CORRESPONDENCE

Dilemma-ABO Incompatible Liver Transplant in a Patient with an Anaphylactic Reaction to Fresh Frozen Plasma

Shruti Gupta¹ · Meenu Bajpai¹ · Viniyendra Pamecha²

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Dear Editor,

The shortage of liver donors for patients with end stage liver disease has resulted in ABO incompatible (ABOi) liver transplants becoming more common. ABOi liver transplant entails reduction of anti-A and anti-B antibodies to avoid acute antibody mediated rejection.

Plasmapheresis lowers the titres of existing blood group antibodies. In this patient population fresh frozen plasma (FFP) is often used as the replacement fluid of choice due to the concomitant coagulopathy. Anaphylactic reactions to FFP are reported to be the most common cause of death associated with Plasmapheresis [1, 2]. Here, we report our experience of a patient requiring ABOi live donor liver transplant (LDLT) who had an anaphylactic reaction to FFP.

A 42 year male patient with alcohol related Chronic Liver Disease was advised Liver Transplant. As he had no ABO matched donor he was offered ABOi LDLT (Patient was O positive and his son was B positive). The patient's baseline IgG anti-B antibody titre was 512. Liver transplantation is done when the antibody titre falls to ≤ 8 . We administered a single dose of Rituximab (375 mg); after

3 weeks the titre remained the same. He was planned for cascade plasmapheresis (CP) to reduce the titres. In the first two sessions albumin was used as replacement fluid. The patient tolerated the procedures well except for 2 episodes of hypotension which were managed with i.v fluids. His IgG titres after second cycle dropped to 64.

After two cycles of CP the patient's INR increased from 1.63 to 3.65. In view of this a third session was done using FFP as replacement fluid [3]. After the infusion of 1 unit of FFP, the patient started complaining of itching. His blood pressure (BP) dropped to 60/30 and HR increased to 145/min. The Patient started complaining of dizziness. The procedure was immediately aborted and the patient was given chlorpheniramine 10 mg i.v, Hydrocortisone 100 mg i.v along with 100 ml NS i.v stat. His BP increased slightly to 80/40 mm Hg. The Patient also started complaining of dyspnea (SPO₂ was 95%); he was started on O₂ inhalation and nebulisation with Levosalbutamol 50 mcg. He was also started on noradrenalin infusion. The patients BP increased to 100/60 mmHg, his condition stabilized, but he had persistent tachycardia with a HR of around 130/min (His HR stabilized in the next 8–12 h). A diagnosis of anaphylaxis due to FFP transfusion was made.

The episode of anaphylaxis complicated the situation as FFP is required in transplant surgery. A decision was made to give a trial of 2 FFP transfusions under controlled conditions in the intensive care unit (ICU) with premedication. The premedication given was Hydrocortisone 100 mg i.v, chlorpheniramine 10 mg i.v, and Ranitidine 50 mg i.v, 1 h before the FFP transfusion. 2 FFP were transfused uneventfully over 45 min. 10 min after the transfusion was completed the patient started complaining of itching, his BP dropped to 100/70, HR increased to 130/min. He complained of mild chest discomfort and had mild facial oedema. He was given 100 ml NS and O₂

✉ Meenu Bajpai
meenubajpai@hotmail.com

Shruti Gupta
shrutigupta200288@gmail.com

Viniyendra Pamecha
viniyendra@yahoo.co.uk

¹ Department of Transfusion Medicine, Institute of Liver and Biliary Sciences, Sector D-1, Vasant Kunj, New Delhi, India

² Department of Liver Transplant and HBP Surgery, Institute of Liver and Biliary Sciences, Sector D-1, Vasant Kunj, New Delhi, India

Table 1 Summary of plasma exchange cycles

Cycle	Day ^a	Blood processed (ml)	Plasma treated (ml)	Complications	Pre procedure titre		Post procedure titre	
					IgM	IgG	IgM	IgG
1	20th day	17,730	9713	Hypotension	512	1024	64	128
2	22nd day	17,056	8960	–	64	128	32	64
3	25th day	568	276	Anaphylactic reaction	32	64	32	64
4	30th day	16,529	9255	–	32	64	16	32
5	31st day	17,143	9450	–	16	32	8	16
6	32nd day	17,252	9770	Mild abdominal distension	16	16	8	8

^a Day 1—day of Rituximab administration

inhalation with nebulisation with Levosalbutamol/Ipratropium. Patient had mild persistent tachycardia which resolved over next 6–8 h. The reaction episode was milder this time. The premedication plan was reviewed and patient was started on a longer acting steroid, Prednisolone 40 mg for 3 days (oral) followed by the same premedication plan on 4th day. This time 2 FFPs were uneventfully transfused.

The FFP transfusion improved the patient's INR to 1.54 and 3 further sessions of CP were done to attain the desired antibody titre of 8 using 5% albumin as replacement fluid (Table 1). Patient was taken for LDLT and tolerated the transfusions and surgery well.

Anaphylaxis is a severe, life-threatening, generalized hypersensitivity reaction and its prevalence varies from 0.02 to 5.1%. Plasma proteins are often implicated. The case presented here is a situation where FFP related anaphylaxis had to be tackled energetically since use of plasma is inevitable in liver transplant surgery. We premedicated the patient with long acting steroids, antihistaminics and H₂ blockers were successful in preventing the reaction. To the

best of our knowledge there is no unified consensus/guidelines on premedication plans to prevent anaphylaxis. Prevention of exposure to the inciting agent is the best modality, but if it is unavoidable, adopting a premedication plan under controlled conditions may work.

Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

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