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OUTCOMES OF PERITONEAL DIALYSIS IN COVID 19 PATIENTS AT TERTIARY CARE CENTRE

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INTRODUCTION

The COVID 19 pandemic resulted in extraordinary increase in the number of patients requiring renal replacement therapy. The kidneys are not typically the main target of SARS-CoV-2, but surprisingly, acute kidney injury (AKI) occurs in 4-23% of cases. The global healthcare system has been severely impacted due to rapidly increasing number of patients and need of RRT. This creates opportunity to use peritoneal dialysis (PD) for renal dysfunction requiring need of RRT in pandemic situation.

AIM: To study outcomes of peritoneal dialysis in COVID patients.

Design: Retrospective observational study.

Setting: Tertiary Care Government Hospital in Telangana.

Participants: COVID patients who underwent acute peritoneal dialysis at our hospital.

Period of study: April 2020 to July 2021.

Inclusion criteria: All admitted COVID positive patients who underwent acute peritoneal dialysis.

Exclusion criteria

1. Patients who are not diagnosed as COVID.
2. Patients who are on other modalities of RRT.

MATERIALS AND METHODS

The study included all the patients treated with acute PD at our tertiary care centre from April 2020 to July 2021 were retrospectively analysed. Peritoneal dialysis considered when patient receiving vasopressors or hemodynamically unstable, heart failure refractory to medical management and in whom vascular access was problematic. Overall 46 patients were receiving PD, all 34 patients underwent bedside placement of rigid PD catheter. All patients underwent investigations like complete blood picture, serum creatinine automated jaffeys method.

RESULTS

Parameters		
Age		52.84 ± 13.00 years
Sex	Male	27 (79.41%)
	female	7 (20.58%)
Diabetes		14(41.17%)
Hypertension		22 (64.70%)
Coronary Artery Disease		4 (11.76%)
Chronic Kidney Disease on Maintenance Hemodialysis		16(47.05%)
Acute deterioration of Chronic Kidney Disease		8(23.52%)
Acute Kidney Injury		10(29.41%)
Hemoglobin(gm/dl)		8.89 + 1.96
White blood cell count (10^3/cumm)		13.2 + 5.5
Platelets count (10^9/cumm)		1.41 + 0.88

Blood Urea(mg/dl)		128.58 + 54.35
Serum createnine(mg/dl)		7.09 ± 4.61
qSOFA score	0	0
	1	11 (32.4%)
	2	15 (44.1%)
	3	8 (23.5%)
Outcomes	Discharge	9 (26.48%)
	Mortality	25(73.52%)

Comparison between survivors and non-survivors

Parameters		**Survivors**	**Non-survivors**	**P value**
Sex	Male	9 (33.3%)	18 (66.7%)	0.08
	Female	0	7 (100%)	0.00
Diabetes mellitus		3 (21.4%)	11 (78.57%)	0.57
Hypertension		6 (27.3%)	16 (72.7%)	0.88
Coronary artery disease		1 (25%)	3 (75%)	0.14
Age (years)		48.6 ± 7.2	55.8 ± 9.01	0.03
Haemoglobin (gm/dl)		9.91 ± 1.99	8.53 ± 1.86	0.06
TLC (cumm)		7644 ± 5593	12974 ± 5903	0.02
Platelets (10^9/cumm)		1.06 ± 0.30	1.54 ± 0.99	0.16
Blood urea (mg/dl)		109.4 ± 31.2	139.1 ± 38.2	0.04
Serum createnine (mg/dl)		6.3 ± 2.3	8.5 ± 2.7	0.03
Duration of hospital stay (days)		16 ± 6.4	5.7 ± 5.07	0.00
Dialysis vintage of CKD patients (months)		18.4+15.8	54.5+14.2	0.00
Mechanical ventilation		2 (5.88%)	25(73.52%)	0.00

We observed total 34 patients who underwent acute PD with male being 27 (79.41%) and 7 (20.58%) female were there. Mean age of population was 52.84 ± 13.00 years. Co-morbidities like type 2 diabetes mellitus was present in 14(41.17%) patients, HTN in 22 (64.70%) patients while CAD was in 4 (11.76%) patients. Patients receiving O2 support were 7(20.58%) and rest 27(79.41%) patients were either on NIV or mechanical ventilation. Patients receiving inotropes were 17(50%), qSOFA more than 1 was in 23(67.64%) patients. Mean serum createnine values were 7.09 ± 4.61mg/dl. Mortality in this study was 25(73.52%).

DISCUSSION

Males were predominant in our study with 79.41%. The mean age in the survivors was around 48.6+7.2 yrs, whereas the average mean age in non-survivors was around 55.8+9.01 yrs. Mortality was observed more in patients with more age which was statistically significant and finding was consistent with study from Tamilnadu.[1] The common comorbidities in study group were hypertension (64.7%) followed by diabetes mellitus (41.17%) which correlated with previous studies showing a higher incidence of COVID-19 disease in patients with comorbid condition.[2][3]

In our study, 47.05% had CKD, and our study showed patients with longer dialysis duration to be associated with significant mortality. The probable reason may be that chronic dialysis patients are often malnourished. Moreover, defective innate and adaptive immunity can also affect the immune system's function.[4][5] In a study published from Spain and India showed similar results of longer dialysis vintage was associated with increased mortality.[1][6]

In our study, patients on mechanical ventilation demonstrated a poor outcome. The percentage of non-survivors on the ventilator was 73.52% this finding was consistent with some other studies from India[1], Washington[7] Georgia.[8]

The mortality in our study group was 73.52% patients, in comparison with some other studies with peritoneal dialysis in COVID patients our study was consistent with their results.[9][10][11][12]

Limitations of study

This study contains small number of patients these needs to addressed in large number of cohorts.

CONCLUSION

Acute Peritoneal dialysis has emerged as rescue therapy for management of COVID-19 patients with renal dysfunction during pandemic, though there is a paucity of literature. PD may have a promising role in resource limited settings for management of COVID-19 induced AKI. we suggest to consider PD as an option for critically ill patients with renal failure in resource-limited settings, where resources for CRRT are in short supply.

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