Preliminary T and B flow cytometry crossmatch results affecting kidney allocation and transplants from deceased donors

Myoung Hee Park, Sohyun Kim, Eun Hee So, Kwang Woo Jeon, Boknyun Han

Department of KODA Laboratory, Korea Organ Donation Agency, Seoul, Korea

Background: For deceased donor transplantations, Korean Network for Organ Sharing (KONOS) mandates negative results of preliminary T cell anti-human globulin (AHG) crossmatch (XM) for kidney and pancreas allocation. KONOS XMs are performed by 20 laboratories using frozen stored sera of the waitlisted candidates, and XM methods vary among these laboratories. Our laboratory is performing more than 50% of the nationwide KONOS XMs and we newly adopted B-flow cytometry XM (FCXM) in addition to the previously used T-AHG and T-FCXM methods. FCXM results are not used for KONOS allocation, and transplant teams decide whether to transplant across positive FCXM results. We investigated how the T- and B-FCXM results are affecting kidney allocation and transplants from deceased donors.

Methods: Single tube T/B FCXMs were performed and the results were reported either positive or negative with strength of reaction (mean fluorescence intensity [MFI] ratio). From July 2019 to December 2019, we performed KONOS XMs for 121 deceased donors and 1,931 kidney candidates. We analyzed FCXM results of transplanted cases (n=235) and those of transplant candidates with higher priority of allocation, not receiving transplants (n=178).

Results: Among 235 transplanted cases, only eight cases (3.4%) had positive FCXM results showing relatively low MFI ratios (T; median, 2.3). Among 235 transplant candidates with higher priority of allocation and not receiving transplants, 96 cases (53.9%) had positive FCXM results showing relatively high MFI ratios for both T ($\pm$ B) positive (n=77; median, 5.8) and B only positive cases (n=19; median, 15.3). These results indicate that transplant teams prefer transplanting FCXM negative cases.

Conclusions: Both T- and B-FCXM results are affecting kidney allocation and transplants, when these results are available for the transplant teams. Currently, virtual XM is not used for organ allocation in Korea and preliminary T- and B-FCXM results appear to be of help for the transplant teams in performing safer transplantation.

Corresponding author: Myoung Hee Park

E-mail: parkmhee@snu.ac.kr

© The Korean Society for Transplantation

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/4.0/>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.