Impact of Intravenous Immunoglobulin (IVIG) on ABO-i Kidney Transplantation – Case Series

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Introduction

ABO-incompatible (ABOi) was once major obstacle in kidney transplantation. Desensitization protocol has made ABOi kidney transplantation (ABOiKT) possible.

In Hospital Kuala Lumpur, we utilizing Rituximab, therapeutic plasma exchange (TPE), intravenous immunoglobulin (IVIG), and early immunosuppressant (IS) to achieve pre-transplant titer of 1:8.

IVIG, derived from pooled plasma of donors, contains anti-isohemagglutinin antibodies. We explore the impact of IVIG on ABOiKT.

Case Report

Case 1

25yo, female, primary disease of IgA nephropathy. ABOi donor (donor B+/recipient O+). Her initial Anti-B titer was 1:512. She was desensitized as per protocol (Rituximab 200mg on Day -14; early IS on Day -10; with TPE/IVIG sessions). Her Anti-B titer was monitored pre/post TPE (post-TPE titre drawn prior to IVIG). She had TPE with Anti-B immunoadsorption column on Day -1. Anti-B titre rose from 1:32 (pre-TPE) to 1:64 (post-TPE and IVIG infusion). IVIG (Brand: I.V.globulin SN) Anti-B titre measured was 1:16. Additional TPE pre-transplantation in OT was performed to achieve preop titre of 1:8.

Case 2

27yo, female, primary disease of IgA nephropathy. ABOi donor (donor A+/recipient B+).Early IS on Day-10. Her Anti-A titre was constantly stable at 1:4 to 1:8 prior to desensitization. IVIG was given on Day -1 without TPE. Her Anti-A level rose from 1:8 to 1:16 (post-IVIG). IVIG (Brand: I.V.globulin SN) Anti-A titre measured was 1:64. Transplant surgery proceeded without need of additional TPE.

Case 3

40yo, gentleman, unknown primary. ABOi donor (donor A+/recipient B+). His baseline Anti A-titre was 1:16 prior to desensitization. Immunosuppressant (IS) was initiated on Day -3 as he had recent infection. He received TPE/IVIG on Day -2. His Anti-A titre rose from 1:8 (post-TPE) to 1:32 (post-IVIG). IVIG (Brand: I.V.globulin SN) Anti-A titre measured was 1:64. Transplant surgery proceeded without additional TPE.

All patients had immediate graft function without acute antibody-mediated rejection episodes.

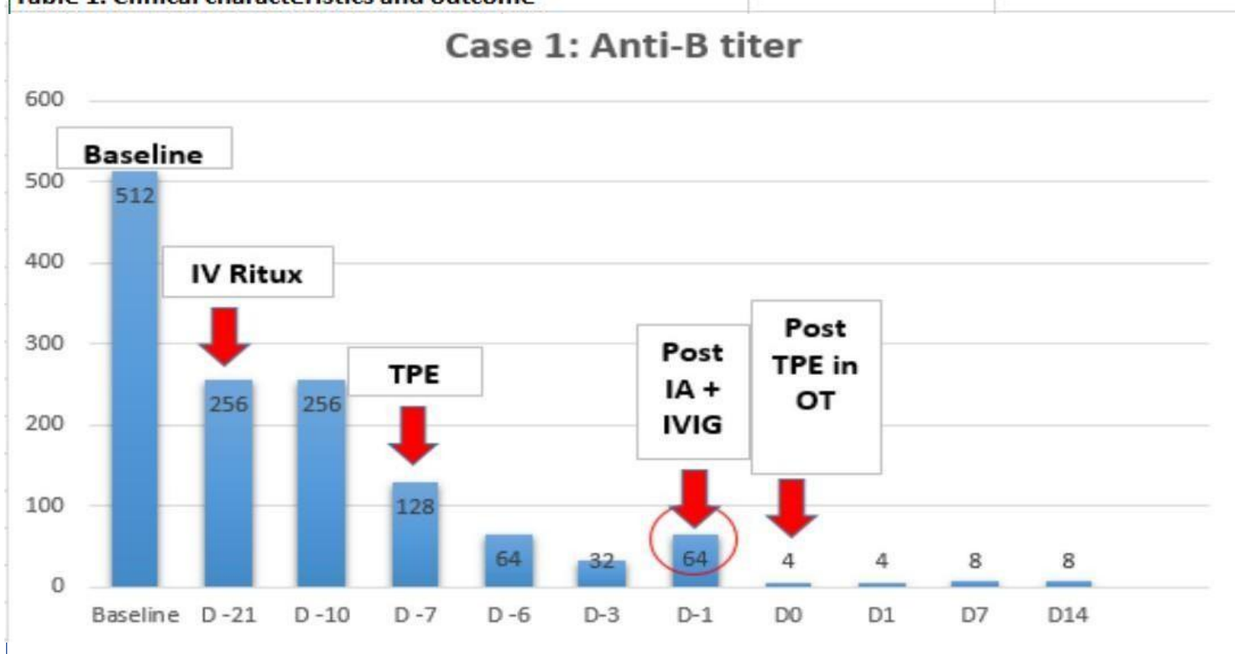
Result

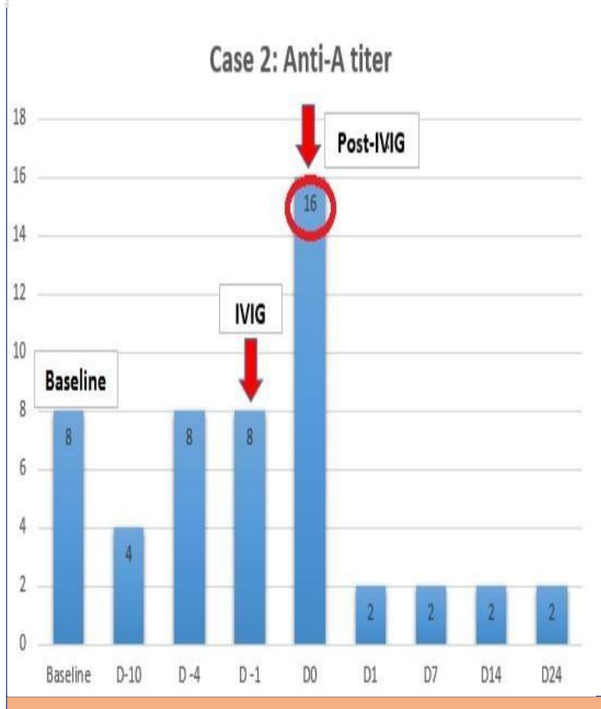
This is case series of 3 patients who received IVIG as part of the desensitization proctocol in ABO-incompatible kidney transplantation. All 3 patients had documented surge of Anti A/B level post IVIG infusion which lead to potential need of additional TPE

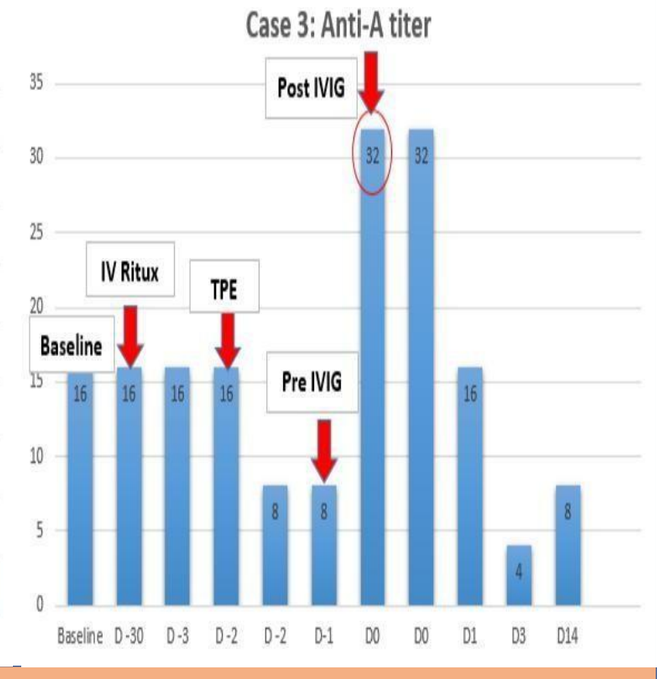
Clinical Data	Patient No		
	Case 1	Case 2	Case 3
Age, yr	25yo	27yo	40yo
Gender	F	F	M
Race	A	A	A
Duration of dialysis, years	3	1	5
Primary cause	IgA nephropathy	IgA nephropathy	Unknown
Recipient blood group	O+	B+	B+
Donor blood group	B+	A+	A+
Desensitization proctocol			
IV Rituximab	Yes	No	Yes
Immunosupressants (IS)	Yes	Yes	Yes
Intravenous Immunoglobulin (IVIG)	Yes	Yes	Yes
Therapeutic Plasma exchange (TPE)	Yes	Yes	Yes
Anti A/B (pre-desensitization protocol)	Anti-B 1:512	Anti-A 1:8	Anti-A 1:16
Anti A/B (pre-IVIG infusion)	Anti-B 1:32	Anti-A 1:8	Anti-A 1:8
Anti A/B (post IVIG infusion)	Anti-B 1:64	Anti-A 1:16	Anti-A 1:32
Anti A/B (IVIG - brand I.V.globulin SN)	Anti-B 1:16	Anti-A 1:64	Anti A 1:64
Clinical Outcome			
Need of additional TPE	Yes	No	No
Immediate graft function	Yes	Yes	Yes
Acute Antibody-Mediated Rejection	No	No	No

F= Female; M=Male; A= Asian

Table 1: Clinical characteristics and outcome







Conclusion

We presented evidence on antibodies in IVIG may increase the recipient's titre, possibly requiring additional TPE and delaying transplantation. However, the significance on surge of Anti-A/B antibody levels following IVIG infusion was unclear, indicating the need for further research to investigate both short and long-term outcomes.