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**Results:** Twenty-two individuals ( $M = 50.1$  years old,  $SD = 15.1$ ; 13 patients and 9 caregivers) signed up to participate. Most of them were women ( $n = 14$ , 64%), with a high level of education ( $n = 16$ , 73% had graduated high school), married ( $n = 15$ , 68%), and actively working ( $n = 16$ , 73%). Patients were on HD for an average of 111.6 months ( $SD = 115.4$ ); six of them (46%) stated that their last inter-dialytic weight gain was above two kilograms. Most caregivers were spouses ( $n = 5.56\%$ ) caring for more than five years ( $n = 6$ , 67%); providing emotional support ( $n = 9$ , 100%) and helping the patient manage ESRD dietary restrictions ( $n = 4$ , 44%) were the most frequent care activities. Symptoms of anxiety ( $M = 7.14$ ,  $SD = 4.38$ ) and depression ( $M = 5.50$ ,  $SD = 4.11$ ) were below the clinical threshold ( $>11$ ) for the entire sample.

**Conclusions:** The results suggest that participants who signed up for online psychoeducational group interventions during the COVID-19 pandemic are in a chronic time phase of the ESRD trajectory, have high literacy levels, and mild emotional distress. Online support groups appear to be suitable for working patients and caregivers, as it reduces time constraints, due to the strict regimen of attendance to HD sessions and caregiving responsibilities. Research is needed to understand if this type of intervention is accessible to all patients with ESRD and their family caregivers, and whether the needs of individuals who wish to participate in online psychoeducational groups differ from those who prefer face-to-face interventions.

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Conflict of interest

Potential conflict of interest:

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## POS-938

### TREATING END-STAGE RENAL DISEASE PATIENTS IN CENTER-BASED HEMODIALYSIS DURING COVID-19 PANDEMIC: WHAT (ADDITIONAL) CHALLENGES TO HEALTHCARE PROFESSIONALS?

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**Introduction:** Patients with end-stage renal disease undergoing hemodialysis are at higher risk of developing COVID-19 compared to the non-dialysis population, due to several risk factors such as old age, a less efficient immune system, and more comorbidities. In addition, thrice-a-week presence in an indoor hemodialysis center for renal replacement treatment, with frequent contact with clinical staff and other patients is inevitable, increasing the risk of contamination. On the other hand, COVID-19 infection among patients treated in dialysis centers enhances the risk of transmission to healthcare professionals (HPs), facility workers, other patients and their families. Thus, the complexity of requirements to prevent, isolate and control the COVID-19 infection put healthcare professionals in dialysis settings under exceptional additional strain, but little is known about the impacts of COVID-19 management on these professionals.

This study aimed to analyze the experiences and impacts of the COVID-19 pandemic among healthcare professionals working in dialysis facilities.

**Methods:** A mixed-method design, combining qualitative and quantitative data, was applied. Data were collected between February and March 2021. Semi-structured videocall interviews were conducted with a convenience sample of 25 HPs (19 nurses, 4 medical doctors, 2 pharmacists) (mean age  $38 \pm 9.9$ ; 17 female), and working on dialysis settings for  $9.2 \pm 8.2$  years. The interviews were video recorded, transcribed verbatim, and submitted to thematic analysis by two independent researchers. The Maslach Burnout Interview (MBI) and the Hospital Anxiety and Depression Scale (HADS) were used. Quantitative data were analyzed through descriptive and inferential statistics.

**Results:** Burnout results (MBI) showed that 32% of the participants presented emotional exhaustion, 12% diminished personal accomplishment, and 4% depersonalization. Concerning the HADS, 60% presented anxiety symptoms, with higher scores for those who were

women ( $p = .043$ ), single ( $p = .036$ ), younger ( $p = .003$ ), and with less working experience ( $p = .013$ ). Depressive symptoms were found for 32% of the participants.

Seven main themes have emerged from the qualitative analysis: i) hardest challenges of working in dialysis centers during the COVID-19 pandemic; ii) emotional impacts; iii) other psychological impacts; iv) personal life impacts; v) strategies to cope with the adversities; vi) future perspectives about working in dialysis facilities; vii) positive impacts of the pandemic.

**Conclusions:** Overall, healthcare professionals faced several challenges during the COVID-19 pandemic (e.g., increased workload, communication difficulties with the patient), which were overcome using effective coping mechanisms, particularly support from peers. Furthermore, almost 1/3 of the participants evidenced emotional exhaustion, highlighting the importance of monitoring HPs' mental health. To the best of our knowledge, this is one of the first studies investigating the impact of COVID-19 on HPs in dialysis contexts, bringing to light some of the stressors and coping mechanisms during crisis situations.

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## POS-939

### EFFICACY OF BNT162B2 VACCINE IN PATIENTS UNDERGOING HEMODIALYSIS IN NORTH OF PORTUGAL

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**Introduction:** Coronavirus disease 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is associated with higher morbidity and mortality in patients on maintenance hemodialysis (HD). These patients tend to have a reduced immune response to infection or vaccination, as demonstrated with the hepatitis B virus vaccine. The authors aimed to assess the humoral response following vaccination with the BNT162b2 (Pfizer-BioNTech) vaccine in patients on maintenance hemodialysis and the factors associated with it.

**Methods:** The study included 81 in-center hemodialysis patients in North of Portugal with 76 years of median age. All patients had received two doses of the BNT162b2 vaccine and had no history of COVID-19 prior or during the study. The serology test was performed using quantification of anti-spike IgG antibodies of SARS-CoV-2. The level of IgG was monitored at 2, 4 and 6 months after receiving the second dose of the vaccine. The result was considered positive if IgG level was detected above 50 AU/m6.

**Results:** The median anti-Spike antibodies titers were 982 (interquartile range [IQR], 249-1773) AU/m6, 555 (IQR 145-964) AU/m6, and 202 (IQR 72-389) AU/m6 at month-2, -4, and -6, respectively. The seropositivity was confirmed in 91.4% of patients at 2 months after the second dose. This proportion decreases over time, reaching 87.7% at 4 months and 80.2% at 6 months. All patients with less than 65 years old had IgG  $> 50$  AU/m6 until the fourth month ( $n=24$ ). A significant inverse correlation between age and IgG levels was found at month-2 ( $p < 0.001$ ), -4 ( $p = 0.001$ ) and -6 ( $p = 0.004$ ). A Mann-Whitney  $U$  test indicated that the age of patients who maintained humoral response was significantly lower at month four (74 [IQR 60-83] vs 83.5 [IQR 74-85.5];  $p = 0.035$ ) and six (72 [IQR 59.5-81.5] vs 83 [IQR 72-86.5];  $p = 0.019$ ).

The titers of antibodies were significantly lower in patients under immunosuppressive medication at month-2 (72 vs 995.5;  $p = 0.015$ ), -4 (42 vs 558.5;  $p = 0.012$ ) and -6 (23 vs 203;  $p = 0.011$ ). The odds of not having an antibody response was higher in individuals on immunosuppressive drugs (odds ratio [OR]=6, 95% confidence interval [CI]: 0.47-76.14 at month-2; OR=17.5, 95% CI: 1.42-215.21 at month-4). At month-6, none of the patients on these drugs had IgG in the positive range.

There was no significant difference in sex, nutritional status, period under renal replacement therapy, previous kidney transplant, or dialysis efficacy.



**Conclusions:** This study shows that most patients maintain a substantial humoral response 6 months following the BNT162b2 vaccine. Age portrayed an important role in the humoral response. Immunosuppressive agents also seem to be an important factor, although the amount of patients on this drugs in the present study was smaller. The authors considered that a third dose could be needed because level of antibody decreased over time, mainly in older patients or those under immunocompromised therapy.

No conflict of interest

**POS-940**

**ANTIBODY RESPONSE TO PFIZER BNT162B2 VACCINE IN HEMODIALYSIS PATIENTS: THE PREVIOUS SARS-COV-2 INFECTION INFLUENCE**



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**Introduction:** Several studies suggest that hemodialysis (HD) patients are more susceptible to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection. Vaccination seems to be extremely important in these patients, however, some studies have shown a less sustained immune response over time. This study aimed to evaluate the impact of prior SARS-CoV-2 infection on the antibody response to Pfizer BNT162b2 vaccine at 2 months and to identify predictors of the developed antibodies levels.

**Methods:** In this prospective study we evaluated patients on maintenance HD that received Pfizer BNT162b2 vaccine. The scheme consisted in 2 doses with an interval of 3 weeks between them for the patients without prior SARS-CoV-2 infection; those with a prior infection received only 1 dose. To assess the response to vaccination we measured the anti-spike IgG antibodies of SARS-CoV-2 (anti-S Ab) at 2 and 4 months after completing the vaccination scheme. The primary goal was to determinate the rate of response to vaccination. In a further analysis, we investigated the contribution of previous SARS-CoV-2 infection on the level of anti-S Ab developed at 2 months in this population.

**Results:** The study population was composed by 118 patients on maintenance HD, mostly male (54.2%) and with a median age of 70.5 years (Interquartile range [IQR] 22). Two (1.7%) patients had received chemotherapy regimens in the past 6 months and 3 (2.5%) patients were under immunosuppressive therapy at the time of vaccination. The antibody response occurred in 106 (89.8%) patients at the second month after vaccination, with an anti-S Ab median of 1141 AU/ml (IQR 3590). Twenty-two patients (18.6%) had previous history of SARS-CoV-2 infection. This group of patients were significantly younger (63.0 vs 74.5 years,  $p = 0.07$ ) and had higher antibody levels (12382.5 vs 980 AU/ml,  $p < 0.01$ ) when compared to patients without previous infection (no other differences found between these groups regarding comorbidities). There was a weak negative correlation between age and anti-S Ab level at 2 months in the study sample. In a multiple linear regression model, younger age, prior SARS-CoV-2 infection and absence of immunosuppressive therapy were identified as predictors of 41.3% of the anti-S Ab level in the study population. Finally, in the 112 patients whose anti-S Ab level was measured after 4 months from vaccination, we found that 96 (85.7%) patients remained with a positive response, however, there was a significant reduction in the anti-S Ab level (1113.0 vs 631.0 AU/ml,  $p < 0.01$ ).

**Conclusions:** Patients receiving maintenance HD appears to have lower immune response to Pfizer BNT162b2 vaccine compared to the general population. Furthermore, the period of immunoprotection also seems to be shorter, which may lead to a reevaluation of the number of doses needed. Being young, having a previous infection and the absence of immunosuppressive therapy seems to be important factors in the development of antibody response in our study.

No conflict of interest

**POS-941**

**THE EFFECTIVENESS OF COVID-19 VACCINE IN REDUCING THE SEVERITY AND MORTALITY RATE AMONG THE END STAGE KIDNEY DISEASE WITH COVID-19**



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**Introduction:** In late 2019, a novel coronavirus causing severe acute respiratory syndrome (SARS-CoV-2) emerged in Wuhan, China and rapidly spread throughout the world causing coronavirus disease (COVID-19). End-stage kidney disease (ESKD) populations are vulnerable group with high mortality when contracted COVID-19. We aimed to determine the effects of vaccine on the severity and mortality rate of COVID-19 infection among ESKD population in Malaysia.

**Methods:** This is a retrospective observational study on the COVID19 infection among ESKD patients on maintenance dialysis, who were admitted for COVID-19 from 1<sup>st</sup> May 2021 till 15<sup>th</sup> September 2021 at Sultanah Aminah Hospital and Sultanah Nora Ismail Hospital in Johor, confirmed by either a positive RTK-Ag or RT-PCR SARS-CoV2 tests. Demographic, clinical, and vaccination data were collected. Subjects who had breakthrough COVID-19 at least 14 days after second dose of SARS-CoV2 vaccines were defined as "Vaccine" group (VG), while "no vaccine" group (NVG) included "Incompletely Vaccinated" (those who were diagnosed with COVID-19 within 14 days of second vaccine dose or received only first dose) or "Unvaccinated" when diagnosed with COVID-19. Severity of COVID-19 was classified into 5 categories as per Malaysian COVID-19 clinical practice guideline. The severity of infection were further dichotomised as mild-moderate (category 1-3) and severe (category 4-5) for analysis. We compared the demographic and clinical outcomes of VG vs NVG.

**Results:** A total of 303 patients were recruited. Mean age was 57.3 (44.2-70.4) years old, while 53.8% had diabetes mellitus (DM) and 9.6% had cardiovascular disease (CVD). 148 (48.8%) and 155 (51.2%) belongs to VG and NVG respectively. There were no differences in the mean age, gender, prevalence of DM, modality of renal replacement therapy and diagnosis of primary disease between the two groups, but there was higher prevalence of CVD in the NVG vs VG (12.9% vs 6.1%,  $p = 0.044$ ). Overall, 145 (47.9%) had mild-moderate infection, while 158 (52.1%) had severe infection. Mean CT value was 23.96 +/- 6.90. 78 (25.7%) subjects from overall cohort died from the infection. VG had similar CT value compared to NVG (23.99 vs 23.93,  $p = 0.953$ ). However, the VG had lower incidence of severe infection (33.8% vs 69.7%,  $p < 0.001$ ) and lower mortality rate (12.2% vs 38.7%,  $p < 0.001$ ) compared to NVG. Increasing age, DM, CVD and lower CT values were predictors of death. The unadjusted mortality odds ratio (OR) of "Incompletely Vaccinated" group and "Unvaccinated" group were 0.965 ( $p = 0.924$ ) and 0.217 ( $p < 0.001$ ) respectively. Multiple logistic regression showed vaccination and CT value were independent predictors of death.

Table 1: Demographic profile of end stage kidney disease subjects with COVID-19 and comparison between "vaccine" and "no vaccine" (incomplete vaccination and unvaccinated) group

	All (N = 303)	"No vaccine" (n = 155)	"Vaccine" (n = 148)	P value
Age, mean (sd)	57.3 (13.13)	57.3 (13.23)	57.0 (13.06)	0.735
Age < 60, n (%)	162 (53.5%)	81 (52.6%)	73 (47.4%)	0.710
Age 60 or more, n (%)	140 (46.2%)	81 (54.7%)	67 (45.3%)	
Gender				
Male, n (%)	163 (53.8%)	87 (56.1%)	76 (51.4%)	0.404
Female, n (%)	140 (46.2%)	88 (43.9%)	72 (48.6%)	
DM status, n (%)	198 (65.3%)	99 (63.9%)	100 (67.6%)	0.498
Cardiovascular disease status, n (%)	29 (9.6%)	20 (12.9%)	9 (6.1%)	0.044
Dialysis modality				
HD, n (%)	281 (92.7%)	140 (90.3%)	141 (95.3%)	0.097
PD, n (%)	22 (7.3%)	15 (9.7%)	7 (4.7%)	
Primary disease				
Unknown, n (%)	32 (10.6%)	15 (9.7%)	17 (11.5%)	0.763
DM, n (%)	198 (65.3%)	99 (63.2%)	100 (67.6%)	
Hypertension, n (%)	62 (20.5%)	35 (22.6%)	27 (18.2%)	
Obstructive uropathy, n (%)	3 (1.0%)	2 (1.7%)	1 (0.7%)	
Glomerulonephritis, n (%)	8 (2.6%)	5 (3.2%)	3 (2.0%)	
Vaccination status				
Unvaccinated, n (%)	113 (37.3%)	113 (72.9%)	0 (0%)	< 0.001
Incomplete, n (%)	42 (13.9%)	42 (27.1%)	0 (0%)	
Vaccinated, n (%)	148 (48.8%)	0 (0%)	148 (100%)	
Vaccine type (n = 172)				
BNT162b2, n (%)	131 (76.2%)	15 (41.7%)	116 (65.3%)	< 0.001
CoronaVac, n (%)	26 (15.1%)	8 (22.2%)	18 (13.2%)	
ChAdOx1, n (%)	15 (8.7%)	13 (36.1%)	2 (1.5%)	