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Non-HLA Antibodies Targeting Vascular Receptors Enhance Alloimmune Response and Microvasculopathy After Heart Transplantation.

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Source

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Abstract

BACKGROUND:

Non-human leukocyte antigen antibodies (Abs) targeting vascular receptors are implicated in the pathogenesis of renal allograft vascular rejection and in progressive vasculopathy in patients with systemic sclerosis.

METHODS:

We prospectively tested in 30 heart transplant recipients the impact of Abs directed against endothelin-1 type A (ETAR) and angiotensin II type 1 receptors (AT1R, cell-enzyme-linked immunosorbent assay) at time of transplantation and during the first posttransplantation year on cellular and Ab-mediated rejection (immunohistochemistry, C3d, and immunoglobulins) and microvasculopathy in endomyocardial biopsy.

RESULTS:

Cellular rejection, Ab-mediated rejection, and microvasculopathy was found in 40% and 13%, 57% and 18%, and 37% and 40% of biopsies at 1 month and 1 year posttransplantation, respectively. Maximum levels of AT1R and ETAR Abs were higher in patients with cellular (16.5±2.6 vs. 9.4±1.3; P=0.021 and 16.5±2.5 vs. 9.9±1.9; P=0.041) and Ab-mediated rejection (19.0±2.6 vs. 10.0±1.3; P=0.004 and 19.4±2.7 vs. 9.0±1.7; P=0.002), as compared with patients who had no rejection. Patients with elevated AT1R Abs (53% [16/30]) or ETAR Abs (50% [15/30]; pretransplantation prognostic rejection cutoff >16.5 U/L) presented more often with microvasculopathy (both, 67% vs. 23%; P=0.048) than patients without.

CONCLUSIONS:

Elevated levels of AT1R and ETAR Abs are associated with cellular and Ab-mediated rejection and early onset of microvasculopathy and should be routinely monitored after heart transplantation.