

SARS COV-2 INFECTION IN A RENAL-TRANSPLANTED PATIENT: A CASE REPORTGoran Topić^{*1,4}, Biljana Topić^{2,4} and Vlado Đajić^{2,4}¹Internal Medicine Clinic, Department of Nephrology, University Clinical Center of Republic of Srpska, Banja Luka.²Ophthalmology Clinic, University Clinical Center of Republic of Srpska, Banja Luka.³Neurology Clinic, University Clinical Center of Republic of Srpska, Banja Luka.⁴University of Banja Luka, Faculty of Medicine.***Corresponding Author: Goran Topić**

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ABSTRACT

Organ transplantation is currently an established line of treatment for end-stage organ disease. Transplant patients are at a high risk of infection due to multiple risk factors, including immunosuppression, underlying CKD, and associated comorbidities. Therefore, we report case of kidney transplant recipients infected with COVID-19. Management included supportive treatment (intravenous fluid therapy, monitoring renal function, and symptomatic treatment with or without ward-based oxygen therapy depending on oxygen saturation) and discontinuation of the antiproliferative immunosuppressive drugs.

KEYWORDS: COVID-19, Transplant recipients, Kidney transplant.**INTRODUCTION**

Coronaviruses are viruses from the subfamily Orthocoronavirinae, the family Coronaviridae and the order Nidovirales.^[4,5] Single-stranded, positively directed RNA genome and helically symmetric nucleocapsid were enveloped. The size of the genome is between 26 and 32 kilobases - the largest for an RNA virus. The name "coronavirus" comes from the Latin word corona, which means "crown" or "halo", and refers to the characteristic appearance of viral particles (virions): they have a rim resembling the crown or corona of the Sun. SARS-CoV-2, formerly known as 2019-nCoV, was first identified in December 2019 in the city of Wuhan in the Chinese province of Hubei when 41 people contracted pneumonia for no apparent cause. On February 11, 2020, the World Health Organization caused a new coronavirus called coronavirus disease 2019, short for COVID-19 (Coronavirus disease 2019). Organ transplantation is currently an established line of treatment in the final stages of organ disease. As recipients are under chronic immunosuppression, they become vulnerable to multiple infectious agents, especially emerging infectious diseases.

CASE PRESENTATION

A 43-year-old kidney transplant patient in 2013, donor father. Hypertonic since 2012. He was on a chronic hemodialysis program for a year before the transplant. Problems present at the admission from 29.07.2020. year, elevated body temperature to max 39 C with dry

cough, chest tightness, diarrhea, without admixture of blood and mucus. From regular therapy use Advagraf tablets 3mg 1x1; Lopril tablets 10mg 1x1, Allopurinol 100mg 2x, Myfortic tablets 360mg 2x1. Immediately after admission, therapy with Myfortic tbl was discontinued. Chest X-ray 30.07.2020. Inhomogeneous consolidation of the lower lung field of the right lung and paracardially the left, in the lower lung field of the left lung. Chest CT 07.08.2020: Due to higher values of D-dimer, CT was performed according to the pulmonary thromboembolism program, which excludes the suspicion of the same. Laboratory data are reported in Table 1. Since no respiratory symptoms were reported, the patient was discharged on August 11, 2020, in good general condition, recovered, afebrile. During hospitalization treated with antibiotics (Azithromycin amp IV then tbl per os with Ceftriaxone amp IV) with Hydroxychloroquine (Plaquenil) according to the scheme with the consent of the patient; corticosteroids according to the protocol for Covid infection; infusion solutions; probiotic (Bulardi 250 mg 2x1); ulcer (Controloc tbl. 20 mg 2x1) and thromboprophylaxis (Clexane 0.4 ml s.c. 1x1); O₂ as needed; antipyretics as needed and regular therapy as recommended by a nephrologist (Advagraf tbl 3mg 1x1; Lopril tbl. a 10mg 1x1, Allopurinol 100mg 2x1

Table 1: Laboratory findings are shown in the table.

	29.07.	02.08.	07.08.	10.08.
WBC	5,95	9,03	7,09	6,95
RBC	4,72	4,3	4,08	4,21
HGB	137	122	119	128
HCT	0,42	0,38	0,36	0,4
PLT	285	295	262	270
Ly %	7,2	11,3	29,2	18,2
Glucose	8,2	8,8	6,1	5,8
CRP	332,8	38,3	14,7	5,2
AST	79	58	45	18
ALT	94	60	35	11
LDH	353	220	182	141
Urea	18,1	22,1	12,1	8,7
Creatinine	249	159	116	98
Potassium	5,3	4,8	4,7	4,8
D-dimer	0,79	4,32	11,1	2,22
Tacrolimus	10,8	7,8	6,1	6,1
pH	7,36	7,41	7,41	7,4
pO2	9,75	9,4	10,5	12,1
pCO2	3,8	4,1	4,8	5,2
ABE	-8	-4	-3,5	-2,1

DISCUSSION

In our center since the beginning of the pandemic, which began in our institution on March 8, 2020. with the admission of the first patient, over 1500 COVID-positive patients with clinical manifestations were hospitalized. Of that number, only four patients had an organ transplant (kidney). With this case report, we presented a patient with a kidney transplant. At the reception, the patient had elevated CRP and lymphopenia, an increase in nitrogenous substances. Our protocol involves discontinuation of antiproliferative immunosuppressive therapy. The patient received other supportive and symptomatic therapy as indicated. Although the experience of other centers indicates that a shorter stay in the hospital reduced the rate of spread of the infection, in this case it was not possible, because the patient was still COVID positive for eight days from the day of admission.

CONCLUSION

Transplant patients are at a high risk of infection due to multiple risk factors, including immunosuppression, underlying CKD, and associated comorbidities. In renal transplant recipients with COVID-19 who develop extensive pneumonia, which may require intubation, our current therapeutic approach involves stopping immunosuppressive therapy (using steroids as the only antiretroviral drug) to promote a specific antiviral immune response. Maintaining immunosuppression could be useful in stopping or at least alleviating the "cytokine storm" that usually leads to a poor outcome in these patients and, secondly, in preventing transplant rejection. It can be hypothesized that solid organ transplant patients might be protected by

immunosuppressive therapy that might dampen the cytokine storm.

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