ISNCON-2021

Impact of COVID-19 in patients undergoing maintenance dialysis

Rajeev Bhatia, Ajay Marwaha, Shubha Sharma
Shrimann Superspeciality Hospital, Pathankot road, Jalandhar, Punjab, India

Shrimann SUPERSPECIALITY HOSPITAL — RELIABLE & TRANSPARENT

INTRODUCTION

- Patients on hemodialysis are more susceptible to coronavirus disease 2019(COVID-19) due to their weakened immune system and frequent hospital visits.
- Further, presence of comorbid conditions in these patients may eventually increase the risk of developing severe and fatal COVID-19
- Data from Indian studies reporting clinical aspects of patients on dialysis infected with COVID-19 is limited.

OBJECTIVES

To assess the clinical aspects of dialysis patients with COVID-19, management, and outcome of COVID-19 on maintenance dialysis patients.

METHODS

- **Methodology**
  - Prospective observational study
- **Study population**
  - COVID-19 infected patients undergoing maintenance dialysis
- **Endpoints**
  - Clinical characteristics and mortality related risk factors
- **Groups**
  - Group A: WHO score 2-4;
  - Group B: WHO score = 5;
  - Group C, WHO score ≥6.

RESULTS

- A total of 33 patients on maintenance dialysis with COVID-19 were included.
- Sex and age were comparable between the three groups (Table 1).

Table 1: Baseline characteristics

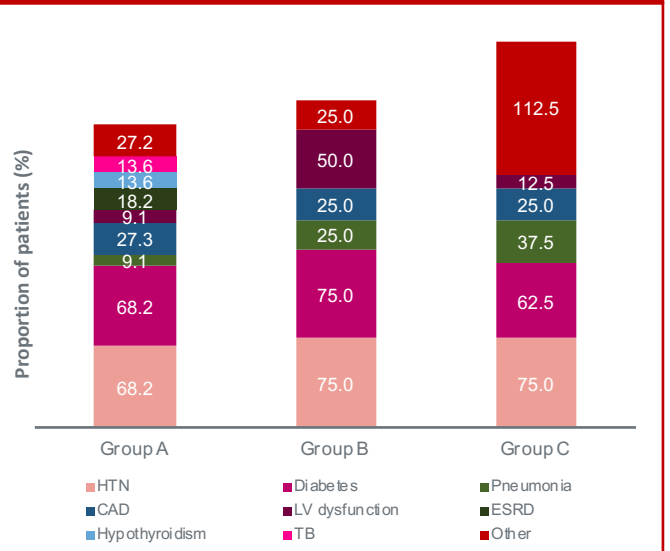
Parameters	Group A (n=13)*	Group B (n=9)**	Group C (n=11)***	P value
Sex, Men	9 (69.2)	4 (44.4)	7 (63.6)	0.489
Age (years), median (range)	54.0 (22.0-75.0)	57.0 (49.0-78.0)	58.0 (38.0-71.0)	0.442
Age group (years)				0.517
≤64	9 (69.2)	8 (88.9)	9 (81.8)	
≥65	4 (30.8)	1 (11.1)	2 (18.2)	
Status				<0.001
Admitted	3 (23.1)	9 (100.0)	11 (100.0)	
Home quarantine	10 (76.9)	-	-	
Symptoms				
Fever	10 (76.9)	7 (77.8)	9 (81.8)	0.955
Dyspnea	2 (15.4)	3 (33.3)	8 (72.7)	0.015
Cough	1 (7.7)	4 (44.4))	7 (63.6)	0.015
Nausea	-	2 (22.2)	2 (18.2)	0.219
Others	3 (23.1)	5 (55.6)	5 (45.4)	0.560

Data presented as n (%), unless otherwise specified.

Table 2: Univariate and multivariate analysis

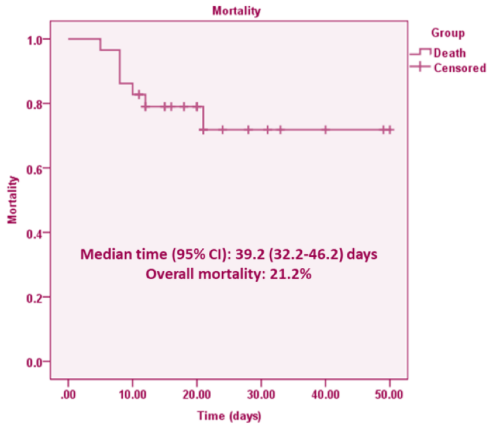
Parameters	Univariate analysis			Multivariate analysis		
	OR	95% CI	P value	OR	95% CI	P value
Covariates associated with death						
Dyspnea	0.501	(-0.004, 0.718)	0.052	**0.061**	**(0.006, 0.605)**	**0.017**
Cough	0.421	(-0.004, 0.718)	0.052	0.222	(0.018, 2.741)	0.241
Absolute lymphocyte <0.5 g/L	-0.497	(-1.499, 0.141)	0.094	-	-	-
IL-6 >80 pg/mL	0.235	(-0.232, 0.875)	0.222	-	-	-
LDH > 2N	-0.321	(-0.875, 0.232)	0.222	-	-	-
WBCs >11.0 K/µL	**0.679**	**(0.125, 1.232)**	**0.022**	**0.038**	**(0.003, 0.471)**	**0.011**
Hospitalized patients with and without corticosteroid-therapy						
Duration of infection [days]	0.409	(-0.002, 0.023)	0.099	-	-	-
Need of invasive ventilation	0.241	(-0.237, 0.633)	0.348	-	-	-
Death	**-1.362**	**(-2.004, -0.240)**	**0.016**	0.186	(0.022, 1.566)	0.122
Recovery	**-1.136**	**(-1.939, -0.022)**	**0.045**	0.327	(0.106, 1.010)	0.052
ARDS	-0.021	(-0.677, 0.636)	0.948	-	-	-
Hospital stay [days]	-0.265	(-0.045, 0.012)	0.228	-	-	-

Figure 1: Coexisting comorbid conditions



CAD, coronary artery disease; ESRD, end-stage renal disease; HTN, hypertension; LV, left ventricular; TB, tuberculosis.

Figure 2: Kaplan-Meier plot for mortality



RESULTS

- The most common comorbidities across patients with mild, moderate and severe COVID-19 were hypertension (84.6%, 44.4%, and 81.8%) and diabetes mellitus (61.5%, 77.8%, and 63.6%).
- The median levels of WBC, potassium, interleukin-6, serum glutamic oxaloacetic transaminase, and serum glutamic pyruvic transaminase were significantly higher in the patients with severe COVID-19 (10.6 K/µL, P=0.057; 5.7 mmol/L, P=0.029; 56.0 pg/mL, P=0.013; 38.0 U/L, P<0.001; 18.0 U/L, P=0.027, respectively) than mild and moderate groups.
- Remdesivir was the most commonly used antiviral medication in patients with moderate and severe COVID-19.
- Dyspnea and leukocytosis were significantly and independently associated with death (P=0.017 and 0.011) (Table 2).
- Total of 78.8% of patients improved; while 21.2% of patients died (Figure 2).
- The median (95% CI) time to death was 12.0 (0.0-24.9) days.

CONCLUSIONS

- Dyspnea and leukocytosis may be considered as prognostic factors of mortality in patients on maintenance dialysis with COVID-19 infection.
- Therefore, vigilant monitoring of WBC levels and breathing patterns by clinicians in patients on hemodialysis with COVID-19 is important.

DISCLOSURE: Authors have no conflict of interest to declare.
FUNDING: None.