

The Second Wave of COVID-19 Disease in a Kidney Transplant Recipient Cohort: A Single-center Experience in Belgium

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The first wave of coronavirus disease 2019 (COVID-19) was particularly dramatic for kidney transplant recipients (KTRs) around the world.¹ A recent European registry study showed 28-day mortality and intensive care unit (ICU) admission rates at 22% and 21%, respectively.² In the United States, a multicenter cohort study revealed a 28-day mortality rate at 18%.³ Fortunately, patients from our tertiary KT center were less impacted with mortality and ICU admission rates at 11% and 11%, respectively.⁴

Like many countries, Belgium is currently facing its COVID-19 second wave. The present work aims to assess its impact on our KTR cohort and compare it with the first wave.

Since the onset of the second wave, 53 KTRs were tested positive for SARS-CoV-2 using polymerase chain reaction on nasopharyngeal swab, of whom 27 (51%) required hospitalization. Baseline characteristics and clinical presentation of the disease in hospitalized patients were roughly similar, although patients from the second wave had more hypertension ($P=0.021$) and multiple comorbidities ($P=0.031$). Their C-reactive protein level at

admission was slightly higher ($P=0.138$), and they were more frequently treated by a combination of tacrolimus-mycophenolate steroids ($P=0.064$) (Table 1). In both waves, a policy of antimetabolite cessation and reduction of calcineurin inhibitors trough levels was applied in all patients. Hydroxychloroquine was given in the first wave to 83% of patients and to none in the second one. Sixty-three percent of KTRs from the second wave received dexamethasone (6 mg/d for 5–10 d), including all patients in ICU. The rate of ICU admission for mechanical ventilation was 4-fold higher in the second wave (44% versus 11%, $P=0.031$), while the rate of death was not statistically different ($P=0.445$).

TABLE 1.
Hospitalized kidney transplant recipients during the first and second waves

Baseline characteristics	First wave (N=18)	Second wave (N=27)	P
Age, y (ranges)	57 (41–73)	63 (28–88)	0.502
Women, n (%)	10 (56)	11 (41)	0.374
Race, n (%)			
White	11 (61)	16 (59)	1
North African	4 (22)	6 (22)	1
Asian	1 (6)	2 (7)	1
Black	2 (11)	3 (11)	1
Delay from KT, mo (ranges)	89 (1–402)	97 (15–474)	0.808
ACE inhibitor, n (%)	10 (56)	17 (63)	0.758
Comorbid conditions, n (%)			
Hypertension	14 (78)	27 (100)	0.021
Diabetes	4 (22)	11 (41)	0.333
Cardiovascular	4 (22)	10 (37)	0.343
Obesity	4 (22)	7 (26)	0.716
Active malignancy	1 (6)	1 (4)	1
Dementia/intellectual disability	2 (11)	1 (4)	1
>2 comorbidities	2 (11)	10 (37)	0.031
Immunosuppression, n (%)			
Tac/MPA/St	7 (39)	19 (70)	0.064
Tac/St	2 (11)	3 (11)	1
Csa/MPA/St	2 (11)	2 (7)	1
Others	7 (39)	3 (11)	0.064

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H.G., A.D., and N.K. participated in research idea, study design, and data analysis. H.G. participated in data acquisition. A.S. and B.K. performed PCR analysis. H.G., A.D., A.S., B.K., T.D., A.B., J.D.G., L.B., J.-C.Y., E.G., and N.K. took care of the patients. All authors discussed and reviewed the article.

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TABLE 1. (Continued)

Baseline characteristics	First wave (N = 18)	Second wave (N = 27)	P
Clinical presentation, n (%)			
Fever	14 (78)	12 (46)	0.065
Cough	12 (67)	14 (54)	0.760
Dyspnea	7 (39)	14 (56)	0.543
Digestive symptoms	5 (28)	8 (31)	0.753
Neurologic symptoms	3 (16)	1 (4)	0.286
	N = 15	N = 20	
Radiological presentation on CT, n (%)			
Mild	3 (20)	4 (20)	1
Moderate	8 (53)	5 (25)	0.094
Extensive	1 (7)	4 (20)	0.634
Severe	2 (13)	6 (30)	0.684
Critical	1 (7)	1 (5)	1
Laboratory parameters at admission (ranges)			
Baseline eGFR, mL/min/1.73 m ²	45 (15–95)	49 (8.76–89)	0.465
C-reactive protein, mg/L	56 (1.5–314)	135.1 (31–376.6)	0.138
Treatment, n (%)			
Hydroxychloroquine	15 (83)	0	
Dexamethasone	0	17 (63)	
Outcomes			
ICU rate, n (%)	2 (11)	12 (44)	0.031
Death rate, n (%)	2 (11)	6 (22)	0.445
Follow-up, d (ranges)	18 (5–30)	21 (6–40)	0.168

Quantitative and categorical data were compared using the Mann-Whitney and Fisher exact tests, respectively.

ACE, angiotensin-converting enzyme; Csa, cyclosporine; CT, computerized tomography; eGFR, estimated glomerular filtration rate; ICU, intensive care unit; KT, kidney transplantation; MPA, mycophenolate; Tac, tacrolimus; St, steroids.

Our cohort of hospitalized patients is too small to build strong conclusions. Nevertheless, we have observed a higher

rate of ICU admission during the second wave. This difference may be linked to more comorbidities affecting patients during the second wave. It is worth noting that our patients were massively informed (by media and ourselves) at the onset of the first wave to adopt precautionary measures, including mask wearing, physical distancing, avoiding social contact, etc.⁴ These measures might have been less applied during the second wave by the patients or their close family. Despite the high rate of ICU admission, survival of KTRs during the second wave seems unaffected. The only difference regarding patient management is the use of dexamethasone in the second wave versus hydroxychloroquine in the first one. This suggests that, as in the general population,⁵ dexamethasone may result in lower mortality rate among hospitalized KTRs requiring oxygen or invasive ventilation.

Larger studies are needed to properly assess the outcomes of the second wave among KTRs and to address the potential benefits of dexamethasone in KTRs with severe COVID-19 disease.

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