BANTAO Journal 2022; 20(1): 27-28

BJ

BANTAO Journal

Letter to the Editor

Immunoadsorption Use in Patients with Antibody Mediated Rejection

Nikolina Basic-Jukic, Ivana Juric, Vesna Furic-Cunko, Lea Katalinic, Marko Kolic and Bojan Jelakovic

Clinical hospital centre Zagreb, Department of nephrology, arterial hypertension, dialysis and transplantation, School of medicine, University of Zagreb, Zagreb, Croatia

Dear Editor,

In recent years, antibody-mediated rejection (AMR) has been increasingly recognized as contributing to most kidney graft failures. Intensification of immunosuppression and antibody removal by therapeutic plasma exchange or immunoadsorption (IA) has been a mainstay of treatment in most centers. The efficacy of IA in treating AMR was suggested in a relatively small series of patients [1-3], but knowledge of its efficiency in removing specific antibodies is lacking.

We present a case of a 69-year-old kidney transplant male patient who is refractory to immunoadsorption (IA) removal of donor-specific antibodies (DSA), human leukocyte antigen (HLA) class II, specificities DQ2 and DQA1*05.

He was diagnosed with autosomal dominant polycystic kidney and liver disease in 2013. From August 2013, kidney function was replaced with intermittent hemodialysis until the transplantation from a deceased donor was performed in May 2016. He received standard triple oral immunosuppressive therapy (IS)-tacrolimus, mycophenolate mofetil, and prednisone. His posttransplant course was uneventful until December 2021, when he required hospitalization due to extensive bilateral COVID-19 pneumonia requiring oxygen supplementation, with modification of immunosuppression. His clinical status improved, but laboratory tests showed kidney allograft deterioration with increased serum creatinine (sCr) from initial values of 130 to 220 μmol/L. Luminex-based panel-reactive antibodies detection showed donor-specific antibodies, HLA class II, DQ2 specificity with MFI: 19800-20500, and DQA1*05 specificity with MFI: 16900-20000). The pathohistological analysis of the kidney allograft biopsy specimen revealed chronic active, C4d positive, AMR, associated with acute cellular rejection, Banff classification grade Ia.

Due to cytomegalovirus (CMV) reactivation, he was treated with ganciclovir and CMV-specific polyclonal immunoglobulin. Rejection was treated with 6-methylprednisolone pulses. Fifteen IA procedures were performed, with 1.5 to two plasma volumes treated during each session. The control Luminex-based PRA detection (done after the first five consecutive IA procedures) showed a unchanged titer of DSA. Control PCR of CMV DNA was negative. After the planned 15 IA procedures were completed, the Luminex-based PRA detection was repeated, which again verified the high value of DSA, HLA class II (DQ2 with MFI: 18300-19900 and DQA1*05 with MFI: 16100-19900), which indicated refractoriness to DSA removal by IA. At the subsequent outpatient control examinations, sCr was 200 and 170 μmol/L. Proteinuria remained unchanged. His treatment was continued with an increased dose of a steroid.

Immunoadsorption in the indication of acute or chronic AMR has efficiently been initiated after other treatments, such as depleting anti-lymphocyte antibodies, high-dose steroids, or even TPE, have failed [1,2]. However, the refractoriness of antibodies to removal by IA is unknown. The method failed to decrease antibody titer in some patients [3] and with different ligands [4]. The immune adsorber Globaffin® uses Peptid-GAM® ligands for the binding of antibodies. Some antibodies may have physical or chemical characteristics, making them refractory for removal.

With this case report, we would like to emphasize that IA may be inefficient in removing some DSA and, therefore, be unsuccessful in recovering graft function. Further studies with larger groups of participants are needed to determine the antibodies that may be refractory to removal by IA.

Conflict of interest statement. None declared.

Reference

1. Bohmig GA, Regele H, Exner M, *et al.* C4d-positive acute humoral renal allograft rejection: effective treatment by immunoadsorption. *J Am Soc Nephrol* 2001; 12: 2482.
2. Doberer K, Bond G, Klager J, *et al.* Immunoadsorption Combined with Membrane Filtration to Counteract Early

Correspondence to: Nikolina Basic-Jukic, Department of nephrology, arterial hypertension, dialysis and transplantation Clinical hospital centre Zagreb, Kispaticeva 12, 10000 Zagreb, Croatia; E-mail: nina_basic@net.hr; nbasic@kbc-zagreb.hr

Treatment-Refractory Antibody-Mediated Rejection. *Blood Purif* 2020; 49(5): 576-585.
3. Yamada H, Takamori K, Ogawa H. In vitro study on the removal of pemphigus antibody with immunoadsorption. *J Clin Apher* 1996; 11(1): 14-15.
4. Rostaing L, Congy N, Aarnink A, *et al*. Efficacy of immunoadsorption to reduce donor-specific alloantibodies in kidney-transplant candidates. *Exp Clin Transplant* 2015; 13(Suppl 1): 201-206.