Kidney Transplant

신장이식에서 비-HLA 항체의 역할

서울대학교병원 장기이식센터, 서울대학교 의과대학 장기이식연구소

양 재 석

Roles of Anti-non-HLA Antibodies in Kidney Transplantation

Jaeseok Yang, M.D., Ph.D

Transplantation Center, Seoul National University Hospital, Seoul;
Transplantation Research Institute, Seoul National University College of Medicine, Seoul, Republic of Korea

Anti-HLA donor-specific antibodies (DSA) induce both acute and chronic antibody-mediated rejection, and thereby contribute to graft loss. Interestingly, high panel reactive antibody status influenced graft outcomes even in HLA-identical siblings, who do not have DSA. Recently, many anti-non-HLA antibodies have been detected and reported to have prognostic values.

Both danger and alloimmunity can induce tissue injury, and autoimmunity to cryptic self antigens such as collagen, K-α1 tubulin, LG-3, vimentin, myosin etc. Antibodies against angiotensin type 1 receptor (AT1R), endothelin type A receptor, and major histocompatibility complex class I-related chain A (MICA) are also produced. Anti-non-HLA antibodies can induce inflammation by complement or antibody-dependent cellular cytotoxicity, coagulation by tissue factor, and fibrosis by growth factors.

Anti-MICA does not seem to have significant impact on renal allograft survival in modern immunosuppression. Both pre-transplant and de novo post-transplant anti-AT1R antibodies have significant impact on renal allograft survival independently of DSA. Anti-LG3 antibodies were associated with obliterative renal allograft vasculopathy. Anti-apoptotic cell antibodies were also associated with allograft outcomes independently of DSA. However, current guidelines do not recommend solid phase assays or endothelial cell cross-match for anti-non-HLA antibodies as a routine exam, because their prognostic values remain uncertain and high cost.

Combination anti-humoral therapy including plasmapheresis, intravenous immunoglobulin, rituximab, and bortezomib is expected to inhibit anti-non-HLA antibody-mediated injury. AT1R antagonist has also a role in anti-AT1R antibody-mediated injury.

Key words: Alloimmunity, Anti-non-HLA antibody, Autoimmunity, DSA