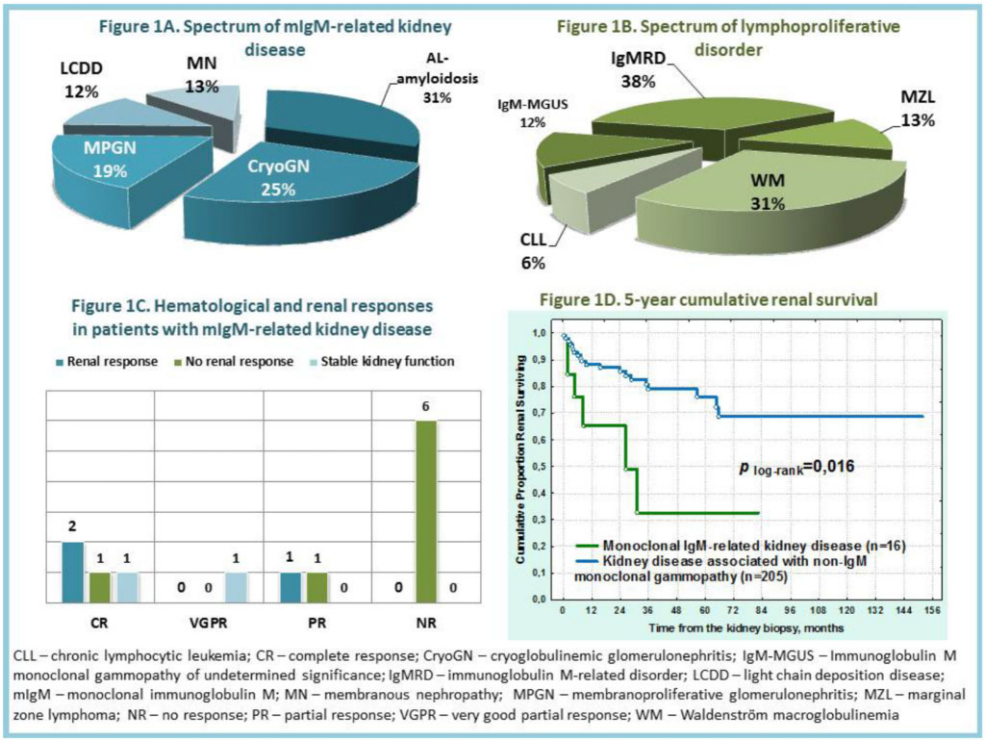

CLL – chronic lymphocytic leukemia; CR – complete response; CryoGN – cryoglobulinemic glomerulonephritis; IgM-MGUS – Immunoglobulin M monoclonal gammopathy of undetermined significance; IgMRD – immunoglobulin M-related disorder; LCDD – light chain deposition disease; mIgM – monoclonal immunoglobulin M; MN – membranous nephropathy; MPGN – membranoproliferative glomerulonephritis; MZL – marginal zone lymphoma; NR – no response; PR – partial response; VGPR – very good partial response; WM – Waldenström macroglobulinemia

Parameters	mIgM-related kidney disease n=16
Gender, female/male, n/n	8/8
Age, years, mean ±SD	65±9
eGFR, ml/min/1,73m², median (IQR)	48 (21; 68)
24h proteinuria, g/24h, median (IQR)	7,2 (1,7; 14,4)
Serum albumin, g/l, median (IQR)	26 (12; 29)
Positive serum cryoglobulins type I or II, % of patients	87,5
Serum paraprotein, g/l, median (IQR)	5,95 (1,58; 10, 44)
Urine paraprotein, g/l, median (IQR)	0 (0; 1,01)
IgM kappa/lambda, n/n	9/7
% of lymphoplasmacytic cell in bone marrow aspirate, median (IQR)	2,8 (1,8; 6,8)
Hyperviscosity syndrome, % of patients	50
Cold agglutinin hemolytic anemia, % of patients	43,7
Peripheral neuropathy, % of patients	62,5

eGFR, estimated glomerular filtration rate; IQR, interquartile range

FIGURE 2: Clinical and demographic data in patients with mIgM-related kidney disease at the time of kidney biopsy.

MO184 **DEVELOPMENT AND VALIDATION OF A MULTIVARIABLE PREDICTION MODEL FOR NONSEROCONVERSION AFTER SARS-COV-2 VACCINATION IN KIDNEY TRANSPLANT RECIPIENTS**

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BACKGROUND AND AIMS: Kidney transplant recipients (KTRs) are still at risk of fatal COVID-19 disease after SARS-CoV-2 vaccination, even after a third booster vaccination. With the spread of new SARS-CoV-2 variants, great urgency exists for a better understanding of the factors that impact the immune response in these

patients. Our aim was to predict nonseroconversion after SARS-CoV-2 vaccination to understand the factors that may disrupt the humoral response in KTRs.
METHOD: A multivariable logistic regression model was developed and validated that uses routinely available clinical and laboratory information to predict nonseroconversion after two doses of SARS-CoV-2 mRNA vaccination in KTRs. KTRs were prospectively enrolled to the Dutch REnal patients COVID-19 VACcination (RECOVAC) consortium, specifically to the Immune Response (IR) study with four participating university medical centres in the Netherlands. The discovery cohort consisted of three participating centres (Amsterdam UMC, Radboud UMC Nijmegen and Erasmus MC Rotterdam), and the validation cohort of patients treated in UMC Groningen. A large second validation set from the RECOVAC consortium (LESS-CoV-2) was used to test a more simplified version of the model without lymphocyte counts. All participants received two doses of the mRNA-1273 COVID-19 vaccine (Moderna) and had no history of SARS-CoV-2 infection. Participants were classified as responder or non-responder based on seroconversion at day 28 following the second vaccination with a threshold for seropositivity based on receiver operator curve analysis set at S1-specific IgG antibody concentration ≥10 BAU/mL.
RESULTS: The discovery cohort included 215 KTRs of which 126 responders and 89 non-responders. After backward selection, 6 out of 19 factors remained predictive for nonseroconversion: increased age, lower lymphocyte count, lower estimated glomerular filtration rate (eGFR), shorter time after transplantation, not using steroids and the use of mycophenolate mofetil/mycophenolic acid (MMF/MPA) (Figure 1). The area under the curve (AUC) of the receiver operating characteristics was 0.83 (95% confidence interval 0.78–0.89) in the discovery cohort after adjustment for optimism and 0.84 (0.74–0.94) in external validation of the UMC Groningen cohort (n = 73), and 0.75 (0.72–0.77) in external validation of the LESS-CoV-2 dataset (n = 2484). In addition, MMF/MPA appeared to have a dose-dependent unfavourable association with the S1 IgG antibody titer (Figure 2).
CONCLUSION: Six predictors allow for a better understanding of the process of the development of the humoral response in KTRs. These predictors could be applied to individualized patient counseling and treatment strategy during the COVID-19 pandemic and future innovative vaccine trial design for this complex patient group.

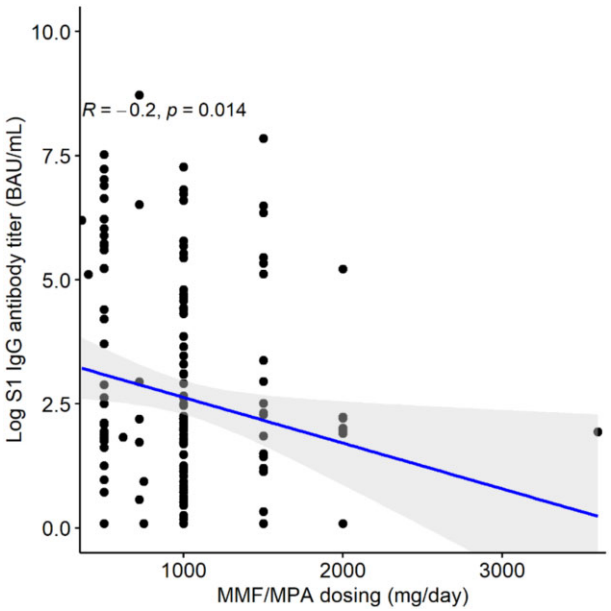

FIGURE 2: Nomogram for the prediction of nonseroconversion after SARS-CoV-2 vaccination in KTRs.

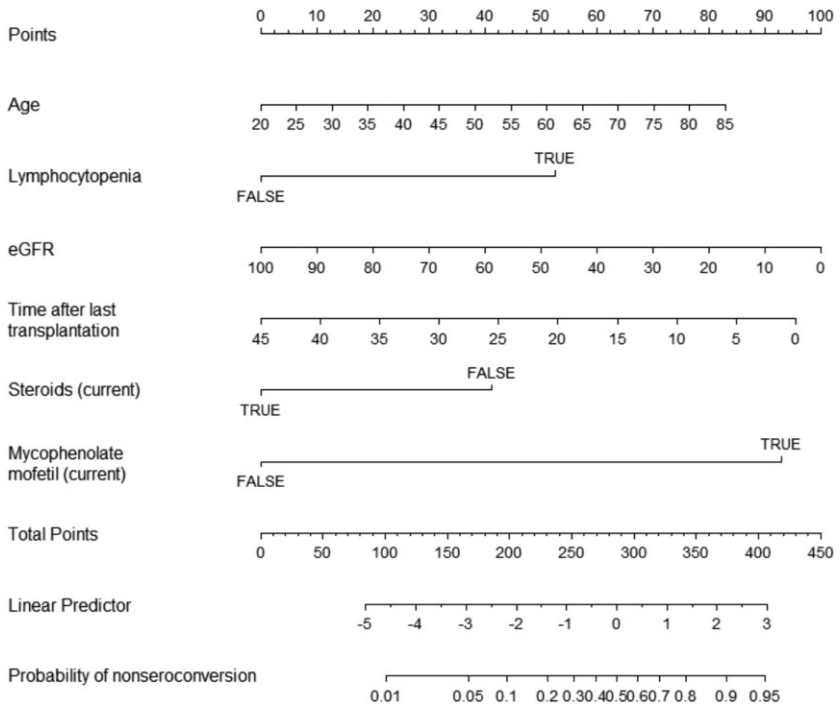

FIGURE 1: The effect of MMF/MPA dosing (mg/day) on the log S1 IgG antibody titer (BAU/mL).