16	POD 20
SARS-CoV-2 RT-PCR nasopharyngeal swab	Negative	Negative	Negative	Negative	Negative
SARS-CoV-2 RT-PCR urine swab	–	Negative	–	Negative	–
SARS-CoV-2 RT-PCR rectal swab	–	Negative	–	Negative	–
SARS-CoV-2 RT-PCR blood	–	Negative	–	Negative	–
SARS-CoV-2 IgG	–	Positive	–	Positive	–
SARS-CoV-2 IgM	–	Negative	–	Negative	–
White-cell count	7.71×10^9/l	7.21×10^9/l	7.10×10^9/l	9.06×10^9/l	10.6×10^9/l
Lymphocyte count	0.39×10^9/l	0.45×10^9/l	0.46×10^9/l	0.43×10^9/l	0.41×10^9/l
Platelet count	229×10^9/l	149×10^9/l	169×10^9/l	195×10^9/l	219×10^9/l
CD3	–	$469 \times mm^3$	–	$477 \times mm^3$	–
CD4	–	$232 \times mm^3$	–	$274 \times mm^3$	–
CD8	–	$235 \times mm^3$	–	$198 \times mm^3$	–
IL-6	–	5.6 ng/l	–	5.6 ng/l	–
Ferritin	–	370 µg/l	–	137 µg/l	–
D-dimer	–	502 µg/l	–	644 µg/l	–
C-reactive protein	–	8 mg/l	–	<3 mg/l	–

nasopharyngeal swabs, as well the increased susceptibility to SARS-CoV-2 infection in transplant patients owing to induction therapy and immunosuppressive treatment [4].

Finally, because the neutralizing activities of the detected IgG antibodies are still unknown [5], we cannot exclude the risk of SARS-CoV-2 re-infection.

Further studies with longer follow-up will better clarify our initial findings.

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Conflict of interest

The authors declare no conflict of interest.

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