



FIGURE 1: Box plot analysis on proteinuria and urine volume.

MO166

THE LONGITUDINAL EVOLUTION OF COVID-19 OUTCOMES AMONG HEMODIALYSIS PATIENTS: A NATIONWIDE MULTICENTRE CONTROLLED STUDY

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BACKGROUND AND AIMS: Haemodialysis (HD) patients are at increased risk for adverse short-term consequences of COVID-19. In this study, we investigated the characteristics of chronic HD patients in the post-COVID-19 period and compared them with the control group.

METHOD: We conducted a national multicentre observational study involving adult chronic HD patients recovering from COVID-19. The control HD group was selected from patients with similar characteristics who did not have COVID-19 in the same center. SARS-CoV-2 RT-PCR negative patients and patients in the active period of COVID-19 were not included.

RESULTS: A total of 1223 patients (635 COVID-19 groups, 588 control groups) were included in the study from the data collected from 47 centres between 21 April 2021 and 11 June 2021. The patients' baseline demographics, comorbidities, medications, HD characteristics and basic laboratory tests were quite similar between the groups (Table 1). 28th-day mortality and between 28th day and 90th day mortality were higher in the COVID-19 group than in the control group [19 (3.0%) patients and 0 (0%) patients; 15 (2.4%) patients and 4 (0.7%) patients, respectively]. Presence of respiratory symptoms, rehospitalization, need for home oxygen therapy, lower respiratory tract infection and A-V fistula thrombosis were significantly higher in the COVID-19 group in the first 28 days of illness and between 28 and 90 days.

Mortality was significantly associated with preexisting COVID-19, age, current smoking, use of tunneled HD catheter, persistence of respiratory symptoms, rehospitalization, need for home oxygen support, presence of lower respiratory tract infection within 28 days and persistence of respiratory symptoms.

CONCLUSION: In the post-COVID-19 period, mortality, rehospitalization, respiratory problems and vascular access problems are higher in maintenance HD patients who have had COVID-19 compared to control HD patients.

Table 2. Comparative presentation of patients data on the 28th day and between 28 and 90 day

	COVID-19 group N = 635	Control group N = 588
28th-day results, n(%)		
Death*	19(3.0)	0(0)
Any respiratory symptoms*	152(23.9)	11(1.9)
Rehospitalization for any reason*	52(8.2)	24(4.1)
Need for home oxygen support *	26(4.1)	2(0.3)
Lower respiratory tract infection*	65(10.2)	8(1.4)
AV fistula thrombosis*	13(2.0)	2(0.3)
Other thromboembolic events *	15(2.4)	4(0.7)
Need for HD catheter placement*	21(3.3)	9(1.5)
28th day-90. day results ^a , n(%)		
Death*	15(2.4)	4(0.7)
Any respiratory symptoms*	45(7.3)	10(1.7)
Rehospitalization for any reason*	44(7.1)	18(3.1)
Need for home oxygen support*	12(1.9)	2(0.3)
AV fistula thrombosis*	9(1.5)	1(0.2)
Other thromboembolic events*	9(1.5)	2(0.3)
Need for HD catheter placement	13(2.1)	10(1.7)

HD: haemodialysis, AV: arteriovenous.

*P < .05.

^a Patients who died before 28 days were not included.

Table 1. Baseline demographic characteristics, comorbidities and initial laboratory tests of the patients

	COVID-19 group N: 635	Control group N: 587
Age (years), median (IQR)	61(49–70)	60(47–69)
Gender, female, n(%)	292(46.0)	239(40.6)
Primary kidney disease, n(%)		
	Diabetic kidney disease*	230(36.2)
	Primary glomerulonephritis	160(27.2)
	Hypertensive nephrosclerosis	43(7.3)
	ADPKD	217(36.9)
	Other	31(5.3)
		129(20.3)
Baseline laboratory data, median (IQR)		
Creatinine (mg/dL)*	7.4(6–9)	7.9(6–10)
Ferritin (ng/mL)*	533.22(295–868)	492(278–764)
CRP (mg/L)	8(3–20)	4(2–11)
Hemoglobin (g/dL)	11(10–12)	11(10–12)
Leukocytes(/mm ³)*	6480(5050–8050)	6230(4800–7900)
Neutrophils (/mm ³)	3850(2600–5400)	3900(2670–5120)

All data were obtained at the month before COVID-19 developed in the COVID-19 group and at the same month as the COVID-19 patient in the control group.

IQR: Interquartile range, ADPKD: Autosomal-dominant polycystic kidney disease, HD: Hemodialysis, ALT: Alanineaminotranspherase, CRP: C-reactive protein

*P < .05.