



# A Case Control Study of COVID-19 in Patients with End Stage Renal Disease (ESRD)

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## BACKGROUND:

- COVID-19 is a major global pandemic.
- Since the first case reported in Wuhan, China, COVID-19 has spread across the globe with more than 7.6 million individuals affected worldwide. Several studies have tried to investigate the risk factors for mortality but there has not been a definitive study in patients with ESRD.
- We aimed to investigate whether ESRD is associated with mortality as compared to age, gender and comorbidities matched cohorts.

## METHOD:

- A retrospective case control study was performed on patients  $\geq 18$ -year-old with confirmed SARS-CoV-2 admitted to our hospital during the study period (03/15/2020 to 05/15/2020).
- Demographic, characteristics and clinical outcome were retrieved and reviewed. We found 39 ESRD patients, we matched them for 5 variables: Age, gender, diabetes mellitus (DM), hypertension (HTN), and body mass index (BMI).
- Age was stratified into 3 groups ( $<30$ , 30 to 60,  $>60$ ), history of DM and HTN were defined by reviewing the admission medications, and BMI was divided into 2 categories ( $<30$  and  $\geq 30$  kg/m<sup>2</sup>).
- The primary endpoint was percentage of inpatient mortality.

## RESULTS:

**Table 1: Demographic characteristics of 39 ESRD patients with COVID-19**

No. of patients with ESRD/ Total no. of patients with COVID-19		39/400
Age	30-60	19 (49%)
	>60	20 (51%)
Gender	Males	25 (64%)
	Females	14 (36%)
Comorbidities	Hypertension	38 (92%)
	Diabetes Mellitus	25 (64%)
	BMI > 30 kg/m <sup>2</sup>	19 (49%)

**Table 2: Non-parametric analysis of ESRD patient vs match control. Statistical significance is defined if the null hypothesis could be rejected at  $<0.05$ .**

	Survived	Expired
ESRD patients	20	19
Control	131	46

With the 5 variables, we were able to match with 177 controls. As compared to 46 patients from 177 matched cohort (26%) (z-score 2.80,  $p=0.0051$ ; odds ratio [OR], 2.71; 95% confidence interval [CI], 1.28-5.41)

## DISCUSSION & CONCLUSION:

- Our results suggest that ESRD patients is an independent risk factor for increased mortality in patients with COVID 19 disease.
- Larger prospective studies will need to confirm this finding and try to find ways to mitigate this very high mortality in this vulnerable population.