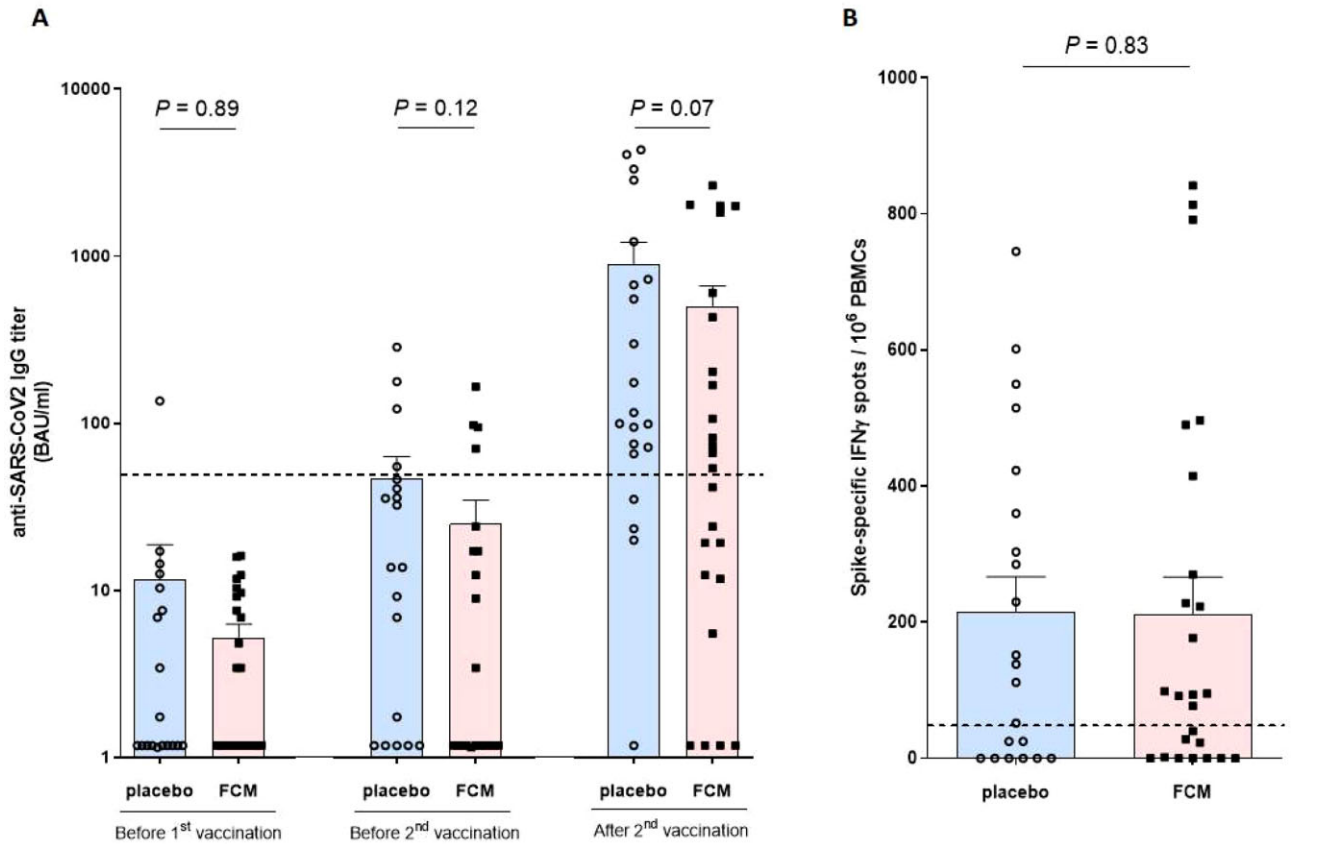

FIGURE 2: Anti-SARS-CoV-2 vaccination response. (**A**) Anti-SARS-CoV-2 antibody titers before vaccination and four weeks after the first and second vaccination in iron-deficient KTRs who had been treated with FCM or placebo. The dashed horizontal line represents the threshold for IgG seropositivity. (**B**) SARS-CoV-specific T-lymphocyte response at 4 weeks after the second vaccination in iron-deficient KTRs treated with FCM or placebo. The dashed horizontal line represents the threshold for a positive T-lymphocyte response.

arm: 93.3 (0.85–342.5) IFN-γ spots per 10^6 PBMCs, placebo arm: 138.3 (0.0–391.7) IFN-γ spots per 10^6 PBMCs, $P = .83$, Fig. 2B]. Anti-SARS-CoV-2 IgG titers and T-lymphocyte reactivity against SARS-CoV-2 significantly correlated with each other (Spearman's rho 0.44, $P = .002$), but not with ferritin levels at 4 weeks after the second vaccination (ferritin versus anti-SARS-CoV-2 IgG titer, Spearman's rho −0.15, $P = .33$; ferritin versus T-lymphocyte reactivity against SARS-CoV-2, Spearman's rho −0.01, $P = .98$). Results were similar in a per-protocol analysis and in sensitivity analyses after the exclusion of individuals with low total IgG levels or mild ID at baseline or patients who received alemtuzumab, anti-thymocyte globulin or high-dose methylprednisolone during the previous 2 years. Separate analyses in subgroups according to immunosuppressive regimen (dual or triple therapy) or vaccine type also yielded highly similar results.

CONCLUSION: FCM treatment efficiently restored iron status in KTRs but did not improve the humoral or cellular immune response against SARS-CoV-2 after two vaccinations. (Funded by Dutch Kidney Foundation, Vifor Fresenius Medical Care Renal Pharma and the Tekke Huizenga Foundation (grant no STHF 2021.01.02); COVAC-EFFECT/EFFECT-KTx ClinicalTrials.gov number, NCT03769441.)

MO1016

FEATURES OF THE FORMATION OF POST-INFECTIOUS AND POST-VACCINAL HUMORAL IMMUNE RESPONSE TO SARS-COV-2 IN KIDNEY RECIPIENTS

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BACKGROUND: This paper presents the results of studying the characteristics of the antibody response in kidney recipients who are at high risk of severe COVID-19.

METHOD: The study of features of the formation of post-infectious anti-SARS-CoV-2 IgG was carried out in the group of kidney recipients ($n = 171$) with PCR confirmed diagnosis of COVID-19. Studies of the characteristics of post-vaccination immunity were carried out in a group of vaccinated recipients ($n = 49$) with Sputnik V (Russia) or Vero Cell (China).

ELISA was used to detect IgG to S and N proteins of the SARS-CoV-2.

Comparative studies used a simple randomized selection of immunocompetent COVID-19 patients ($n = 163$).

Statistical data processing was carried out using the $\chi 2$ and Wald's methods.

RESULTS: It was found that 30 days after the onset of clinical symptoms of COVID-19 in kidney recipients, IgG to S and/or N proteins of SARS-CoV-2 were detected in 89.5% (83.9%–93.3%) of them. The detection rate of IgG to the S protein was higher than that to the N protein [87.7% (81.9%–91.9%) and 62.0% (54.5%–68.9%), respectively). At the same time, the seroprevalence to the pathogen varied by age: in the 18–34-year-old group it was 77.7% (59.9%–88.9%), in the 50–64-year-old group it was 96.7% (88.2%–99.8%) and in the group >64 years old it was 80.0% (66.8%–89.0%). This trend of antibody production in older recipients correlated with the highest frequency of registration in them of moderate and severe forms [66.7% (56.4%–75.6%)]. Differences due to the severity of the disease were noted both in the frequency of detectable antibodies [80.3% (69.5%–88.0%) in recipients with a mild form of COVID-19 and 96.0% in recipients with a severe form of infection ($P < .001$)] and in the intensity of the formed anti-SARS-CoV-2 immunity. Thus, high values of PC (positivity coefficient) (>12) to S protein were recorded in 52.7% (39.8%–65.3%) and 63.2% (53.1%–72.2%) patients with mild and severe forms of COVID-19, respectively, which indicated a direct dependence of the production of antiviral antibodies on the severity of the infection. It was found that in 62.6% (55.1%–69.5%) of recovered recipients anti-SARS-CoV-2 IgG persisted for a period of 3 months from the onset of infection. In a significant proportion of recipients [42.8% (35.5%–50.2%)], antibodies were detected for up to 15 months. In general, the post-infectious antibody response in kidney recipients and immunocompetent patients had similar patterns of development. Despite the general mechanism of antibody production, in immunocompetent patients, the frequency of detection of antiviral antibodies (to N protein: 82.9% and to S protein: 91.2%), tension indicators

(high values of PC to N protein: 51.0% and to S protein: 75.5%) and the duration of retention (in 50.3% at 15 months of monitoring) were slightly higher than the same parameters in recipients with COVID-19.
In kidney recipients after immunization with Sputnik V and Vero Cell ($n = 34$), a rather low detection rate of antiviral IgG [52.9% (36.7%–68.6%) compared with a similar parameter ($P < .001$) in vaccinated immunocompetent individuals [96.8% (94.8%–98.1%)] was found. The seroprevalence in the group of recipients with hybrid immunity (after illness and vaccination, $n = 15$) was 86.7% (60.9%–97.5%). In a comparative analysis of the intensity of post-vaccination immunity, high values of PC to S protein (>12) were recorded in 44.0% (26.7%–62.9%) of recipients vaccinated with Sputnik V and 50.0% (31.4%–68.6%) of recipients vaccinated with Vero Cell. The inverse relationship was observed in immunocompetent individuals: 64.7% (58.1%–70.7%) for Sputnik V and 44.2% (36.8%–51.8%] for Vero Cell.
CONCLUSION: The patterns of antibody response to the causative agent in recipients with COVID-19 are comparable to those in immunocompetent patients, while for vaccinated recipients, a low frequency of detection of antiviral antibodies was shown, which indicates the need to continue research on the humoral immunity in people with vulnerable immunity in order to select the best tactics for COVID-19 immunization.

MO1017 INDUCTION IMMUNOSUPPRESSION AND OUTCOME IN EARLY KIDNEY TRANSPLANT RECIPIENTS WITH COVID-19

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BACKGROUND AND AIMS: COVID-19 in kidney transplants has a high risk of complications and mortality, especially in older recipients diagnosed during the early period after transplantation. Management of immunosuppression has been challenging during the pandemic. We investigated the impact of induction immunosuppression, either basiliximab or thymoglobulin, on the clinical evolution of kidney transplants developing COVID-19 during the early period after transplantation.
METHOD: Kidney transplant recipients with <6 months with a functioning graft diagnosed of COVID-19 from the initial pandemic outbreak (March 2020) until 31 July 2021 from different Spanish centres participating in a nationwide registry.
RESULTS: A total of 127 patients from 17 Spanish centres developed COVID-19 during the first 6 months after transplantation, 73 (57.5%) received basiliximab and 54 (42.5%) thymoglobulin. Demographics were not different between groups, but patients receiving thymoglobulin were more sensitized (cPRA of 32.7% ± 40.8% versus 5.6% ± 18.5%) and more frequently re-transplanted (30% versus 4%). Recipients older than 65 years treated with thymoglobulin showed the highest rate of acute respiratory distress syndrome [64.7% versus 37.1% for older recipients receiving thymoglobulin and basiliximab ($P < .05$), and 23.7% and 18.9% for young recipients receiving basiliximab and thymoglobulin ($P > .05$)] and the poorest survival [mortality rate of 64.7% and 42.9% for older recipients treated with thymoglobulin and basiliximab, respectively ($P < .05$), and 8.1% and 10.5% for young recipients treated with thymoglobulin and basiliximab ($P > .05$)]. Older recipients treated with thymoglobulin showed the poorest survival in the Cox's regression model adjusted for comorbidities.
CONCLUSION: Thymoglobulin should be used with caution in older recipients during the present pandemic era.

MO1018 NEPHROTIC SYNDROME AS A PARANEOPLASTIC ENTITY

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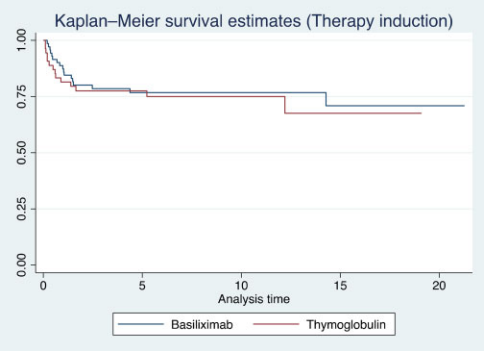

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BACKGROUND AND AIMS: Association between nephrotic syndrome (NS) and cancer is well known. However, it has been barely studied and sustained. Membranous nephropathy (MN) has often been identified as a glomerular paraneoplastic disease. Reported incidence of cancer at the time of biopsy or one year follow-up of MN is 10–20%. Incidence rates in other glomerulopathies are limited. Concomitant malignancy is associated with poor renal outcome in NS since therapy for cancer is a priority and immunosuppressive therapies for NS should be restricted. There is no consensus for cancer screening in patients with NS, with or without known risk factors for cancer. Our aim is to establish the incidence of neoplasia in a cohort of patients of two tertiary hospitals in Spain who develop NS. We analyze clinical characteristics, glomerular disease, types of malignancies and risk factors for cancer in this population.
METHOD: All patients > 18 years old with NS at one tertiary hospital in Madrid between January 2013 and December 2019 and at one tertiary hospital in Barcelona between January 2018 and June 2020 were included. Demographical and clinical data, laboratory results, and tests performed for cancer screening were recorded. Patients who presented cancer the year before or 24 months after the diagnosis of NS were identified. We performed a logistic regression model to identify independent risk factors for cancer in this population.
RESULTS: A total of 114 patients presented with NS during the study periods. A total of 57% were men, and the mean age was 57.28 ± 17.3 years. A total of 60% patients presented high blood pressure and 36% type 2 DM2; 7% patients presented HIV infection and 6% hepatitis C infection. A total of 44.7% reported smoking and 13.1% of alcohol consumption. More frequent histologic diagnosis were: diabetic nephropathy (17.5%), MN (14.9%), minimal change disease (7.9%) and membranoproliferative glomerulonephritis (7.9%). Eight patients presented positivity for anti-phospholipase A2 receptor antibodies. A total of 20 patients presented cancer (17.5%): 12 patients had a malignancy diagnosed the year before the NS onset (10 patients with solid organ malignancy and 2 patients with haematological cancer) and 8 patients 24 months after NS onset (3 patients with solid organ malignancy and 5 patients with haematological cancer). In the univariate analysis, patients with cancer were older (72.35 ± 10.28 versus 53.20 ± 17.13 years old; $P < .0001$). There were no differences in terms of smoking, viral infections, renal function, proteinuria or type of glomerulopathy. In a multivariate analysis, age was the only risk factor for cancer in patients with NS {OR = 1.122, [95% confidence interval (95% CI) 1.050–1.1980]; $P = .0007$}. Patients who were diagnosed with cancer were submitted more frequently to gastroscopy (50% versus 25.5%; $P = .0323$), colonoscopy (60% versus 26.6%; $P = .038$) and mammography (30% versus 11.7%; $P = .370$) as screening procedures for malignancy than those without cancer diagnosis. There were no differences in other screening procedures such as chest X-ray, fecal occult blood test, CT scan or abdominal ultrasound.
CONCLUSION: In our cohort, 17.5% patients with NS presented also concomitant cancer. Age was the only risk factor for neoplasia in this cohort. No association between cancer and gender, type of glomerulopathy, or known risk factors for neoplasia such as alcohol, tobacco or viral infection was found. Patients who were diagnosed with cancer were more frequently submitted to specific cancer screening procedures. It is important to develop screening strategies to find occult malignancy in patients with NS since this condition compromises renal outcome and life expectancy.

MO1019 SIGMA-1 RECEPTOR AGONISTS ARE PROTECTIVE IN A RAT MODEL OF KIDNEY TRANSPLANTATION

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