

Evaluation of Methods and Results Used in Screening and Identification of Anti-HLA Antibodies: A Multicenter Study in Türkiye

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Abstract

Objective: Panel-reactive antibodies (PRA) or anti-human leucocyte antigens (anti-HLAs) are produced by the patient's immune system in response to donors during transplant procedures. Antibodies to HLA are known to develop following blood transfusion, pregnancy, and a history of transplantation. Donor-specific antibodies (DSA) arising in patient serum in response to donor-specific HLA can be detected using the single antigen bead (SAB) test. The objective of this multicentre retrospective study is to analyse the distribution of anti-HLA antibodies in Turkey, mean fluorescence intensity (MFI) values, and to assess the concordance of PRA tests across centres on a national scale.

Materials and Methods: The study will include adult patients and their donors who were on the living and cadaveric waiting lists and who underwent PRA screening/identification/SAB tests between 2013-2024. Data on patients' anti-HLA antibodies and demographics will be obtained from 12 tissue typing laboratories. Tests and MFI values will be recorded. The data will undergo rigorous testing for statistical significance using SPSS

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version 23.0, with a p -value <0.05 .

Results: This study will reveal the distribution of anti-HLA antibodies across Turkey for the first time, and the effects of sensitization factors will be analysed. The correlation between Class I and II antibody positivity, MFI levels, and demographic data will be evaluated.

Discussion: The findings of this study will contribute to advancing laboratory consistency and establishing national test standardisation. It is hypothesized that the obtained data may also provide insights into updating the organ allocation system to include antibody testing. The comparison of PRA tests, SAB methods, and the MFI values will provide a new perspective on laboratory and clinical evaluation. This study aims to enhance the efficacy of patient-donor matching through the identification of shared criteria for pre-transplant immunological risk assessment within the national context.

Keywords: MFI, PRA screening/identification, SAB, transplantation