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Clinical significance of pretransplant HLA-DQ DSA positivity in kidney transplantation

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Objectives:

Development of De Novo HLA-DQ donor specific antibody (DSA) after kidney transplantation (KT) is a major cause of chronic antibody-medicated rejection but clinical significance of preformed HLA-DQ DSA is undetermined.

Methods:

We evaluated 6 patients with the HLA-DQ DSA positive patients before KT. The intensity of the HLA-DQ antibody was assessed using solid-phase Luminex-based antibody analysis at the high-resolution level include HLA-DQA and DQB alleles. Donor specificity of the HLA-DQ antibody was confirmed by 2 digits of HLA-DQB alleles of donor identified by conventional low-resolution typing method. Desensitization was performed in these patients and methods of the desensitization were adjusted individually according to crossmatch assays and DSA intensity. We evaluated effects of the desensitization on clinical outcome and intensity of HLA-DQ DSA during and after desensitization, and one month after transplantation.

Results:

Of the six patients with the preformed HLA-DQ DSA prior to desensitization, five were strong positive (mean fluorescence intensity (MFI)>10,000) and one was weak positive (MFI<5,000). C1q assay of HLA-DQ DSA was positive in 2 patients and flow cytometric crossmatch with B-cell was positive in 3 patients. Among 5 patients with strong HLA-DQ DSA, desensitization decreased DSA intensity in 3 patients (moderate intensity in two patients, weak intensity in one patient). On the other hand, two patients did not respond to desensitization. A patient whose intensity had been weak was desensitized to negative before transplantation. After KT, the HLA-DQ DSA persisted as moderate or strong in 3 patients, but there was no antibody mediated rejection and showed stable graft function in these patients.

Conclusions: Response to desensitization based on current measurement of HLA-DQ DSA is unpredictable. We need more cases and clinical validation of pre-transplant HLA-DQ DSA before introducing clinical practice.