Abstract Type : Poster Exhibition
Abstract Submission No. : F-006765

Assessment of HLA Antibody Dynamics in Patients Awaiting Kidney Transplantation

Eun Ah Kim[1], Hyunhye Kang[1], Eun-Jee Oh[1]

[1]Department of Laboratory Medicine, The Catholic University of Korea Seoul St. Mary's Hospital, Republic of Korea

Introduction: Although preexisting anti-HLA antibodies are regularly monitored for changes in patients awaiting kidney transplantation (KT), the natural kinetics of HLA antibodies over time have yet to be fully elucidated. This study aims to investigate the dynamics of anti-HLA antibodies using the single antigen bead (SAB) assay in patients waiting KT.

Methods: A retrospective review was conducted on SAB test results of 5757 patients (2016-2023). 316 patients met the inclusion criteria; SAB assay measurement on at least two occasions, with a minimum interval of 6 months and no prior history of immunosuppression. The SAB results were categorized based on the peak mean fluorescence intensity (MFI) levels into different grades: strong (10,000≤MFI), moderate (5,000 to 10,000), weak-moderate (3,000 to 5,000), weak (1,000 to 3,000), and negative (MFI≤1000).

Results: Of 316, 198(62.7%) and 184(58.2%) had no changes in class I and class II MFI grades, respectively. For class I and class II antibody, 73(22.1%) and 89(26.3%) patients showed an increase, whereas 45(13.6%) and 43(12.0%) patients showed a decrease, respectively. Significant MFI changes (2 MFI grade≤) were found in 26(8.2%) patients for class I (18 increase, 8 decrease) and 20 (6.3%) for class II (16 increase, 4 decrease). Of 49 patients who had three or more SAB assay results, 38(77.5%) patients did not show significant MFI changes. Interestingly, one patient, a 68-year-old woman showed spontaneous resolution of HLA antibodies (from 7631 MFI to negative during six years period), despite no documented sensitization history or immunosuppression.

Conclusion: While most patients demonstrated stable dynamics of anti-HLA antibodies, we also observed significant changes, including a case of spontaneous resolution. These findings highlight the individualized nature of anti-HLA antibody dynamics and emphasize the complexity of alloimmunity. Further investigations are necessary to elucidate the underlying mechanisms driving such changes and evaluate their impact on KT outcomes.