Case Report

SELECTIVE DISAPPEARANCE OF DONOR-SPECIFIC ANTIBODIES AND ABSENCE OF ACUTE REJECTION AFTER LIVER TRANSPLANTATION IN A PATIENT WITH A STRONGLY POSITIVE LYMPHOCYTE CROSSMATCH

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We report on a young female, who received a cadaveric liver transplant from a donor who was a zero antigen match, and to whom she has had a strongly positive crossmatch. Immediately after transplantation, her panel reactive antibodies dropped from 55% to 0%, a value which remained for nearly 3 weeks. She subsequently, redeveloped her pretransplant anti-HLA antibodies, though at a lower level, with the exception of those specific to the donor HLA antigens. She also did not develop any acute rejection episodes during the 6 months of follow-up.

Keywords: Liver transplantation • panel reactive antibodies • rejection • transplantation

Introduction

In the first reported case of a combined liver and kidney transplant from the same donor, the patient’s kidney allograft did in fact suffer an acute rejection.1 However, subsequent reports strongly suggested that the liver allograft protected the simultaneous kidney allograft from hyperacute and acute rejections.2 – 4 In a total of 28 patients with combined kidney-liver transplantation, only two developed a histologically-proven acute rejection.2 – 4 Subsequently, a total of nine patients who had positive crossmatch against donor lymphocytes were found to convert to negative crossmatch after liver transplantation, i.e., lymphocytotoxic antibodies with donor specificity could not be detected in the first week posttransplantation, and none experienced hyperacute rejection.5 – 6 However, four of these nine patients developed acute rejection during the second to fourth posttransplantation week, who responded to steroid pulses or OKT3 treatment. Nonetheless, in another report of a combined kidney-liver transplant across a positive lymphocyte crossmatch, despite hepatic elimination of preformed cytotoxic antidonor antibodies, the kidney allograft was humoral rejected six days after transplantation.7

Herein, we present a patient with high antibody reactivity against a large number of HLA antigens, who received an orthotopic liver allograft across a strongly positive lymphocyte crossmatch. Immediately after liver transplantation, the patient lost all of the pretransplant anti-HLA reactivities, as well as the specific antidonor lymphocytotoxicity. Three weeks after the liver transplantation, antibodies returned back to their previous levels with almost all pretransplant specificities, except for the donor’s HLA, and remained so until the last follow-up six months posttransplantation.

Case Report

A 23-year-old Caucasian female with primary hyperoxaluria type 1 leading to end-stage renal disease at age 17, was maintained on chronic hemodialysis after a failed living-related donor kidney transplantation. During evaluation for a combined kidney-liver transplantation, she was found to have developed panel reactive antibody
Selective disappearance of donor-specific antibodies and absence of acute rejection after liver transplantation in a patient with a strongly positive lymphocyte crossmatch

(PRA) levels of 53.5% to the T-cell and 82% to the B-cell panels. Subsequent monthly antibody screen tests revealed 55 – 72% PRA to the T-cell and 40 – 68% PRA to the B-cell panels, with specific reactivity against the HLA 1C CREG (A1, A3, A9, A10, A11, A19), 8C CREG (B8, B14, B18, B16), and B5 (B51, B52). She received an orthotopic liver transplantation from a cadaver donor (HLA type: 1, 33, B7 (BW6), 42 (BW6), DR9, 15) who was 0-antigen match with a strongly positive lymphocyte cross-match. Because of the patient’s poor general condition, only the liver transplantation was performed. Immediately after transplantation, her PRA dropped from 55% to 0% and remained at 0% for nearly three weeks, at which point she regained reactivity to some of the antigens of the 1C (A10, A11) and 8C CREG (B8, B14). During the subsequent six months, the PRA towards the T-cell panel ranged from 38 – 45% and to the B-cell panel ranged from 7 – 39%. She was maintained on hemodialysis. Her immunosuppressive protocol consisted of prednisone, azathioprine (Imuran), and cyclosporine (Neoral). Her six months post-liver transplant course was significant for lack of any acute rejection.

Discussion

The present case confirms the previous reports of sustained reversal of recipients’ antidonor specific cytotoxicity after a liver allograft.4 – 7 This may explain the observation that liver allografts protect kidney allografts from antibody-mediated hyperacute or acute rejection.2 – 6, 8, 9, 10 Despite the unsettled dispute on whether a liver allograft can protect simultaneously transplanted kidney, the present case and the nine patients reported before4 – 6 demonstrate that liver allografts could cause a sustained reversal of recipients’ antidonor specific cytotoxicity. Well-designed prospective studies are required to demonstrate whether this selective elimination of antidonor specific cytotoxicity is protective against the development of hyperacute rejection or other forms of humorally-mediated kidney graft injury.

References