COVID-19 INFECTION IN PEDIATRIC KIDNEY TRANSPLANT RECIPIENTS

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INTRODUCTION

COVID-19 morbidity and mortality are significantly higher in adult organ transplant recipients, but some reports suggest that children follow a relatively mild course of the disease and have better outcomes when compared with adults.[1-7] Nevertheless, the clinical course of COVID-19 in pediatric kidney transplant (KT) recipients remains largely unclear. The main goal of this study was to describe the clinical outcomes of pediatric KT recipients with COVID-19, followed in a pediatric KT center, and assess immunity to SARS-CoV-2, to better understand and optimize the management of these patients.

METHODS

We performed a prospective study from March 2020 to March 2021, with descriptive analysis of demographic and clinical characteristics, including chronic kidney disease etiology, type of KT, immunosuppression regimen, comorbidities, clinical and laboratory data at SARS-CoV2 diagnosis, intervention, short-term follow-up, and SARS-CoV-2 serologic tests. All COVID-19 cases were identified by a polymerase chain reaction test for SARS-CoV-2 in nasal and oropharyngeal swab.

RESULTS

We report 5 (9%) cases of COVID-19 infection from a cohort of 55 KT recipients. The main results are listed in table 1.

Table 1 – CHARACTERISTICS OF KT RECIPIENTS WITH COVID-19 INFECTION.

Median age [minimum, maximum]	13 years [7- 16 years]
Gender, n (%)	Female: 4 (80%)
Type of transplant, n (%)	Deceased-donor transplant: 5 (100%)
Underlying kidney disease, n (%)	Steroid-resistant nephrotic syndrome: 2 (40%); Renal tubular dysgenesis: 1 (20%); Nephronophthisis: 1 (20%); Unknown: 1 (20%)
Comorbidities, n (%)	Hypertension: 5 (100%); Hyperuricemia: 2 (40%); Left ventricular hypertrophy: 1 (20%); Patent arterial duct surgically treated: 1 (20%); Mild aortic regurgitation: 1 (20%)
Baseline immunosuppression, n (%)	Glucocorticoids, mycophenolate mofetil and tacrolimus: 5 (100%)
Median time after KT at COVID-19 diagnosis [minimum, maximum]	38 months [2 months-11 years]
Median follow-up after COVID-19 [minimum, maximum]	2 months [2-9 months]
Signs and symptoms, n (%)	Fever: 2 (40%); Cough: 2 (40%); Rhinorrhea: 2 (40%); Myalgia: 2 (40%); Headache: 2 (40%); Sore throat: 1 (20%); Diarrhea: 1 (20%); Anosmia: 1 (20%); Asymptomatic: 1 (20%)
Laboratory findings, n (%)	Lymphopenia: 2 (40%); Thrombocytopenia: 1 (20%)
Allograft dysfunction, n (%)	2 (40%)
Median serum creatinine [minimum, maximum]	0.5 mg/dL [0.23-1.23 mg/dL]
Hospital admission, n (%)	None (0%)
COVID-19 infection treatment, n (%)	Supportive treatment with no immunosuppression reduction: 5 (100%); Other treatment: none (0%)
Serological immunity, n (%) – total antibodies [minimum, maximum]	5 (100%) – [102, >2500 U/mL]

CONCLUSIONS

In our report, the presentation of COVID-19 in KT recipients was no different from the general pediatric population. In our series, the treatment during COVID-19 infection was exclusively supportive, with no immunosuppression reduction, and there was an excellent short-term outcome. All had serological immunity, although its efficacy is largely unknown. Despite the small sample size, these results support that symptomatic treatment in patients with mild or asymptomatic COVID-19 infection might be sufficient. We believe that the risk of allograft loss outweighs the unknown benefits of the reduction of immunosuppression in mild COVID-19 in pediatric KT recipients.

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