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Editorial

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It Is Time to Consider Human Leukocyte Antigen Compatibility in Lung Transplantation

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In kidney transplantation, antibodies against donor human leukocyte antigen (HLA) lead acute rejection. However, HLA typing and antibody screening in lung transplantation are not as important as in kidney transplantation. It is mainly because of the limited number of donors and urgency in lung transplantation. In spite of that, antibody-mediated rejection has been known to cause chronic allograft dysfunction (CAD) in lung transplant recipients, which is the major cause of mortality in lung transplantation. The survival rate of patients who underwent lung transplantation is worse compared with that of other organ transplantation. For example, the 5-year survival was 59% in the lung recipients, and the rate was 45.3% in Korea.[1] This worse survival rate may partly be associated with positive crossmatches.

Lung transplantation has been a therapeutic option in patients with end-stage lung disease. The number of lung transplantation increased worldwide and was 4,567 in 2016. In Korea, the number also increased rapidly and was 157 in 2019.[1] Smith et al.[2] showed that pre-formed donor-specific HLA antibodies were associated with poor survival within the first year after lung transplantation. Brugiere and colleagues[3] reported that freedom from bronchiolitis obliterans syndrome was lower in patients with donor-specific antibodies and mortality was higher. In spite of these results, there are still debates regarding the impact of donor-specific antibodies directed against donor HLA before and after transplantation.[4] Moreover, there has been no report from Korea about the effect of HLA crossmatching in lung transplantation.

Recently, Kim et al.[5] investigated the positive crossmatch rate in lung transplantation patients and outcomes using a Korean nationwide multicenter cohort. Among 220 patients who received lung transplantation, 9 patients (4.1%) showed T cell- and/or B cell-positive crossmatches. One year survival rate in patients with positive crossmatch was lower than those without mismatches. When considering the detection of T and B lymphocytes, positive crossmatching by T lymphocytes was associated with mortality. The study provides valuable information. This is the first study that showed the prevalence of positive crossmatching in Korea. Moreover, the authors analyzed the outcomes of positively crossmatched patients and for the first time showed the association with worse survival. Based on this result, we should bear the results of crossmatching in mind. Now it is time to consider HLA compatibility in lung transplantation in Korea.

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