MO948 IMPACT OF DE NOVO IMMUNOSUPPRESSION IN THE COVID-19 SEROLOGICAL STATUS AT KIDNEY TRANSPLANTATION

Laura Llinàs-Mallol[1,2], Betty Odette Chamoun Huacon[1,2], Dolores Redondo Pachon[1,2], Eduardo Padilla[3], Carlos Arias-Cabrales[1,2], Carla Burballa[1,2], Miren Iriarte-Abril[1,2], Júlia Farrera-Núñez[1,2], Eulàlia Solà[1,2], María José Pérez-Saéz[1,2] and Marta Crespo[1,2]

[1]Hospital del Mar, Nephrology, Barcelona, Spain, [2]Hospital del Mar Medical Research Institute, Nephrology, Barcelona, Spain, and [3]Laboratori de Referència de Catalunya SA, El, Spain

BACKGROUND AND AIMS: COVID-19 infection has heavily impacted our national health system since March-2020. Although the kidney transplant (KT) activity was strongly reduced initially, nowadays it is partially recovered by using 'COVID-clean' pathways and vaccination of KT candidates since February-2021. However, scarce information is available regarding how *de novo* KT immunosuppression influences the serological status of vaccinated recipients.
METHOD: We reviewed the course of 38 *de novo* KT recipients transplanted between March-September 2021 fully vaccinated before KT. SARS-CoV-2 IgG antibodies against Spike (IgG-S) before and after KT (median: 32 days) were quantified with a serological assay (positive ≥13.0 AU/mL).
RESULTS: Of 38 recipients, 35 showed positive IgG-S at KT (92%). We exclude from the analysis, 4 recipients with COVID infection which interfered the analysis and 5 with inappropriate samples. The remaining 26 recipients had received the second dose of the mRNA vaccine a median time of 48 days before the pre-KT IgG determination. All patients maintained IgG-S over the cut-off after KT, but we observed that half *de novo* recipients (53.8%) showed a 50% reduction in the level of IgG-S at 1 month: 12/20 (60%) of those who received induction with basiliximab and 2/6 (33%) who received thymoglobulin. Regarding the impact of maintenance immunosuppression under induction with basiliximab, the IgG-S levels halved in 50% of those with tacrolimus-mycophenolate and 67% with tacrolimus-everolimus.

The restricted analysis of IgG-S levels excluding five outliers before KT (>800 AU/mL) showed the most intense reduction in three KT recipients who received thymoglobulin-tacrolimus- mycophenolate (263.8 versus 68.8, 74%) compared with seven basiliximab-tacrolimus-mycophenolate cases (494.4 versus 359.8, 27%) and eleven basiliximab-tacrolimus-everolimus (344.0 versus 306.4, 11%) KT recipients.
CONCLUSION: Immunosuppression in *de novo* KT recipients reduces significantly the seroprotective levels of antibodies anti-Spike induced by COVID m-RNA vaccines in more than half the recipients. In our experience, the combination of thymoglobulin, tacrolimus and mycophenolate produces a more intense reduction than the combination of basiliximab with tacrolimus and mycophenolate or everolimus.

MO949 METABOLIC SYNDROME AND LONGITUDINAL RISK OF RENAL AND CARDIOVASCULAR EVENTS IN RENAL TRANSPLANT RECIPIENTS: A SINGLE CENTER STUDY IN JAPAN

Toshihide Naganuma[1], Daijiro Kabata[2], Tomoaki Iwai[3], Yoshiaki Takemoto[3] and Junji Uchida[3]

[1]Osaka City University, Department of Urology, Osaka, Japan, [2]Osaka City University, Department of Medical Statistics, Japan, and [3]Osaka City University, Department of Urology, Japan

BACKGROUND AND AIMS: Metabolic syndrome (MetS) is a condition that promotes arteriosclerosis due to various arteriosclerosis risk factors such as impaired glucose tolerance, impaired lipid metabolism and hypertension, caused by insulin resistance as a result of visceral fat obesity. There have been several epidemiological studies on MetS after renal transplantation conducted in the U.S. and Europe, indicating that MetS is an accumulation of non-immunological risks of renal transplantation, which affects the patient's prognosis as well as that of the kidney. However, the incidence of MetS in Japanese renal transplant recipients is 20 to 30% and lower compared with that of American and European recipients, and its effects on cardiovascular complications and kidney prognosis are not clear. We report on the results of our long-term longitudinal study on MetS in renal transplant recipients.
METHOD: A total of 104 renal transplant outpatients, over 6 months after their transplants and in stable condition, were diagnosed with MetS from January 2006 and June 2007 and followed up until December 2020. The effects of MetS on outcomes including renal and cardiovascular events were studied using four diagnostic criteria [NCEP-ATP III (Japanese, original, Asian) and IDF criteria]. We performed multivariate Cox proportional hazards regression analysis to examine the association between the presence or absence of MetS and combined vascular events in renal transplant recipients. This study protocol was conducted in accordance with the Principles of the Declaration of Helsinki and the Declaration of Istanbul, and was approved by the ethics committee of Osaka City University (No. 2020–197). All analyses were performed using R ver. 4.0.3 (https://www.r-project.org/foundation/) with the 'rms' and 'RcmdrPlugin.EZR' packages.
RESULTS: The incidence of MetS among our renal transplant recipients in our baseline investigation was 24.0% by the NCEP-ATP III (Japanese) criteria, and our longitudinal study showed that MetS was a significant risk factor even after adjustment of background factors using the propensity score (HR: 2.82; 95% CI: 1.26–6.34, P = 0.012). In addition, the effects of MetS diagnosed using the NCEP (original), NCEP (Asian) and IDF criteria on cardiac composite events were HR: 2.39; 95% CI: 1.07–5.38, P = 0.035, HR: 2.35; 95% CI: 1.00–5.55, P = 0.051, and HR: 1.90; 95% CI: 0.84–4.31, P = 0.12, respectively.
CONCLUSION: Although the incidence of MetS in Japanese renal transplant recipients was lower compared to that of American and European renal transplant recipients, our results indicated that MetS also affected cardiovascular complications and kidney prognosis in Japanese renal transplant recipients. Moreover, depending on the diagnostic criteria for MetS, the HR was shown to be around 2.0–3.0.

MO950 LIVING DONOR KIDNEY TRANSPLANTATION—DOES DONOR SEX MODIFY RECIPIENT OUTCOMES?

Sofia Ventura[1], Gonçalo Cruz[2], Círia Sousa[3], Cátia Figueiredo[4], José Silvano[5], Sofia Pedroso[5], Manuela Almeida[5], Jorge Malheiro[5], La Salete Martins[5] and António Cabrita[5]

[1]Hospital Do Divino Espírito Santo, Nephrology, Portugal, [2]Hospital Garcia d'Orta, Nephrology, Portugal, [3]Centro Hospitalar de Trás-os-Montes e Alto Douro, Nephrology, Portugal, [4]Centro Hospitalar de Médio Tejo, Nephrology, Portugal, and [5]Centro Hospitalar e Universitário do Porto, Nephrology, Portugal

BACKGROUND AND AIMS: Living donor kidney transplantation (LDKT) provides the best outcomes of all renal replacement modalities, including survival and quality of life. Studies on the association between pre-donation estimated glomerular filtration rate (eGFR) and graft outcomes have yielded inconsistent results. Two eGFR thresholds are generally used to accept or deny a donor (respectively, ≥90 and <60 mL/min/1.73 m^2), with 60–89 mL/min/1.73 m^2 as an intermediate range in which the decision is based on other factors. In this study, we aimed to evaluate how donor's pre-donation eGFR, particularly when <90 mL/min/1.73 m^2, impacts the recipient's kidney function and graft survival, and if these outcomes are modified by donor's sex.
METHOD: This is a unicentric retrospective observational study that included the LDKT pairs submitted to transplant between 2008 and 2017. We gathered clinical data, including donor's comorbidities, immunological features of the transplant, the occurrence of acute rejection episodes in the first year, and graft eGFR during the follow-up period.

For statistical purposes, we split the donors in three groups: group 1, with eGFR ≥90 mL/min/1.73 m^2; group 2, eGFR < 90mL/min/1.73 m^2 and female sex; and group 3, eGFR <90 mL/min/1.73 m^2 and male sex. The Kaplan–Meier curves and Cox proportional hazards multivariable regression were used for survival analysis, and linear mixed regression was used to evaluate the annual slope of the recipient's eGFR.
RESULTS: We studied 210 donor-recipient pairs. The average age at the time of transplant was 48.0 ± 10.6 years for donors and 41.3 ± 13.3 years for recipients. Pre-donation eGFR was 100.1 ± 14.2 mL/min/1.73 m^2 and most donors (78%) were in group 1 (eGFR 105.9 ± 9.4 mL/min/1.73 m^2).

We found two independent predictors of death censored graft failure: the occurrence of rejection episode(s) during the first year (HR: 4.99, CI: 1.44–17.26, P = 0.011) and having a donor from group 3 (HR: 5.14, CI: 1.49–17.75, P < 0.010). The independent predictors of global graft loss were rejection episode(s) during the first year (HR: 4.002, CI: 1.224–13.086, P = 0.022), calculated PRA > 0% (HR: 3.802, CI: 1.387–10.489, P = 0.010) and donor from group 3 (HR: 3.514, CI: 1.087–11.355, P = 0.036).
At 1-year after transplant, the recipients from group 1 had a significantly higher eGFR than patients from group 2, but did not differ from group 3 (respectively, 60.8 versus 54.4 [P < 0.05], versus 55.2 mL/min/1.73 m^2 [P = 0.328]). However, when analyzing the slope of annual decline in the recipients' eGFR beyond 1-year post-transplant, the groups 1 and 2 did not differ (decline rate of -1.0 mL/min/1.73 m^2 in both groups, P = 0.978), but there was a statistical difference between groups 1 and 3 (decline rates of, respectively, −1.0 versus −2.7 mL/min/1.73 m^2, P = 0.003).
CONCLUSION: This study suggests that in LDKT, when donors' eGFR is borderline (<90 mL/min/1.73 m^2), donors' sex has an important impact on recipient outcomes. In fact, we observed that having a male donor is a strong predictor of graft failure (both death-censored and global) and that there is a steeper decline in the annual kidney function of these recipients after the first year. Thus, we suggest that donors' eGFR should be clinically balanced with other determinants of kidney function, particularly in the presence of a male donor, with careful selection of both donors and recipients.