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Determination of Donor Specific Antibody Changes in Heart Transplant Patients by MagSort Method

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Abstract

Objective: One of the major challenges in achieving long-term success in heart transplantation is the presence of donor-specific antibodies (DSAs) against HLA antigens. The extent of mismatch can be associated with the likelihood of DSAs formation. These HLA-specific antibodies recognize clusters of accessible polymorphic amino acid residues, known as functional epitopes or eplets, shared by the target HLA molecules. Magnetic beads with a single HLA specificity (MagSort, One Lambda, USA) were developed to facilitate the isolation of HLA specific DSAs from complex serum samples and represent one of the most recent techniques. The aim of the study is to re-test serum samples in which the presence of DSAs was detected by LSA testing during pre- and post-transplant evaluation using MagSort, to determine the presence of the identified antibodies and to correlate these results with clinical outcomes.

Materials and Methods: A total of 6 serum samples collected at different time points from 4 heart transplant patients at Baskent University Ankara Hospital. LSA Class I–II tests (before and after MagSort treatment) (One Lambda, USA) were performed on serum samples from the patients at the Baskent University Adana Dr.Turgut Noyan Medical Center. The LSA Class I–II test was performed using the Luminex method.

This study was approved by Baskent University Institutional Review Board (Project no: KA25/171) and supported by Baskent University Research Fund.

Results: Immunology and pathology results are summarized in the Table 1.

Conclusion: The MagSort method, as a new technique, may support donor selection in the organ transplantation process by identifying antibodies defined as DSAs for recipients and/or determining changes in MFI levels. It may facilitate and enhance the accuracy of identifying shared eplets. It may enable clear identification of de novo DSAs after transplantation, thereby guiding the treatment plan.

Keywords: Donor specific antibody, heart transplantation, MagSort

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