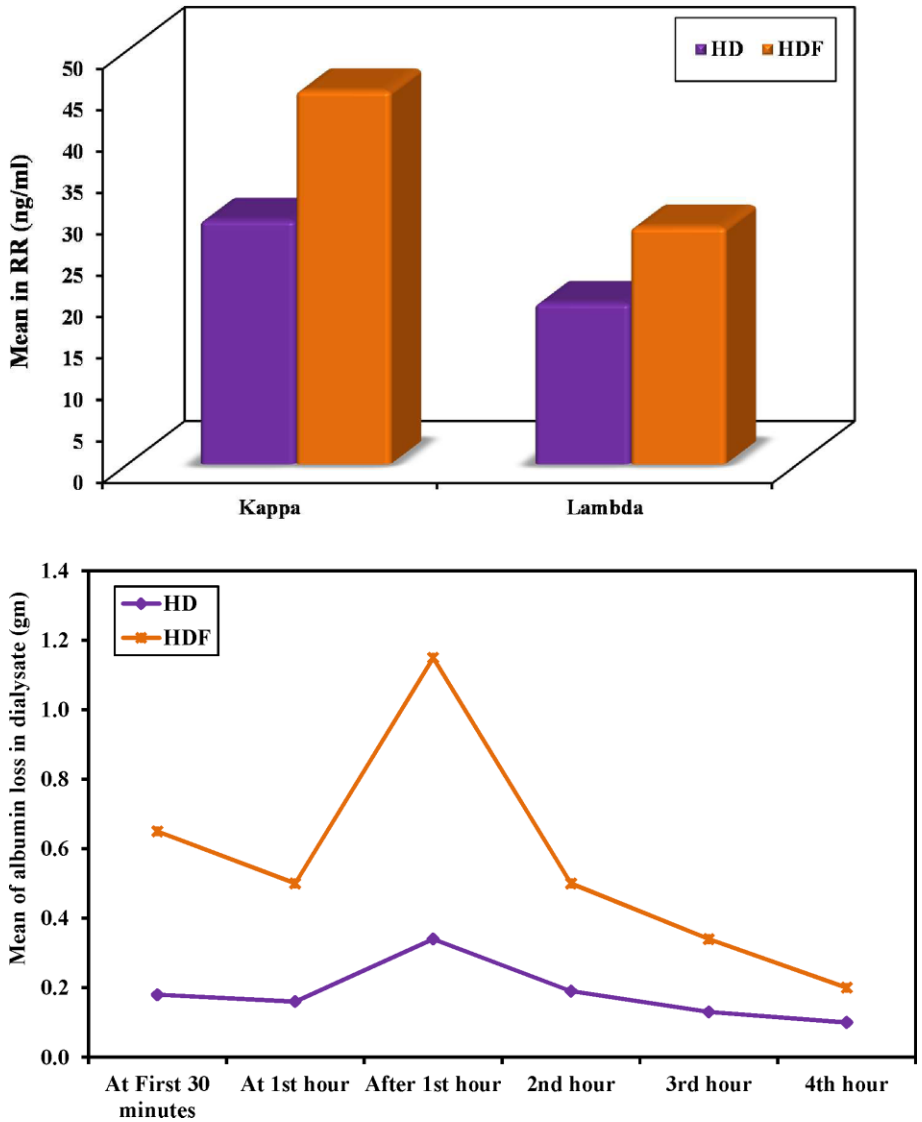

FIGURE 1: kappa and lambda Reduction ratio (ng/mL) in high flux HD and HDF albumin l oss in dialysate in high flux HD and HDF.

MO890 **MODIFIABLE AND NON-MODIFIABLE FACTORS ASSOCIATED WITH INCREASED COVID-19 RELATED MORTALITY AMONG DIALYSIS PATIENTS**

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BACKGROUND AND AIMS: Patients with end-stage kidney disease (ESKD) face higher risk for severe outcomes from COVID-19 infection. Moreover, it is not well known to which extent potentially modifiable risk factors contribute to mortality risk. In this study, we investigated the incidence and risk factors for 30-day case-fatality of COVID-19 in haemodialysis patients treated in the European Fresenius Medical Care (FMC) Nephrocare network.

METHOD: In this historical cohort study, we included unvaccinated adult dialysis patients with a first documented SARS-CoV-2 infection between 1 February 2020 and 31 March 2021 (study period) registered in the European Clinical Database (EuCliD®). The first SARS-CoV-2 suspicion date for all documented infections was considered the index date for the analysis. Patients were followed for up to 30 days. Follow-up time was defined from the index date until the date of death, end of follow-up period or lost to follow-up, whichever occurred first. We ascertained patients' characteristics in the 6-month period prior to index date. We used logistic regression and XGBoost to assess risk factors for 30-day mortality.

RESULTS: We included 9211 patients meeting the inclusion criteria for the study (Table 1). Age was 65.4 ± 13.7 years, dialysis vintage was 4.2 ± 3.7 years. In the follow up period, 1912 patients died within 30 days (20.8%, 95% confidence interval: 19.9%–21.6%). Correlates of COVID-19 related mortality are summarized in Table 2. Several potentially modifiable factors were associated with increased risk of death: patients on HD compared with online haemodiafiltration had shorter survival after presentation with COVID-19 as well as those who did not achieve the therapeutic targets for serum albumin, erythropoietin resistance index, protein catabolic rate, haemodynamic status, C-reactive protein, single-pool Kt/V, hydration status and serum sodium in the months before infection. The discrimination accuracy of prediction models developed with XGBoost was similar to that observed for main-effect logistic regression (AUC 0.69 and 0.71, respectively) suggesting that no major cross-interaction and non-linear effect could improve prediction accuracy.

CONCLUSION: We observed high 30-day COVID-19 related mortality among unvaccinated dialysis patients. Older patients, men and those with greater

Characteristics	Whole Sample
	(Mean ± SD, median) or n (%)
Patients	9211
Age (years)	65.4 ± 13.7, 67.0
Gender (Male)	58.7
BMI (kg/m²)	28.7 ± 6.1, 27.9
Dialysis Vintage (years)	4.2 ± 3.7, 3.2
Etiology:	
Diabetic Nephropathy	1691 (18.4)
Vascular Disease Hypertension	964 (10.5)
Glomerulonephritis	920 (10.0)
Chronic Pyelonephritis	709 (7.7)
Cystic Kidney Disease	542 (5.9)
Miscellaneous	3373 (36.6)
Missing	1012 (11.0)
Cardiovascular diseases	7967 (86.5)
Genitourinary diseases	7925 (86.0)
Diabetes	3498 (38.0)
Digestive diseases	3623 (39.3)
Infectious diseases	3484 (37.8)
Respiratory diseases	2827 (30.7)
Neoplasm & Cancer	1388 (15.1)
Gastrointestinal Tract Bleeding	491 (5.3)

Table 1. *Characteristics of hemodialysis patients with COVID-19 disease at the time of diagnosis. Comorbidities defined as per USRDS operative definition.*

comorbidities had higher risk of death after COVID-19 infection. Derangement in potentially modifiable factors in the 6 months prior to COVID-19 infection was independently associated with increased mortality. Whether achievement of clinical therapeutic targets is associated with improved survival after COVID-19 infection is a matter of further research.

Characteristics	OR (95% CI)	Characteristics	OR (95% CI)
Non-Modifiable Factors		*Potentially Modifiable*	
Age (yrs)	1.05 (1.04 - 1.05)	Modality Online HDF vs HD	0.86 (0.76 - 0.97)
Men	1.26 (1.11 - 1.43)	Single-pool Kt/V (parameter off therapeutic target)	1.19 (1.02 - 1.38)
Dialysis Vintage (yrs)	1.06 (1.04 - 1.08)	S-Albumin (parameter off therapeutic target)	1.31 (1.11 - 1.54)
Diabetes	1.31 (1.13 - 1.53)	Hydration (parameter off therapeutic target)	1.15 (1.01 - 1.32)
Infectious Diseases	1.15 (1.02 - 1.31)	Hemodynamic Status (parameter off therapeutic target)	1.18 (1.03 - 1.35)
Genitourinary Diseases	1.23 (1.03 - 1.47)	ERI (parameter off therapeutic target)	1.28 (1.08 - 1.53)
Respiratory Diseases	1.22 (1.07 - 1.39)	C-Reactive Protein (parameter off therapeutic target)	1.20 (1.06 - 1.36)
		S-Na (parameter off therapeutic target)	1.12 (1.01 - 1.26)
		PCRn	1.19 (1.05 - 1.35)
		Number of dialysis sessions (30d)	0.95 (0.91 - 0.98)
		BMI (kg/m2) >40 vs 19-25	1.85 (1.41 - 2.42)
		BMI (kg/m2) 30-40 vs 19-25	1.28 (1.09 - 1.50)
		Current/past smoker	1.16 (1.00 - 1.34)

Table 2. *Factors associated with COVID-19 related mortality. Odds ratios estimated by logistic regression. ERI, erythropietin resistance index; PCRn, protein catabolic rate. Therapeutic target defined based on FMC nephrocare standard of care.*

MO891 **POOR TOLERABILITY OF THE STANDARD, EXTENDED, 48H AMBULATORY BLOOD PRESSURE MONITORING IN HAEMODIALYSIS PATIENTS**

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BACKGROUND AND AIMS: Ambulatory blood pressure monitoring (ABPM), extended to 44h or 48h for the diagnosis of hypertension in end-stage kidney disease (ESKD) patients, is recommended by Consensus Documents of the American Society of Nephrology and the European Renal Association. About 10%–20% of individuals in the general population report sleeping problems and other symptoms during 24 h ABPM. Because the longer recording period (44 or 48 h versus 24 h), the notorious sleeping disturbances and the high symptom burden of the ESKD population, the feasibility of the technique may be limited in this population. However, the large-scale tolerability of ABPM in the haemodialysis population, has never been investigated.
METHOD: We performed an international survey of feasibility and tolerability of 48 h ABPM in six centres in three European countries. These centres are led by motivated clinical nephrologists, all members of the EURECA-m working group. 48 h ABPM recording was proposed to a large, representative sample of the whole dialysis population of these centres. Well validated instruments (AAMI/ESH/ISO) were applied in all centres. As recommended by the European Society of Hypertension guidelines, recordings were made at 15-min intervals during the day and 30 min during the night. Reasons for refusal to undergo the test were accurately registered. A tolerability (symptoms) questionnaire and a specific questionnaire for sleep evaluation were administered to all participants who underwent 48h ABPM. Reasons for not completing of the ABPM monitoring were systematically recorded.

Symptoms	*n* (%)
Itching	77 (24%)
Pain during the BP measurements	63 (20%)
Continuous pain during the whole procedure	11 (3%)
Inability to fall asleep or staying asleep	55 (17%)
Frequent interruption of sleeping because of noise or discomfort	102 (32%)

RESULTS: In the whole haemodialysis population of participating centres including 735 patients, 440 (60%) were invited to participate in the study. Among these patients, 119 (27%) refused to undergo ABPM recording. Reasons for refusal were fear of discomfort ($n = 30$, 25%), measurement too long ($n = 22$, 18%), logistic problems ($n = 17$, 14%), previous negative experience ($n = 13$, 11%), clinical reasons ($n = 12$, 10%), other reasons ($n = 25$). Among the 321 patients who performed the 48h ABPM recording, 29 (9%) did not complete it and the main reason for interrupting the recording were discomfort [12 patients (41%)], followed by device failure [10 patients (34%)]. Among symptoms developed during the ABPM study, frequent interruption of sleeping because of noise or discomfort was reported by 32% of patients, followed by itching (24%) and pain during the measurements (20%). The detailed list of symptoms, is reported in the Table 1.
CONCLUSION: Overall, about 25% of haemodialysis patients consider 48h ABPM a laborious and discomforting test and prejudicially refuse to undergo it. Among patients who undergo 48h ABPM, itching and interruption of sleeping are complained by about 1/3 of patients. These figures are substantially higher than those reported in studies in the general population and in hypertensive patients and point to peculiar barriers at applying extended ABPM recordings in the haemodialysis population. Studies applying more tolerable instruments and a minimum set of measurements over a shorter time, with a reduced number of measurements overnight, are clinical research priority for extending the use of ABPM in the haemodialysis population.

MO892 **DEPRESSION AND SYMPTOM BURDEN IN PATIENTS ON CHRONIC HAEMODIALYSIS**

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