

## PRE-TRANSPLANT ASSESSMENT OF NON-HLA ANTIBODY IN INCOMPATIBILITY KIDNEY TRANSPLANT RECIPIENTS

Mary Carmelle Philogene<sup>1</sup>, Annette Jackson<sup>1</sup>, Jennifer Metz<sup>1</sup>, June Jones<sup>1</sup>, Robert A. Montgomery<sup>2</sup>, Duska Dragun<sup>3</sup>, Mary Sue Leffell<sup>1</sup>, Andrea Zachary<sup>1</sup>. <sup>1</sup>The Johns Hopkins University School of Medicine, Baltimore, MD; <sup>2</sup>The Johns Hopkins University School of Medicine, Baltimore, MD; <sup>3</sup>Charité - Universitätsmedizin, Berlin, Germany

### Abstract:

**Aim:** To determine the contribution of antibodies to angiotensin II type 1 receptor (AT1R-Ab) and anti-endothelial cell antibody (AECAs) in patients receiving an incompatible kidney transplant, defined as presence of donor specific HLA antibodies (HLA-DSA) or ABO incompatibility between donor and recipient. **Methods:** AT1R-Ab and AECAs were evaluated prior to transplantation for 54 recipients of an incompatible kidney allograft. The specificity and level of HLA-DSA were evaluated using HLA phenotype (Immucor Gen-Probe, San Diego, CA) and Single Antigen Beads (One Lambda, Canoga Park CA) performed on a Luminex platform. AT1R-Ab and AECAs detection were performed using quantitative ELISA (CellTrend GmbH, Luckenwalde, Germany) and precursor endothelial cell flow cytometric crossmatch (XM-ONE Absorber AB, Stockholm, Sweden). Biopsy diagnosis of rejection was defined according to the Banff 2013 criteria. **Results:** There were no significant differences in patient or donor demographics, presence (72% versus 69%) or strength of HLA-DSA and AECAs between patients with an AT1R-Ab > 17 Units/ml versus AT1R-Ab < 17 Units/ml. The incidence of AT1R-Ab > 17 Units/ml was greater in patients who had lost a previous graft (96% versus 41%; p = 0.0001). The group with AT1R-Ab > 17 Units/ml received an average of 3 (range 0-8) plasmapheresis and IVIG treatments prior to transplantation compared to 2 (range 0-6) treatments in the group with AT1R-Ab < 17 Units/ml to remove HLA or ABO antibody prior to transplantation. Three of 25 patients (12%) in the AT1R-Ab > 17 Units/ml received eciluzumab compared to 4 of 29 (14%) in the AT1R-Ab < 17 Units/ml. Creatinine levels at 5 days post-transplantation were 2.7 and 1.2 respectively for the two groups. Post-transplantation, six kidney transplant recipients with strongly positive AT1R-Ab and no or very low HLA-DSA (< 1000 MFI) were treated for biopsy confirmed AMR. **Conclusion:** Among patients undergoing desensitization for HLA or ABO incompatibility, AT1R-Ab with strength > 17 Units/ml, had higher SCr levels at 5 days post-Tx compared to those with AT1R-Ab levels < 17 Units/ml. The data presented here agree with the reports of others that AT1R-Ab, by itself, can result in AMR. Preemptive detection of AT1R-Ab in patients who are at increased risk of rejection is warranted.

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