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Clinical Outcomes of Kidney Transplant Recipients with Positive Luminex and Negative Crossmatch

Tae Hyun Ban, Eun Jeong Ko, Eun-Jee Oh, Bum Soon Choi, Cheol Whee Park, Yeong Jin Choi, Yong-Soo Kim, Byung Ha Chung, Chul Woo Yang
Department of Internal Medicine-Nephrology, School of Medicine, The Catholic University of Korea, Korea, Republic of

Objectives: Immunoassays such as crossmatch (XM) donor specific anti-HLA antibody (HLA-DSA) are important studies for predicting antibody mediated rejection (AMR) after kidney transplantation (KT). However, clinical outcome of kidney transplant recipients (KTRs) with negative XM (XM (-)) and low HLA-DSA levels is unclear. We investigated the clinical outcome of KTRs with XM (-) and low HLA-DSA levels.

Methods: We reviewed who underwent transplantation from January 2010 to July 2018 at single center. The low level of HLA-DSA was defined as mean flurescent intensity less than 5000 with the luminex method. Exclusion criteria were patients with deceased donor transplantation, ABO incompatible KT, transplantation with negative HLA-DSA (HLA-DSA(-)) and positive XM (XM(+)), and KT with XM(-) and HLA-DSA mean flurescent intensity more than 5000. Finally, a total of 631 patients were included and divided into three groups as followed: HLA-DSA(-) and XM(-) (the CON group; n=538), low HLA-DSA level and XM(-) (the LoDSA group; n=58), positive HLA-DSA (HLA-DSA(+)) and XM(+) (the PosXM group; n=35). The LoDSA group did not receive desensitization therapy. The development of acute AMR within 6 months, allograft survival and allograft function were compared between the three groups.

Results: The LoDSA group had a higher incidence of acute AMR within 6 months than the CON group (14.3% and 1.7%, respectively; $p<0.001$), but a lower incidence of acute AMR within 6 months than the PosXM group (14.3% and 33.3%, respectively; $p<0.05$). Overall allograft survival did not differ between the LoDSA and the CON groups ($p>0.05$), but both groups exhibited a better survival rate than the PosXM group ($p<0.001$ for both). The renal function of functioning allograft was not different in all groups during follow-up period.

Conclusions: KT without desensitization in patients with low HLA-DSA levels and XM (-) has an increased risk for acute AMR in a short-term follow-up after transplantation.