

## Influence of Human Leukocyte Antigen Status and Gender of Positive Crossmatch Patients on Long-term Survival Outcomes of Antibody Incompatible Renal Transplantation

Dr. Nandhini Macha<sup>1</sup>, Ms. Aisha Abimbola<sup>2</sup>, Prof. David Briggs<sup>3</sup>, **Prof. Nithya Krishnan<sup>4</sup>**, Dr. Natasha Khovanova<sup>5</sup>

<sup>1</sup>Coventry University, Coventry, United Kingdom, <sup>2</sup>Coventry University, Coventry, United Kingdom, <sup>3</sup>Tissue Typing Lab, NHSBT, Birmingham, United Kingdom, <sup>4</sup>Consultant Transplant Nephrologist and visiting Professor, UHCW, Coventry, United Kingdom, <sup>5</sup>School of Engineering, University of Warwick, Warwick, United Kingdom

**\*Purpose:** Human Leukocyte Antigen (HLA) sensitization is a significant obstacle which limits the use of renal transplantation, but it serves as a therapeutic option for patients who are on transplant wait-list since long-time. Therefore, the aim of this research study was to investigate the factors affecting the long-term graft survival, which include type of pre-transplant HLA antibody class and gender of the crossmatch positive subjects.

**\*Methods:** 130 patients who underwent HLA incompatible renal transplantation between the years 2003 and 2018 at our unit were included in this retrospective, single-centre study. Patients were categorized into HLA class-I, class-II, class-I&II and low-level HLA antibody groups to determine the effect HLA antibody class and their levels on the graft survival of the patients. Patients with Flow Cytometry (FC), Microbead (Bead) and Complement Dependent Cytotoxicity (CDC) positive crossmatches were further divided into two groups based on their gender.

**\*Results:** The overall patient and graft survival at 10-years was 69.5% and 67.1% respectively. Graft survival for HLA class-I, class-II, class-I&II and low-level antibody groups at 10-years was 64.6%, 43.9%, 63.2% and 69.7% respectively, (low-level antibody group vs class-II group, \*P<0.05). The graft survival for flow positive female and male patients at 10-years was 74.3% and 60.5% respectively (P>0.05). The graft survival for bead positive female and male patients at 10-years was 69.1% and 80.2% respectively (P>0.05). The graft survival for CDC positive female and male patients at 10-years was 15% and 67.1% respectively, \*P<0.05.

**\*Conclusions:** This study concludes that patient's with low HLA antibodies show better long-term graft survival. Whereas, patients with HLA class-II antibodies alone show worse long-term graft survival. CDC positive female patients were observed to show significantly worse long-term graft survival probabilities when compared to that of CDC positive male patients.