COVID-19 Among Kidney Transplant Recipients: A Look Into Latin America

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A recent systematic review on coronavirus disease 2019 (COVID-19) in kidney transplant recipients (KTRs), published on July 1, 2021, in the *American Journal of Transplantation*, reported 74 studies published between March 2020 and January 18, 2021, accounting for 5559 recipients exclusively from countries in Europe (51%), the United States (34%), and Asia or the Pacific (14%) but none from Latin America. This snapshot of the first wave of the pandemic showed a high rate of hospitalization (84%), acute kidney injury (60%), and mortality (24%) from COVID-19.[1]

Latin America consists of 20 low- and middle-income countries and is home to >660 million inhabitants. The pandemic affected >45 million people and led to >1.5 million deaths, with the health systems collapsing under the volume of patients, despite strict quarantine policies. Moreover, the economic implications have exacerbated the high levels of inequality. By 2019, Latin America performed an average of 22 kidney transplants per million population with large geographic disparities but 3 countries performing >30 procedures per million population.[2] In 2020, there was a 32% to 64% reduction in the number of procedures, which was significantly worse than the global averages of 19% in developed countries.[3]

We sought data on severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection among Latin American KTRs by conducting a search on PubMed Central, Scielo, and Latin American gray literature platforms on October 29, 2021, for articles published in English and Spanish containing information on demographics and clinical outcomes of SARS-CoV-2 infection (Table 1). The available studies portrayed the first wave of the pandemic. The infection mainly affected patients transplanted >5 y ago, with a high prevalence of hypertension. The median age ranged from 39 to 52 y and the frequency of diabetes from 16% to 49%. Hospitalization was reported in >50% and mechanical ventilation and dialysis in one-third of patients. The mortality from COVID-19 ranged from 14.3% to 35.4% when considering the entire spectrum of SARS-CoV-2 infection and from 25.5% to 40.9% in COVID-19 hospitalized KTRs.

Transplantation in Latin America was thus heavily impacted by the first wave of the SARS-CoV-2 pandemic with both greater reductions in transplant activity and worse mortality among transplant patients than seen in developed nations. The infection impacted younger people than seen in the general population and especially in those with longer-term transplants.

In the second half of 2021, commercial supply agreements and high population acceptance have provided increasing vaccination coverage of the general population, which has already produced substantial reductions in infection indices; however, current vaccination rates are still lower than in Western European countries, which, combined with rising unemployment/informal employment and weak social protection coverage, builds a scenario of vulnerability to new waves of contagion.

Transplant patients remain at substantial risk in Latin America with most piloted effective treatment options potentially unaffordable and with clear evidence of low vaccine immunogenicity among transplant recipients[10-13]; therefore, 3 or 4 vaccine doses per patient will be critically important, as will ring vaccination of all close contacts of KTRs and continued use of social public health measures to reduce virus circulation, to protect these vulnerable individuals.

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TABLE 1.

Studies reporting the clinical characteristics and outcomes of the SARS-CoV-2 infection among KT recipients from Latin America

Author	Country	KT pmp (2019)	Study period	Patients at risk	N	Age, y	Mean time from transplantation	Hyperten-sion	Diabetes	Hospitaliza-tion	Mechanical ventilation	Dialysis	Death
Taylor et al[4]	Argentina	35	03/24/2020–09/30/2020	515	31	53 (mean)	NA	80.6%	22.6%	70.7%	NA	NA	35.4%
Requião-Moura et al[5]	Brazil	30	03/20/2020–11/11/2020	NA	1680	51 (IQR, 42–60)	5.9 (IQR, 2.3–10.7) y	75.7%	34%	65.1%	34.6%	23.4%	20.6%
Pierrotti et al[6,a]	Brazil	30	Up to 07/07/2020	NA	51	51.9 (min 17–max 78)	6.2 (min 0–max 26) y	88.2%	49%	100%	33%	25.5%	25.5%
Penna et al[7,b]	Chile	22	03/03/2020–09/30/2020	4305	196	49 (mean)	6.9 (min 0.1–max 39) y	NA	NA	52%	18.3%	5%	15.4%
Arias-Murillo et al[8,c]	Colombia	19	03/06/2020–07/31/2020	8108	84	49 (min 1–max 76)	NA	81%	16.7%	56%	NA	NA	14.3%
Pérez et al[9,a]	Mexico	23	02/28/2020–09/28/2020	NA	66	39.5 (IQR, 30–49)	5.4 (IQR, 1.6–10.5) y	77.3%	27.3%	100%	40.9%	15.2%	40.9%

[a]Only hospitalized patients were included.
[b]Included patients diagnosed by RT-PCR (91%), serology, or imaging (9%).
[c]Eighty-four solid organ transplants, 70 of them being kidney transplants. Lethality among the KT recipients was 10 of 70 patients.
IQR, interquartile range; KT, kidney transplant; NA, information not available; pmp, per million population; RT-PCR, reverse transcription polymerase chain reaction; SARS-CoV-2, severe acute respiratory syndrome coronavirus 2.

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