

Investigation of Serum Angiotensin II Type 1 Receptor Antibodies at the Time of Renal Allograft Rejection.

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Abstract

BACKGROUND:

Angiotensin II type 1 receptor (AT1R) is responsible for cardiovascular effects mediated by angiotensin II. This study aimed to investigate the impact of antibodies directed against AT1R (anti-AT1R) in renal allograft rejection.

METHODS:

We evaluated 53 patients who had biopsy-proven rejection including antibody-mediated rejection (AMR) (N=22), T-cell-mediated rejection (TCMR) (N=29), and mixed AMR and TCMR (N=2). Donor specific HLA antibodies (DSA) and anti-AT1Rs were simultaneously determined.

RESULTS:

Anti-AT1Rs were detected in 9.4% (5/53) of rejection patients (one with acute AMR, two with chronic active AMR, one with acute TCMR, and one with mixed acute AMR & TCMR). HLA antibodies and DSA were detected in 75.5% (40/53) and 49.1% (26/53) of patients, respectively. There was no significant difference in transplant characteristics between anti-AT1R(+) and anti-AT1R(-) patients except for the association of HLA class-I DSA(+) and anti-AT1R(+). Four of five anti-AT1R(+) patients had DSA and were also found to have AMR. A single anti-AT1R(+)/DSA(-) patient developed acute TCMR. Detection rates of DSA, HLA antibodies, or anti-AT1R were not different between AMR and TCMR. However, DSA(+)/anti-AT1R(+) was more frequently found in AMR than in TCMR (P=0.036). Patients with anti-AT1R showed a greater tendency to develop high-grade rejection as Banff IIA/IIB or AMR.

CONCLUSIONS:

The presence of anti-AT1R was significantly associated with HLA class-I DSA in renal allograft rejection patients. Both anti-AT1R and DSA positivity was associated with AMR in patients with renal allograft rejection.