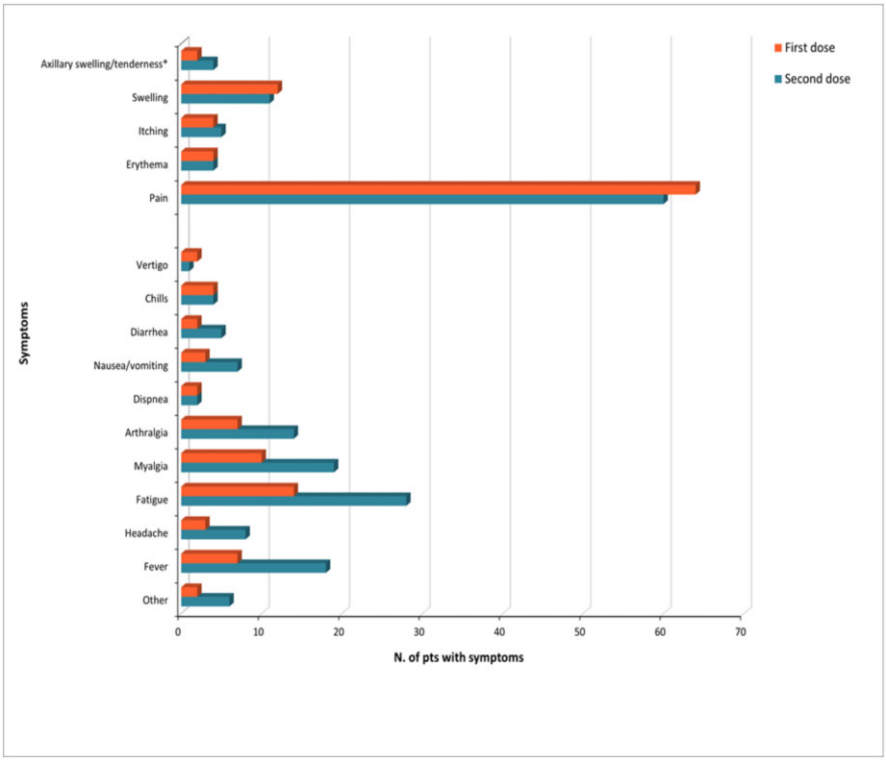

FIGURE 1: Number of patients who experienced AEs after the two doses.

Table 1. Demographic and clinical characteristics of haemodialysis patients who underwent RNA-1273 vaccine administration

Basal characteristics	All patients (n = 126)
Age (year)	68 (54.7–6)
(range)	19–92
≥ 65 years	71 (56.3)
Males, n (%)	71 (56.31)
Ethnic origin, n. (%)	
Caucasian	110 (87.3)
African	15 (11.9)
Hispanic	1 (0.8)
Etiology of ESRD, n. (%)	
Nephrosclerosis	54 (42.9)
Glomerulonephritis	26 (20.6)
Diabetes	14 (11.1)
ADPKD	4 (3.2)
Nephrotoxic	4 (3.2)
Pyelonephritis	4 (3.2)
Interstitial	3 (2.4)
HIVAN	2 (1.6)
Others	10 (7.9)
NA	5 (4)
HD treatment schedule, n (%)	
3 times per week	115 (91.2)
2 times per week	7 (5.5)
4 times per week	4 (3.1)
Infectious disease, n. (%)	
HBV	3 (2.3)
HCV	3 (2.3)
HIV	2 (1.5)
Time elapsed from the first to the second dose of vaccine, day	28 (28–28)
Follow-up, day	68 (66–70)

ESRD, end-stage renal disease; HBV, hepatitis B virus; HCV, hepatitis C virus.

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CLINICAL CHARACTERISTICS AND SHORT-TERM OUTCOMES OF HEMODIALYSIS PATIENTS WITH SARS-COV-2 INFECTION: THE EXPERIENCE OF A COVID NEPHROLOGY UNIT

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BACKGROUND AND AIMS: SARS-CoV-2 pandemic is pressuring healthcare systems worldwide. Disease outcomes in certain subgroups of patients, such as nephropathic patients, are still scarce. Patients with chronic kidney disease (CKD) and on haemodialysis (HD) are at risk of a more severe disease course and worst outcomes. Here, we aimed to describe the characteristics and outcomes of CKD and HD patients with SARS-CoV-2 infection, admitted to the Covid Nephrology Unit in the first three pandemic waves, analysing mortality rate and risk factors for mortality in this subgroup of patients.

METHOD: A Covid Nephrology Unit was organized in March 2020 to manage the high number of CKD and HD patients with SARS-CoV-2 infection. Several 'spoke' units were also set to manage HD asymptomatic patients (Hi Hotel and 'Villa Luce' Dialysis Center) or with mild symptoms ('Miulli Hospital'-Acquaviva delle Fonti and 'Fallacara Hospital'—Triggiano). Clinical and laboratory data in several timepoints were collected using electronic medical records. Primary outcome was to assess the mortality rate. Moreover, we analysed the trend of inflammatory markers in the first 7 days after hospital admission between survivors and non-survivors; finally, risk factors for mortality were analysed by logistic regression.

RESULTS: From March 2020 to May 2021, a total of 221 patients were admitted to the Covid Nephrology Unit; among these, 112 patients on chronic haemodialysis, 21 with acute kidney injury (AKI), 58 with CKD, 24 kidney transplant recipients and 6 patients on peritoneal dialysis (PD). Median age was 71 years (IQR 62.5–80), while male gender predominated (61.5%). Main comorbidities were arterial hypertension (81%), diabetes mellitus (41.8%) and cardiovascular disease (CVD, 60.6%). At admission, 13.2% of patients required non-invasive ventilatory (NIV) support (CPAP, BiPAP) and about 60% presented interstitial pneumonia at CT scan. A total of 80 patients (36.1%) died during hospital stay with a medium length of stay of 15.8 days. In the first 7 days, 29 patients presented respiratory failure requiring transfer to ICU. Conversely, 100 patients were discharged at home, while 48 patients were transferred to the spoke units (39 patients at Miulli and Fallacara Hospitals, 9 patients at Hi Hotel). Compared to survivors, patients who died were older (median age

75.5 versus 66 years, $P < .001$), characterized by more comorbidities (diabetes mellitus 54.5% versus 35.2%, $P = .01$; CVD 81.1% versus 51.4%, $P < .001$; chronic obstructive pulmonary disease (COPD, 41.5% versus 19%, $P = .01$; peripheral vasculopathy 58.4% versus 34.2%, $P = .01$) and more severe respiratory compromission at hospital admission (patients in NIV, 22.6% versus 8.1%, $P = .005$). As shown in Table 1, in the first 7 days of hospital stay, a significant increase in WBC (8.29 versus 12.6 $\times$ 10^6, $P < .001$) was described in the non-survivor group; similarly, inflammatory markers such as CRP and IL-6 did not improve in the non-survivors at day 7 (CRP 81.8 versus 85.7 mg/L, $P = .62$; IL-6 63.1 versus 79.4 pg/mL, $P = .84$), while they significantly improved in survivors (median CRP 42.5 versus 10.1 mg/L, $P < .001$; median IL-6 32.3 versus 13.7 pg/mL, $P = .01$). In a multivariate logistic regression model, age (OR 1.062, 95% CI 1.007–1.119, $P = .025$), history of CVD (OR 8.308, 95%CI 1.704–40.499, $P = .009$) and dyspnoea at hospital admission (OR 9.465, 95%CI 1.231–72.79, $P = .031$) were associated with risk of mortality in this population.

CONCLUSION: To our knowledge, this is the largest study analyzing characteristics and outcomes of CKD and hemodialysis patients to date. A wide heterogeneity of severity of disease has been documented in our cohort; we documented a higher mortality rate in this cohort of patients compared to general population. The presence of several comorbidities, a more severe disease at hospital admission and the persistence of elevated inflammatory markers during hospital stay are risk factors for mortality.

Table 1. Laboratory parameters in the survivors and non-survivors groups in the first 7 days after hospital admission.

	TOTAL	SURVIVORS	NON SURVIVORS	p-value
Hb (g/dl)				
Baseline	11.1 ± 1.85	11.1 ± 1.63	11.03 ± 2.23	0.248
Day 7	10.5 ± 2.91	10.8 ± 3.38	10.1 ± 1.72	0.956
	0.063	0.47	**0.012**	
Plt				
Baseline	207.2 ± 96.9	209.7 ± 86.7	202.4 ± 114.9	0.032
Day 7	214.4 ± 105.2	228.9 ± 105.5	187.8 ± 100.5	0.828
	0.489	0.109	0.257	
WBC				
Baseline	7.2 ± 4.5	6.73 ± 4.06	8.29 ± 5.15	0.187
Day 7	9.07 ± 7.24	7.13 ± 3.7	12.6 ± 10.2	**<0.001**
	0.002	0.640	**<0.001**	
Lymphocytes				
Baseline	14.1 ± 9.8	14.9 ± 9.31	12.7 ± 10.7	0.774
Day 7	14.6 ±10.8	18.9 ± 10.7	6.68 ± 5.19	**<0.001**
	0.358	**<0.001**	**<0.001**	
CRP				
Baseline	53.4 (16.1-99.3)	42.5 (13.9-86.8)	81.8 (21.1-140.5)	**0.041**
Day 7	21.4 (6.9-76.8)	10.1 (4.8-29.1)	85.7 (41.3-138.2)	**<0.001**
	<0.001	<**0.001**	0.627	
IL-6				
Baseline	45.1 (11.7 – 64.3)	32.3 (9 – 57.2)	63.1 (15.9-93.5)	0.358
Day 7	19.65 (10.2-38.3)	13.7 (6.3-24.4)	79.4 (21.5-196.5)	**<0.001**
	0.07	**0.009**	0.812	
PCT				
Baseline	0.74 (0.26-1.46)	0.61 (0.23-1.36)	1.23 (0.5-1.6)	0.209
Day 7	0.76 (0.18-2.64)	0.62 (0.1-1.23)	1.66 (0.39-3.76)	**0.03**
	0.97	0.75	0.84	
D-DIMERI				
Baseline	1411 (774-2883)	1150 (583.5-2305)	2253 (959-4351)	**0.071**
	1738 (849-3343)	1366 (694-2208)	2556 (1250-5107)	**0.003**
Day 7	0.304	0.219		
LDH				
Baseline	298.8 ± 182.1	267.1 ± 138.6	360.3 ± 236.1	**0.024**
Day 7	322.4 ± 182.1	244.1 ± 79.4	419.6 ± 224.5	**<0.001**
	0.66	0.311	0.255	