Non-HLA Antibodies In Kidney Transplant Recipients With Indication And Follow-up Graft Biopsies At One And Three Years

E. Sola-Porta[1], J. Eguía[2], M. Redondo-Pachón[1], A. Buxeda[1], S. Sanz[3], J. Gimeno[1], C. Burballa[1], M. Pérez-Sáez[1], M. Crespo[4]

[1]Hospital del Mar, Barcelona, Spain, [2]Laboratorio de Referencia de Catalunya, Barcelona, Spain, [3]Nephrology, IMIM, Barcelona, Spain, [4]Nephrology and Kidney Transplantation, Hospital del Mar, Barcelona, Spain

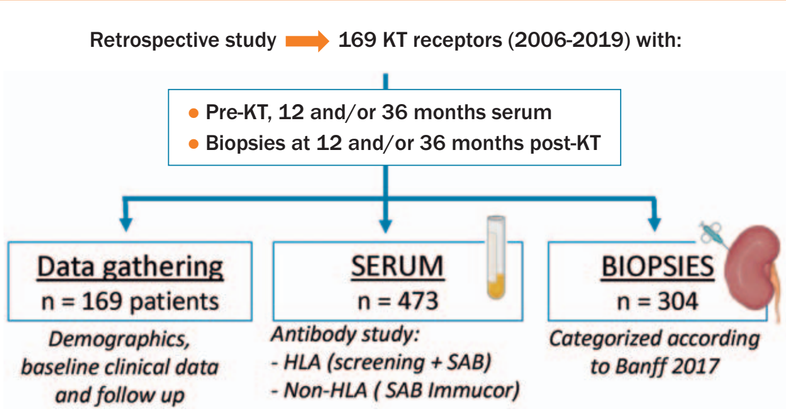
Introduction

Donor-specific HLA antibodies (HLA-DSA) contribute to antibody-mediated rejection (ABMR) after kidney transplantation KT and worse graft-survival (1-2).

ABMR-like damage can also occur in the absence of HLA-DSA. Non-HLA antibodies (Abs) may play a role in this damage and post KT outcomes (3-4). The development of multiplex panels has allowed rapid testing of multiple non-HLA targets.

We aimed to evaluate the influence of non-HLA Abs on the development of ABMR-like (full ABMR or microvascular inflammation without HLA-DSA) using a multiplex test.

Population and Methods



We analyzed 60 non-HLA Abs with the Single Non-HLA Beads kit (LIFECODES®, Immucor) on a Luminex® platform obtaining a background corrected MFI and MFI ratio for each antibody.

Contact
Marta Crespo Barrio
Hospital del Mar
Pg. Marítim de la Barceloneta, 25-29,
08003 Barcelona
mcrespo@psmar.cat

References
1. Redondo-Pachón, D.; et al. Hum. Immunol. 2018
2. Crespo, Llinás et al. Front Immunol. 2021
3. C. Butler et al. Am J Transpl 2020
4. A. Senev et al. Frontiers in Immunology 2022

Results

Altogether, non-HLA Abs were present in 85% of patients before KT and 84,8 and 82,9% at one- and three-years' post-KT biopsy. Pre KT, patients had a median of 3 (IQR 2-5) non-HLA Abs and of 10 (IQR 2.9-18.5) MFI ratio sum with a logarithmic distribution (Figure 1).

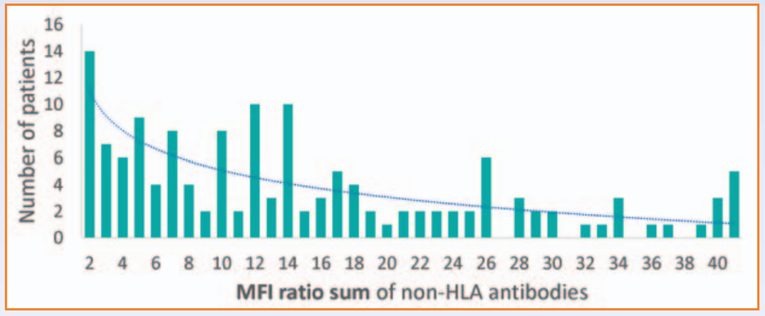


Figure 1. Distribution of patients with positive pretransplant non-HLA antibodies according to he MFI ratios sum.

Patients with a higher non-HLA Abs burden (Q4 of MFI ratio sum) pre-KT had a significant higher risk of developing **ABMR**-like, HR 1.84 (1.142-3.092), p=0.013 (Figure 2).

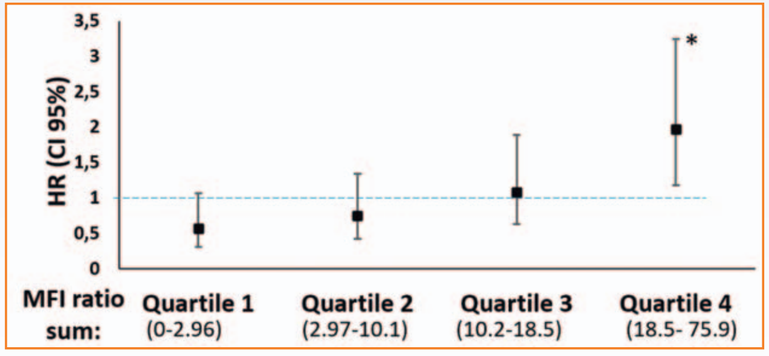


Figure 2. Multivariable cox regression for risk of ABMR-like according to pre-KT non-HLA MFI ratio sum quartiles. Adjusted by pre-KT HLA and receptor sex.

Regarding **graft survival**, patients with a higher non-HLA ab burden pre-KT also had a significant higher risk of graft loss, HR 3.598 (1.531-8.458), p=0.003 (Figure 3).

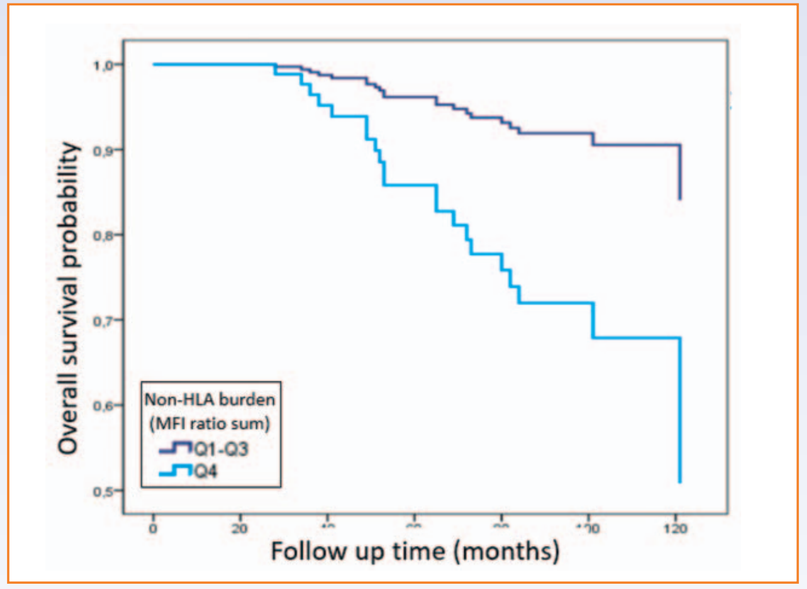


Figure 3. Multivariable cox regression analysis according to pre-KT non-HLA burden. Adjusted by pre-KT HLA screening and receptor sex. Death censored.

Regarding the 60 distinct non-HLA antibodies, pre-KT antibodies against GSTT1, NCL, PLA2R1 and thyroglobulin were associated with ABMR-like damage post-KT. Also, collagen 1, CXCL11 and PLA2R1 were associated with worst graft survival.

Conclusions

We detected non-HLA-Abs in around 80-85% patients before and after KT with a non-HLA Single Ab multiplex test. We found an association between a high burden of non-HLA Abs pre-KT and ABMR as well as with worst graft-survival.

IMIM Parc de Salut MAR Barcelona
Institut Hospital del Mar d'Investigacions Mèdiques
Hospital del Mar Parc de Salut MAR Barcelona