

# COVID-19 In Kidney Transplant Recipients: Single-Center Experience and Case-Control Study

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## Background

- Kidney transplant recipients are considered high-risk for morbidity and mortality from COVID-19
- Case-fatality rates vary significantly in different case series
- There is little data about immunosuppressant drug levels and secondary infections in KTR with COVID-19
- Many existing studies had patient still hospitalized at the time of publication

## Methods

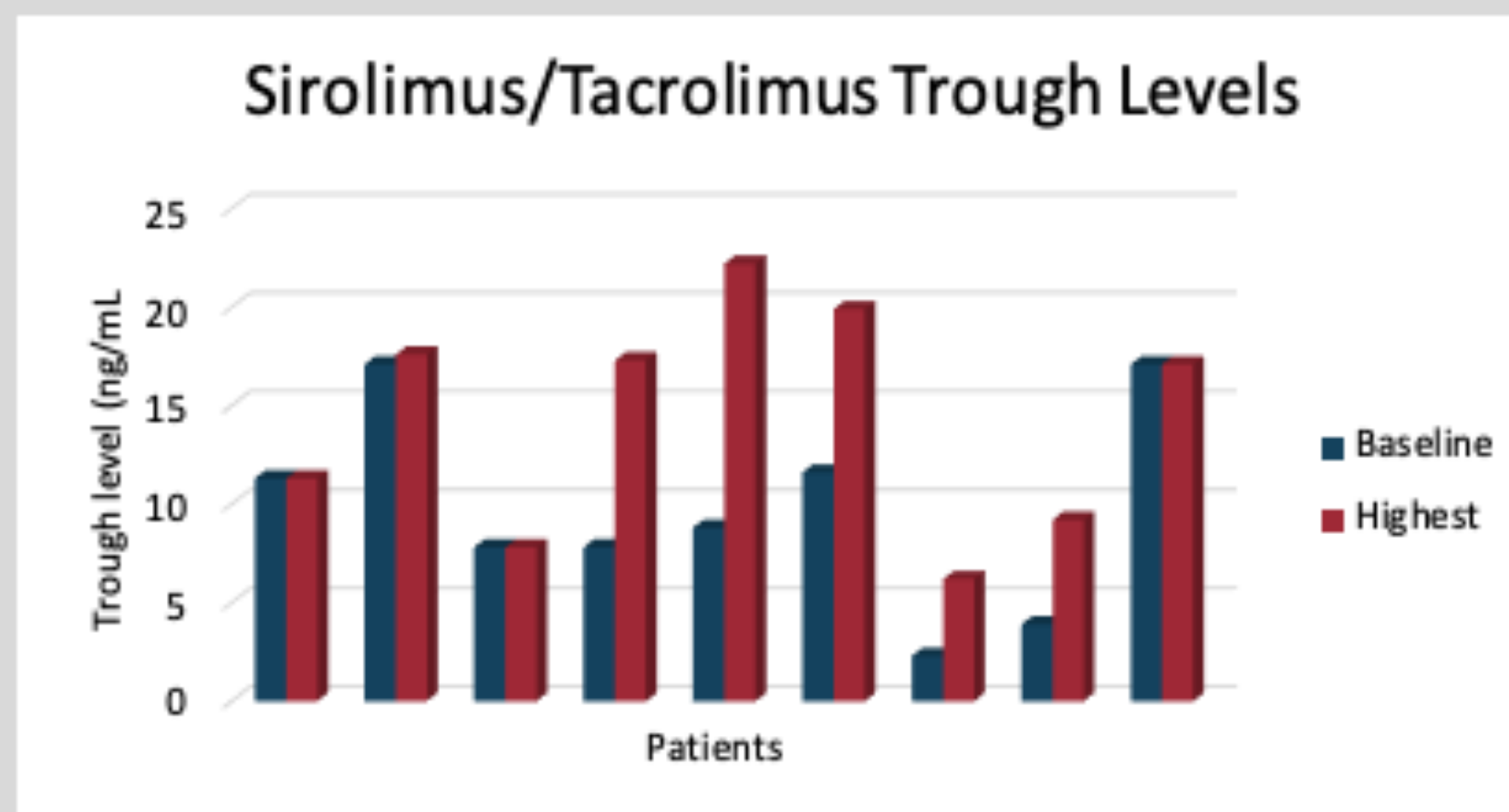
- We captured kidney transplant recipients diagnosed with COVID-19 between 3/1 and 5/18/2020
- KTR on hemodialysis and off immunosuppression were excluded
- Compared the clinical course of COVID-19 between hospitalized KTR and non-transplant patients, matched by sex and age
- All patients were discharged from the hospital or died at the time of data collection

## Results

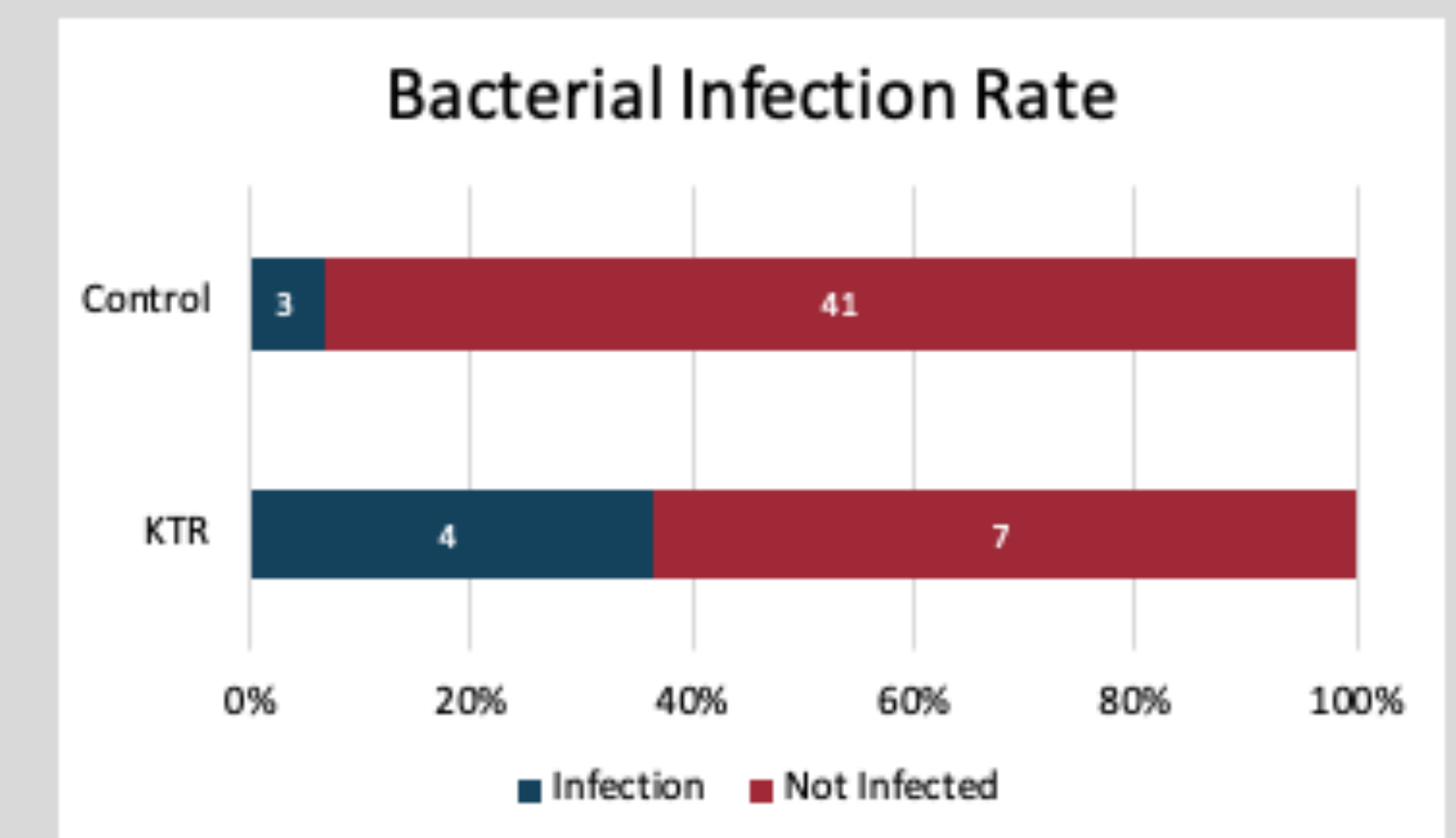
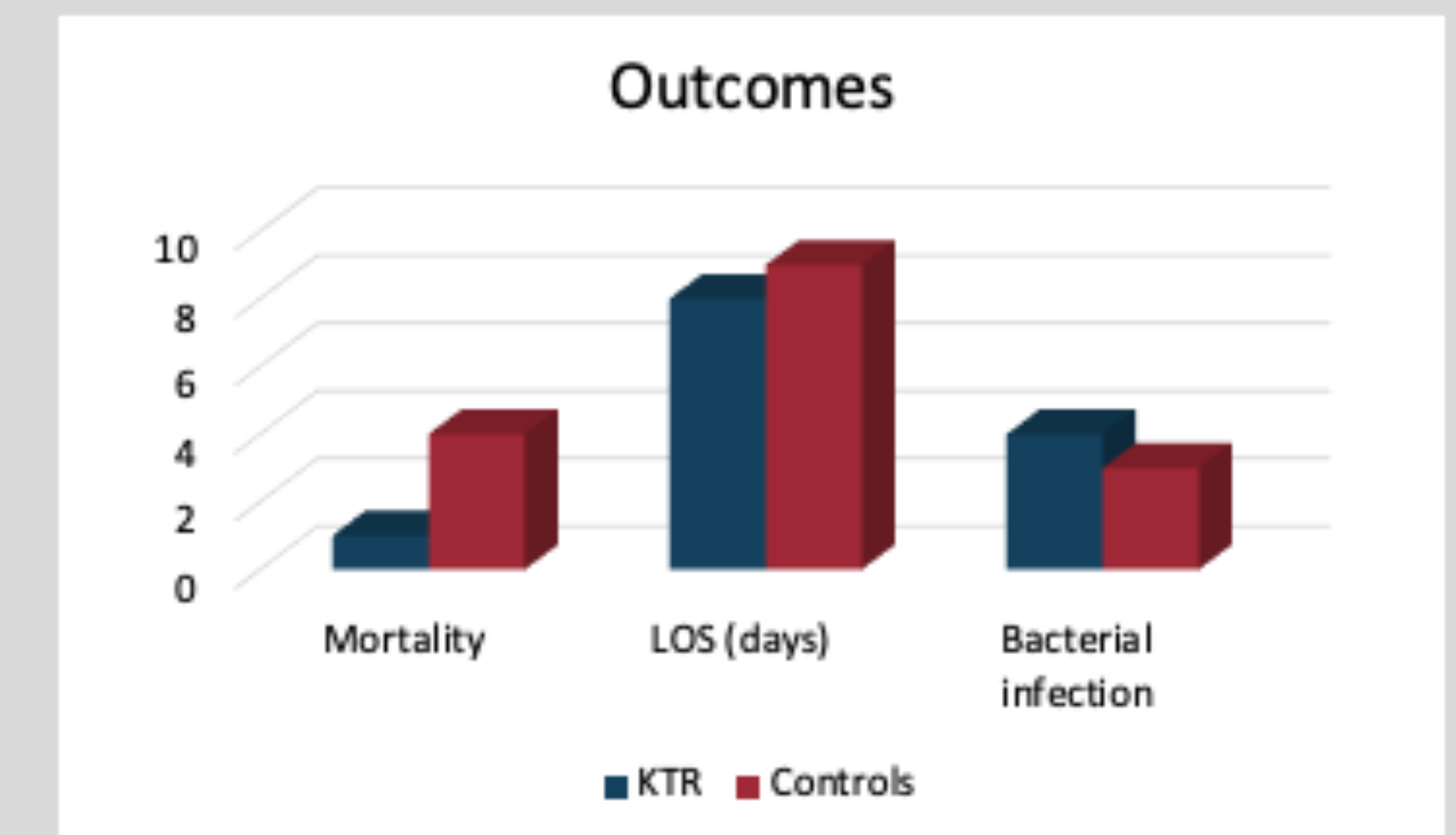
- Eleven (11) KTR were hospitalized and matched with 44 controls
- Rates of kidney and pulmonary disease were higher in KTR than in controls
- Immunosuppression was reduced in all hospitalized KTR
- Use of convalescent plasma and tocilizumab were more common in KTR than controls
- IL-6 levels were extremely high (>1,000) in 50% of KTR
- One KTR and four controls died (case fatality rate: 9.1%)
- There were no significant differences in length of stay or clinical outcomes between KTR and controls

## Results cont'd

- Bacterial infections were more frequent in KTR (36.3%), compared to controls (6.8%, P=0.02)



Comorbidities			
Hypertension	10 (90.9)	26 (59.1)	0.075
Chronic cardiac disease	4 (36.3)	5 (11.4)	0.067
Chronic pulmonary disease	0 (0)	13 (29.5)	<b>0.049</b>
Chronic kidney disease	9 (81.8)	4 (9.1)	<b>&lt;0.001</b>
Diabetes	7 (63.6)	19 (43.2)	0.315
Smoker: Never	9 (81.8)	35 (79.5)	0.866
Former	2 (18.2)	2 (4.5)	0.174
Active	0 (0)	7 (15.9)	0.323
Treatment			
Convalescent plasma	4 (30.7)	0 (0)	<b>0.001</b>
Remdesivir	4 (30.7)	12 (27.2)	0.823
Tocilizumab	3 (27.2)	0 (0)	<b>0.006</b>
Hydroxychloroquine	1 (9.1)	7 (15.9)	0.924
Antibiotics	10 (90.9)	27 (61.3)	0.08



## Conclusions

- In our small case series, unlike earlier reports from the pandemic epicenters, the clinical outcomes of KTR with COVID-19 were comparable to those of non-transplant patients, and mortality was relatively low
- Calcineurin or mTOR inhibitor levels were high, likely due to diarrhea and hepatic dysfunction
- Bacterial infections were more common in KTR, compared to controls