Table 1. Descriptive group and subgroup analysis

	Complete sample$n = 88$	Subgroup A$n = 79$	Subgroup B$n = 68$
Age (years), mean (σ)	69.9 (12.7)	70.4 (12.5)	70.2 (13.2)
Sex (female/male), *n* (%)	30 (34.1)	29 (36.7)	23 (33.8)
Modality (HD/PD), *n* (%)	67 (76.1)	60 (75.9)	49 (72.1)
	21 (23.9)	19 (24.1)	19 (27.9)
Dialysis vintage at vaccination, months, mean (σ)	-[a]	-[a]	29.7 (26.7)
Diabetes, *n* (%)	38 (43.2)	35 (44.3)	31 (45.6)
Charlson comorbidity index, mean (σ)	6.8 (2.5)	6.8 (2.5)	6.8 (2.5)
Nephrosclerosis, *n* (%)	24 (27.3)	22 (27.8)	18 (26.5)
Immune disorders, *n* (%)	7 (8)	5 (6.3)	2 (2.9)
CKD stage at vaccination			
Maintenance dialysis, *n* (%)	79 (89.8)	74 (14.8)	68 (100)
Stage 5 CKD, *n* (%)	9 (10.2)	5 (6.3)	0
Time from vaccination to immune status evaluation	-		8 months
Vaccine			
BNT162b2, *n* (%)	78	72	68
ChAdOx1 nCov-19, *n* (%)	6	5	0
Ad26.COV2.S, *n* (%)	2	2	0
None, *n* (%)	2	0	0
Contact with SARS-CoV-2			
COVID-19 infection, *n* (%)	3	0	0
Asymptomatic, *n* (%)	4	0	0
Humoral response			
IgG-RBD (AU/mL), median (IQR)	4.6 (14)	4.7 (12.8)	4.6 (11.4)
NR, *n* (%)	19 (21.6)	16 (20.3)	14 (20.6)
Cellular response			
IGRA (mUI/mL), median (IQR)	574.8 (1376.9)	571.8 (940.6)	530 (914.9)
NR, *n* (%)	14 (15.9)	11 (13.9)	10 (14.6)
Laboratory variable			
sALB, mean (σ)	3.5 (0.5)	3.6 (0.4)	3.6 (0.4)
iPTH, mean (σ)	301.1 (317.7)	310.7 (318.2)	328.6 (331.5)
CRP, mean (σ)	1.1 (1.5)	1 (1.5)	1 (1.6)

σ: standard deviation; CKD: chronic kidney disease; IQR: interquartile range; IGRA: interferon-γ release assay; NR: non-responsive; sALB: serum albumin; iPTH: intact parathormone; CRP: C-reactive protein.
[a]Both groups included patients who were not on dialysis.

MO912 **DIFFERENT IMMUNOGENICITY OF PREVIOUS SARS-COV-2 INFECTION OR COMIRNATY VACCINE (BNT162B2, BIONTECH/PFIZER) IN HAEMODIALYSIS PATIENTS**

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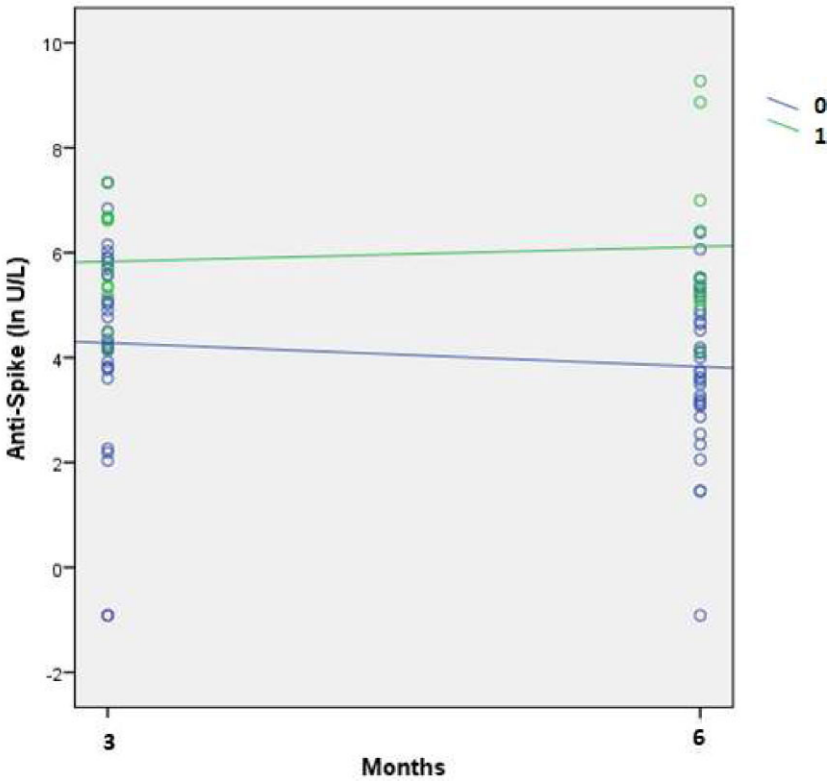
BACKGROUND AND AIMS: The pandemic emergency deriving from the SARS-CoV-2 infection has made it necessary to find effective strategies to preserve high-risk populations with severe comorbidities like haemodialysis patients. Adequate vaccination coverage is of vital importance, representing the main weapon to counter the spread of the virus.

The purpose of our study was to evaluate the antibody response of our dialysis patients vaccinated with the Comirnaty-BioNTech/Pfizer vaccine in comparison with those with previous infection.

METHOD: We retrospectively analysed 52 patients referred to the Dialysis Unit of University Hospital G. Martino, Messina, from 2020 to 2021. Of these, 41 patients had never contracted SARS-CoV-2 (group A), while 11 patients had contracted the infection (group B). Serum samples were taken before vaccine administration, 3 months and 6 months after administration. A linear mixed model was performed on the measurements to analyse the difference in antibody response, comparing the values of neutralizing IgG and anti-COVID-19 antibodies during time (Fig. 1).

RESULTS: The results showed a statistically significant higher titre of anti-spike antibodies in patients with a previous infection ($P = 0.003$), with a stronger association at 6 months after infection. The linear mixed model showed a significant association over time between infection and antispike (ln U/L) in the univariate model, which was confirmed in the multivariate model {adjSlope: 2.9, [95% confidence interval (95% CI) 1.3–4.6]; $P = .001$}. No other variables were related to antispike.

CONCLUSION: These findings can raise novel questions on the role of natural immunity and antibody titre in the haemodialysis population.



MO913 EXPLORING FACTORS INFLUENCING INTRADIALYTIC HYPOTENSION USING DEEP LEARNING

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BACKGROUND AND AIMS: Intradialytic hypotension (IDH) is an independent risk factor affecting the life prognosis in patients undergoing haemodialysis. Various studies using statistical methods have been conducted to identify the factors that cause IDH, but the factors and the interactions among the factors have not yet been clearly elucidated. In this study, we used a neural network model (deep learning) using factors that can be measured in real time as input parameters to identify factors strongly influencing the risk of IDH, with the ultimate goal of predicting IHD using only factors that can be measured in real time.
METHOD: A total of 25 parameters obtained during dialysis treatment in 208 patients were selected as the input parameters for deep learning; the 25 parameters included 18 items selected from the patient background and vital data (including the dialysis time, treatment mode, systolic blood pressure, diastolic blood pressure and mean blood pressure), and seven items calculated from the above data (including the difference between the actual and planned dialysis times and the difference in body weight before and after dialysis). As the evaluation indices, we used F-measure, which is calculated from precision and recall, and attention weight, which indicates the % influence of an input parameter on deep learning. We compared the F-measure and attention.
RESULTS: In the learning using all the input parameters, the correct response rate was 69.6%, the recall rate was 64.2%, the fit rate was 41.7% and the F-measure was 41.7%. The highest value of attention weight among the input parameters was 21.1% for the occurrence of IDH in the most recent treatment. Even in the pattern in which the highest F-measure was found, the attention weight of the occurrence of IDH in the most recent treatment was 21.9%. In all patterns, the top three attention-weighted items were the occurrence of IDH in the most recent treatment, the systolic blood pressure and the body weight before dialysis. The items with high values of the F-measure and high attention weight were considered essential factors for the prediction model.
CONCLUSION: By using deep learning to compare the accuracy of prediction of various input patterns, the occurrence of IDH in the most recent treatment, systolic blood pressure and body weight before dialysis were identified as the factors most strongly influencing the risk of IDH.

MO914 DEVELOPMENT OF ANTIBODY RESPONSE TO SARS-COV-2 VACCINES IN HAEMODIALYSIS PATIENTS

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BACKGROUND AND AIMS: Previous data has shown a reduced immune response shortly after SARS-CoV-2 vaccinations in haemodialysis patients. We therefore investigated the long-term antibody response in patients from different outpatient dialysis centres at 4 weeks and 6 months after a complete vaccination against COVID-19. The results were compared with the humoral responses of non-dialysis subjects.
METHODS: We designed a retrospective multicentric cohort study, enrolling 106 haemodialysis patients and 50 non-dialysis patients after the SARS-CoV-2 vaccination. SARS-CoV-2 antibody testing was performed as part of routine clinical practice 4 weeks as well as 6 months after the immunization with chemiluminescence immunoassays designed to detect antibodies against the SARS-CoV-2 spike protein (Elecsys Anti-SARS-CoV-2 S, Roche Diagnostics, Mannheim, Germany). Testing was performed in the Institute of Laboratory Medicine of the University Hospital Munich. According to the manufacturer's specifications, anti-SARS-CoV-2 S titres >0.8 U/mL are considered reactive (sensitivity 98.8% and specificity 99.9%). Anti-SARS-CoV-2 S titres < 100 U/mL were defined as a low antibody response.
RESULTS: A total of 106 haemodialysis patients with a median age of 73 years received a SARS-CoV-2 vaccination ($n = 105$ mRNA, $n = 1$ AstraZeneca). Of these, 50 non-dialysis patients with a median age of 56 years received a SARS-CoV-2 vaccination ($n = 45$ mRNA, $n = 5$ mRNA/AstraZeneca). During the observational period, 8 haemodialysis patients and 2 non-dialysis patients additionally contracted a SARS-CoV-2 infection.

Between the two testings, an overall decrease in anti-SARS-CoV-2 S antibody titres was observed (haemodialysis patients from a median of 252 to 95 U/mL, non-dialysis patients from a median of 1621 to 441 U/mL). At 6 months after the complete vaccination, 99 (93%) haemodialysis patients still presented with a detectable anti-SARS-CoV-2 spike antibody response (>0.8 U/mL), comparable to 100% of the non-dialysis subjects. However, 60 (57%) haemodialysis patients showed low antibody response (<100 U/mL), whereas only 5 (10%) non-dialysis patients presented with low antibody response.