Conclusions: The COVID-19 pandemic had worldwide devastating outcomes for vulnerable groups such as CKD patients. In our study, we demonstrated that CKD and ESRD is associated with a higher incidence of mortality and MACE in COVID-19. By understanding the clinical course of these patients, clinicians may better anticipate and attempt to improve outcomes during inpatient visits.

TH-PO914

Efficacy of COVID-19 Vaccination in Dialysis Patients: A Prospective Multicenter Study
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Background: Dialysis patients are considered to be at increased risk for SARS-CoV-2 infections. Thus, they were prioritized for early vaccination. However, early data suggested that seroconversion rates may be lower in this population, consistent with the reduced response rate to vaccination against hepatitis B, pneumococcus or influenza. The objective of this study was to evaluate the efficacy of COVID-19 vaccines in this cohort with respect to seroconversion, and to identify potential risk factors for nonresponding.

Methods: We conducted a prospective, multicenter study in chronic hemodialysis patients at 4 dialysis facilities in central Germany, starting April 2021. Blood samples were taken prior to 1st vaccination, before 2nd vaccination, 7-14 days after 2nd vaccination, as well as 60 and 120 days after full vaccination for long-term follow-up. At any study time point, results of COVID-19 antigen tests and clinical symptoms were assessed. Similarly, data was obtained for 1st or 2nd booster vaccination. Blood samples for antibody titers were drawn – if applicable – at day 30, 90, 150 and 210 following booster vaccination. To identify potential risk factors, data including underlying condition, comorbidities, lab results, seroresponse to hepatitis B vaccination, immunosuppression and other medications was assessed. Antibody response was defined above a value of 7.1 BAU/l.

Results: After 2 vaccinations, 288 individuals were evaluated; of these, 270 (>95%) developed an adequate antibody response. Although the majority of patients had received a mRNA vaccine, there was no significant difference in the allover response rates compared to vector based vaccines. Age and immunosuppressive medication were found to be significant risk factors for nonresponsiveness to COVID-19 vaccination (p<0.05). Infections dropped following immunization. Of note, 6 months after full vaccination, antibody titers significantly declined. Both, 1st and 2nd booster doses resulted in an increase of antibody titers; during the omicron wave, no COVID-19 associated hospital admissions were observed.

Conclusions: COVID-19 vaccination is effective in hemodialysis patients. Like in the general population, only age and immunosuppression are risk factors for not responding to vaccination, thereby having a potential impact on outcome, especially for the wave to come.

TH-PO915

Humoral Responses in the Omicron Era Following a Three-Dose SARS-CoV-2 Vaccine Series in Kidney Transplant Recipients
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Background: Kidney transplant recipients (KTR) have a diminished response to SARS-CoV-2 vaccination in comparison to immunocompetent individuals. Deeper understanding of the antibody response in KTRs following third-dose vaccination would enable identification of those who remain unprotected against Omicron and require additional treatment strategies.

Methods: We profiled antibody responses in KTRs pre- and at one and three months post-third-dose SARS-CoV-2 mRNA-based vaccine. Anti-spike and anti-RBD IgG levels were determined by ELISA. Neutralization against wild-type, Beta, Delta and Omicron (BA.1) variants was determined using a SARS-CoV-2 spike virus-like particle assay.

Results: 44 KTRs were analysed at 1 and 3 months (n=26) post-third-dose. At one month, the proportion of participants with a robust antibody response had increased significantly from baseline, but Omicron-specific neutralizing antibodies were detected in just 45% of KTRs. Median anti-spike and anti-RBD antibody levels declined at 3 months, but the proportion of KTRs with a robust antibody response was unchanged. 38.5% KTRs maintained Omicron-specific neutralization at 3 months. No clinical variables were significantly associated with detectable Omicron neutralizing antibodies, but anti-RBD titres appeared to identify those with Omicron-specific neutralizing capacity.

Conclusions: Over 50% of KTRs lack an Omicron-specific neutralizing response 1 month following a third mRNA-vaccine dose. Among responders, binding and neutralizing antibody responses were well preserved at 3 months. Anti-RBD antibody titres may be a useful identifier of patients with detectable Omicron neutralizing antibody response.

TH-PO916

Factors Associated With Reduced Anti-SARS-CoV-2 Antibody Responses After mRNA Vaccination in Kidney Transplant Recipients on Belatacept
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Background: Antiviral antibody responses to SARS-CoV-2 vaccines are reduced in kidney transplant recipients (KTRs) on belatacept compared to those not on belatacept. However, factors associated with lower odds of developing antibody responses in KTRs on belatacept are not known.

Methods: We conducted a retrospective multicenter cohort study of all KTRs on belatacept who received three mRNA vaccine doses at our institutions, where all KTRs on belatacept had anti-SARS-CoV-2 receptor-binding domain (RBD) antibodies measured by the Roche Elecsys immunoassay. The primary outcome was development of anti-RBD antibodies after the third vaccination.

Results: 58 KTRs on belatacept were included. Median age was 62 and 69% were female. 78% were on prednisone, 66% on mycophenolate, 11% on mTOR inhibitors and 9% on azathioprine. After the third vaccine, 32/58 KTRs (55%) developed anti-RBD antibodies (Fig. 1A) with a median level of 3.3 IU/mL (Fig. 1B). Using univariate logistic regression, we found that age≥60, eGFR<45ml/min/1.73m2, prednisone use, and no prior SARS-CoV-2 infection were associated with significantly lower odds of developing anti-RBD responses after vaccination (Fig. 1C). These associations remained significant in the adjusted multivariable model (Fig. 1D). We also evaluated correlation between anti-RBD antibody levels and the number of days between vaccination and the most recent belatacept infusion for each vaccination but did not find an association between the two (Fig. 1E-G).

Conclusions: Prednisone use, age≥60, eGFR<45ml/min/1.73m2, and no history of SARS-CoV-2 infection are associated with lower odds of anti-RBD antibody responses after vaccination in KTRs on belatacept.
TH-PO917

Humoral Response 3 Months After the Booster Dose in Patients on Dialysis: The SENCOCV Study
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Background: Patients on hemodialysis are at high-risk for complications derived from coronavirus disease-19 (COVID-19). The present study aims to evaluate the impact of a booster vaccine dose and breakthrough SARS-CoV-2 infections on humoral immunity three months after the booster dose.

Methods: This is a multicentric and prospective study assessing anti-Spike antibodies 6 and 9 months after initial SARS-CoV-2 vaccination in patients on hemodialysis that had also received a booster dose before the 6-month assessment (early booster) or between the 6- and 9-month assessments (late booster). The impact of breakthrough infections, type of vaccine, time from the booster and clinical variables were assessed.

Results: 711 patients (67% male, 67 [20-89] years) were included. Of them, 545 (77%) patients had received an early booster and 166 (23%) a late booster. At 6 months, 64 (9%) patients had negative humoral response (3% of early booster and 29% of late booster participants, p=0.001) and 58 (91%) of them had seroconverted at 9 months, 64 (9%) patients had negative humoral response (3% of early booster and 29% of late booster participants, p=0.001) and 58 (91%) of them had seroconverted at 9 months.

Conclusions: The study found a significant decrease in adherence to preventive measures before vaccination and after vaccination and after receiving their level of antibody response. Adherence was reported on a 5-point Likert scale. From April till June 2021 blood samples were collected measuring anti-spike IgG by ELISA 28 days after full SARS-CoV-2 vaccination. Participants were categorized based on antibody response effect, who were informed of being a (low-) responder compared to KTR with no antibody response.

Methods: Questionnaires were sent to 2793 KTR, asking for adherence to preventive measures before vaccination, after vaccination and after receiving their level of antibody response. Adherence was reported on a 5-point Likert scale. From April till June 2021 blood samples were collected measuring anti-spike IgG by ELISA 28 days after full SARS-CoV-2 vaccination. Participants were categorized based on antibody response effect, who were informed of being a (low-) responder compared to KTR with no antibody response.

Conclusions: The median antibody titer was 7 BAU/mL in the non-(N=1109), 122 BAU/mL in the low-(N=564) and 1751 BAU/mL in the responder cohort (N=1120). Of all preventive measures, adherence to ‘keep 1.5 m distance’, ‘avoid supermarket or shops’ and ‘rules for visitors or visits’ was significantly higher (p<0.001) before than after vaccination within all cohorts. Adherence was decreased among participants, with a dose response effect, who were informed of being a (low-) responder compared to KTR with no antibody response.

Methods: Questionnaires were sent to 2793 KTR, asking for adherence to preventive measures before vaccination, after vaccination and after receiving their level of antibody response. Adherence was reported on a 5-point Likert scale. From April till June 2021 blood samples were collected measuring anti-spike IgG by ELISA 28 days after full SARS-CoV-2 vaccination. Participants were categorized based on antibody response effect, who were informed of being a (low-) responder compared to KTR with no antibody response.

Conclusions: SARS-CoV-2 vaccination in KTR leads to decreased adherence to some, but not all preventive measures, even when the antibody response was absent or low. A greater decrease in adherence was seen in (low-)responders to vaccination.

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TH-PO918

Phenotype of SARS-CoV-2 Specific T and B Cells in Lynph Node of Patients With ESRD
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Background: In patients with end-stage renal disease (ESRD), mean antibody concentrations following SARS-CoV-2 vaccination are lower than in the general population, which correlates with the risk of COVID-19 disease. For a high-affinity antibody response, germinal centre responses in lymph nodes (LN) are critical. However, current knowledge on SARS-CoV-2 specific B and T cell responses is almost exclusively based on peripheral blood (PB) mononuclear cells (MNC). Previous studies have shown that LN MNC differ substantially from their PB counterparts. We aim to study the functional and phenotypical differences between PB- and LN-derived SARS-CoV-2 specific B and T cells after vaccination in ESRD patients and compare these with their counterparts after infection.

Methods: MNC were isolated from PB and paired non-draining LN of ESRD patients, retrieved during kidney transplantation. Ten patients who received SARS-CoV-2 vaccination and five who suffered COVID-19 disease were included. SARS-CoV-2 spike specific T cells were phenotyped using HLA class I dextramers and for SARS-CoV-2 spike specific B cells spike-tetramers were used. Also, antibody levels and functions like neutralization of infectivity, phagocytosis, antibody-dependent cellular cytotoxicity and complement-mediated lysis of pathogens of infected cells were measured.

Results: An example of the SARS-CoV-2 specific T and B cell phenotyping in PB of healthy controls is shown. Whether these cells are detectable in the non-draining LN of ESRD patients after SARS-CoV-2 vaccination or infection and if they functionally and phenotypically correlate with paired PB MNC is yet to be determined.

Conclusions: We aim to gain an invaluable insight into the underlying T- and B-cell centred immunological processes in LN of ESRD patients in order to understand and optimize vaccine response.

TH-PO919

Adherence to Preventive Measures Before And After Vaccination Against SARS-CoV-2 in Kidney Transplant Recipients
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Background: At the start of the COVID-19 pandemic, kidney transplant recipients (KTR) were warned for a high risk of complications in case of infection. After SARS-CoV-2 vaccination, KTR appeared to still be at risk of fatal COVID-19 disease, especially when they had limited or no antibody formation. The aim of this study was to describe the self-reported change in behavior of KTR before and after SARS-CoV-2 vaccination in groups with different antibody responses.

Methods: Questionnaires were sent to 2793 KTR, asking for adherence to preventive measures before vaccination, after vaccination and after receiving their level of antibody response. Adherence was reported on a 5-point Likert scale. From April till June 2021 blood samples were collected measuring anti-spike IgG by ELISA 28 days after full SARS-CoV-2 vaccination. Participants were categorized based on antibody response effect, who were informed of being a (low-) responder compared to KTR with no antibody response.

Conclusions: The median antibody titer was 7 BAU/mL in the non-(N=1109), 122 BAU/mL in the low-(N=564) and 1751 BAU/mL in the responder cohort (N=1120). Of all preventive measures, adherence to ‘keep 1.5 m distance’, ‘avoid supermarket or shops’ and ‘rules for visitors or visits’ was significantly higher (p<0.001) before than after vaccination within all cohorts. Adherence was decreased among participants, with a dose response effect, who were informed of being a (low-) responder compared to KTR with no antibody response.

Conclusions: SARS-CoV-2 vaccination in KTR leads to decreased adherence to some, but not all preventive measures, even when the antibody response was absent or low. A greater decrease in adherence was seen in (low-)responders to vaccination.

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