

SUCCESSFUL ABO BLOOD TYPE INCOMPATIBLE KIDNEY TRANSPLANTATION WITHOUT SPLENECTOMY OR ANTI-CD20 TREATMENT

Amit Sharma¹, Harinderjit Singh Gill¹, Priyadarshi Ranjan², Apra Kalra³, Kamalpreet Singh¹, Neha Bahari¹, Monika Rana¹

¹Department Of Renal Sciences (Nephrology, Dialysis And Kidney Transplantation), Fortis Hospital, Mohali, INDIA,

²Department Of Urology And Kidney Transplantation, Fortis Hospital, Mohali, INDIA,

³Department Of Transfusion Medicine, Fortis Hospital, Mohali, INDIA.

OBJECTIVES

There is a wide disparity between the need and availability of kidneys for transplantation in end stage renal disease (ESRD) patients. ABO-incompatible (ABOi) kidney transplants have helped in increasing the donor pool. This involves preconditioning the patient by lowering the isoagglutinin titers and taking measures to prevent their further rise. The study was conducted to determine whether ABOi kidney transplantation without the use of Anti CD-20 treatment or splenectomy could be performed safely and result in acceptable posttransplantation outcomes.

METHODS

A prospective study conducted at a tertiary care kidney transplantation center, it included patients with ESRD and an ABOi living kidney donor. All donors and recipients were of incompatible blood types and underwent transplantation beginning in April 2014. A total of 11 patients were included in the study. Patients received immunosuppression in the form of Tacrolimus, Mycophenolate mofetil and Prednisolone, started 10 days prior to tentative date of transplantation. Immunomodulation in the form of plasmapheresis and intravenous immunoglobulin was done until an acceptable isoagglutinin titer (1:4) was achieved. All the patients received induction immunosuppression in form of Injection Thymoglobulin (1 mg/kg/day for 3 days). Post-operatively, isoagglutinin titers were regularly monitored and plasmapheresis was done if they increased to predefined levels (more than 1:8 in first week post transplant and more than 1:16 in second and third week post transplant). Patient and allograft survival; length of stay in hospital post-operatively; 1-, 3-, and 6-month renal function; and incidence of rejection were documented.

CONCLUSION

The results of this study indicate that successful ABOi kidney transplantation is possible without the use of splenectomy or Anti-CD20 treatment and such a regime has acceptable results.

RESULTS

72% of the recipients were males. Mean±Standard Deviation (SD) age of the recipients was 42±10.6 years while that of the donors was 52.3±11.6 years. Median isoagglutinin titer at start of immunosuppression was 1:32 (ranging from 1:16 to 1:256). Mean number of plasmapheresis required to achieve the target isoagglutinin titers was 3. Blood group type of donor to recipient was A to O in 1 case, B to O in 2 cases, AB to O in 1 case, A to B in 2 cases, AB to B in 1 case, B to A in 3 cases and AB to A in 1 case. At six months, the patient survival was 100% and the allograft survival was 90.9%. Mean±SD length of hospital stay post-operatively was 11.5±5.3 days. Mean±SD serum creatinine levels were 1.34±0.40 mg/dL at discharge, 1.28±0.26 mg/dL at 1 month, 1.29±0.25 mg/dL at 3 months and 1.3±0.23 mg/dL at 6 months post-operatively. One episode of biopsy proven acute antibody mediated rejection occurred which was successfully treated. One patient lost his graft at 3 weeks post transplant when he presented with sudden onset anuria for 12 hours and was detected to have acute cortical necrosis on biopsy.

TABLE 1: PATIENT CHARACTERISTICS

S. No.	Patient Age (years)	Donor Age (years)	Initial Isoagglutinin titer	Plasma-pheresis sessions	Length of stay (days)	Serum Creatinine			
						At Discharge	After 1 month	After 3 months	After 6 months
1	60	55	1:32	3	14	1.6	1.6	1.7	1.7
2	49	53	1:32	2	9	1.3	1.1	1.2	1.2
3	41	70	1:64	3	8	0.9	1.2	1.2	1.2
4	45	44	1:32	2	13	1.5	1.4	1.4	1.4
5	34	34	1:32	3	12	1.0	1.0	1.1	1.1
6	38	68	1:64	6	13	1.4	1.3	1.1	1.2
7	29	63	1:16	1	8	2.3	1.6	1.6	1.6
8	56	52	1:256	4	26	1.6	1.6	1.5	1.4
9	25	55	1:32	3	8	1.1	1.1	1.2	1.3
10	45	44	1:64	3	8	0.9	0.9	0.9	0.9
11	40	38	1:64	3	8	1.2	-	-	-

REFERENCES:

1. Segev DL, Simpkins CE, Warren DS, et al. ABO incompatible high-titer renal transplantation without splenectomy or anti-CD20 treatment. *Am J Transplant* 2005;5:2570-5.
2. Flint SM, Walker RG, Hogan C, et al. Successful ABO-incompatible kidney transplantation with antibody removal and standard immunosuppression. *Am J Transplant* 2011;11:1016-24.

