Section: Transfusion Medicine

Case Report

MATERNAL ANTI- D ANTIBODY MEDIATED PASSENGER LYMPHOCYTE SYNDROME IN RENAL TRANSPLANT – A RARE CASE REPORT

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Abstract

Background: Donor B lymphocyte contained in solid organ allografts can produce anti erythrocyte antibodies resulting in a condition known as the Passenger Lymphocyte Syndrome. **Case Report:** 33 year old male with stage IV kidney disease on hemodialysis. He received a live donor transplant (from his mother). The maternal blood group is O Rh D Negative and recipient blood group is A Rh D Positive. on day 7 was 7.5 g/dL. Upon further investigation the laboratory values showed Hb level 7.5 g/dL with normal MCV and MCH, creatinine 0.7 mg/dL, glucose 95 mg/dL, no cytotoxic antibodies, haptoglobin 10 mg/dL, lactate dehydrogenase level 396 units/L. Then the sample was sent for immunohematological workup. It showed DAT 4+, Monospecific DAT showed the presence of IgG antibody. Indirect Antiglobulin Test was weakly+. To identify the specific antibody Acid Elution was done. Antibody screening and identification of the eluate showed the presence of Anti D antibody with titre of 4. **Conclusion:** PLS is a rare condition and it should be suspected in the first few weeks after transplantation. It is usually a sudden onset of hemolytic anemia in patients with a SOT with Rh or ABO incompatibility.

INTRODUCTION

Donor B lymphocyte contained in solid organ allografts can produce anti erythrocyte antibodies resulting in a condition known as the Passenger Lymphocyte Syndrome.[1] Typically the antibodies are detected 1 to 2 weeks after transplant as a Positive DAT.2 Elution reveals anti A and /or anti B. these patients may develop hemolysis , which can be severe in rare cases, most patient recover and the antibody usually disappear in about 1 month.[2,3] In kidney transplant patients, cyclosporine increases the incidence of Passenger Lymphocyte Syndrome so that 30% of the patients develop antibodies and 17% develop hemolysis.[3] It is predominantly mediated by ABO isoagglutinins and rarely by Rh antibodies.

CASE REPORT

We report a 33 year old male with stage IV kidney disease on hemodialysis. He received a live donor transplant (from his Mother). The maternal blood group is O Rh D Negative and recipient blood group is A Rh D Positive. No preformed donor-specific antibodies were detected. Cross match was also negative. There were no initial complications, the patient had a normal renal function, The patient received Basiliximab induction protocol. His initial immunosuppressive treatment was tacrolimus, mycophenolate mofetil (MMF), and prednisolone. However his post operative hemoglobin (Hb) level on day 7 was 7.5 g/dL. Upon further investigation the laboratory values showed Hb level 7.5 g/dL with normal MCV and MCH, creatinine 0.7 mg/dL, glucose 95 mg/dL, no cytotoxic antibodies, haptoglobin 10 mg/dL, lactate dehydrogenase level 396 units/L. Then the sample was sent for immunohematological workup. It showed DAT 4+, Monospecific DAT showed the presence of IgG antibody. Indirect Antiglobulin Test was weakly+. To identify the specific antibody Acid Elution was done. Antibody screening and identification of the eluate showed the presence of Anti D antibody with titre of 4, Nephrologist notified the corticosteroids dosage was increased to 1mg/kg/wt. they follow up after 1 week the hemoglobin level was 8.7 g/dL, 2 weeks later the Hemoglobin level was 9.6 and the patient was discharged.

DISCUSSION

PLS is a disease in which donor lymphocytes produce antibodies to the recipient's RBC antigens, causing alloimmune hemolysis.[4] It is a rare condition that

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occurs by formation of antibodies to the ABO system (Rh less frequently, rarely anti-D) and is isolated from anti-c, anti-e, anti-Kell, anti-Jk, and anti-FY3. It manifests itself in the first weeks after transplantation as hemolytic anemia with positive direct Coombs test. The study of the anemia of our patient showed a positive result of direct Coombs. Two alloantibodies against the Rh system were indentified: anti-D and anti-E. This was probably due to a residual population of donor cells that were Rh-negative. We have identified only 1 PLS case following simultaneous pancreas-kidney transplantation in the English literature.[5] Our case the first with PLS following kidney transplantation with anti-D. Patient received treatment with prednisone, tacrolimus, and MMF and basiliximab induction therapy on day 0 and 4, blood transfusion was not necessary as this caused less severe hemolytic anemia.[6] Usually anemia is mild, sometimes it may cause renal failure, DIC, and multi-organ failure. The treatment consists of high dose corticosteroids and, when necessary, a transfusion with the blood type of the donor. In refractory cases, one can use plasmapheresis or intravenous immunoglobulin treatment with rituximab.[7]

Immunohematological workup:

Table 1

1. Blood grouping and Rh typing: A positive.
2. DAT 4+ positive
3. Monospecific DAT shows the presence of IgG Antibodies.
4. IAT weak positive.
5. Antibody screening and Identification shows the presence of Anti D Antibody.
6. Acid Elution done on DAT positive cells
7. Eluate showed the presence of Anti D Antibody.

Table 2: case description

IH work up	Sex	Age	Blood group	DSA	IAT	DAT	Anti body screen & identification
PRE Tx	M	33	A+VE	Neg	Neg	Neg	Neg
POST Tx	M	33	A+VE	Neg	WEAK	4+	ANTI -D
DONOR PRE Tx	F	55	O-VE	Neg	Neg	Neg	Neg

CONCLUSION

PLS is a rare condition and it should be suspected in the first few weeks after transplantation. It is usually a sudden onset of hemolytic anemia in patients with a SOT with Rh or ABO incompatibility. Our case is the first case to be reported with PLS following kidney transplantation with anti-D. A categorical approach to post transplant patients with Rh or ABO incompatibility is mandatory for the successful outcome.

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