



Intravascular Hemolysis During Therapeutic Plasma Exchange Using 5% Human Albumin: What Is Missed?

Dear Editor,

Therapeutic plasma exchange (TPE) is the backbone of ABO-incompatible transplant. An untoward event like hemolysis during pretransplant procedures can lead to unnecessary blood transfusions, impacting graft survival. We highlight a rare case of hemolysis during a TPE session using centrifugation method with 5% human albumin.

A 38-year-old woman with end-stage renal disease was scheduled for ABO-incompatible renal transplantation from her 44-year-old husband with 6/6 human leukocyte antigen (HLA) mismatch. To lower pretransplant antibody titer, the patient underwent plasmapheresis, and 5% human albumin of the brand Albufirst (Halstead Pharma Pvt. Ltd., Hyderabad) was used as the replacement fluid.

During the first session, after processing half of the calculated plasma volume with 5% albumin, the patient experienced severe abdominal pain with cramps and the TPE machine triggered a red cell detector alarm. Plasma waste bag observation revealed reddish discoloration [Figure 1] suggesting hemolysis and was confirmed by the pinkish discoloration of the centrifuged post-procedure blood sample.



Figure 1: Reddish discoloration of plasma waste bag due to hemolysis during TPE procedure. TPE: Therapeutic plasma exchange.

The procedure was paused to check for any reversible cause of hemolysis like equipment-related or technical factors (faulty clamping, high blood flow rate, or access issue). Subsequently, hemolysis was attributed to 5% albumin solution, which failed quality control standards, including low sodium concentration (24 mmol/L), albumin content of 4.98 g/dL, and a notably low osmolality (70 mmol/kg). Subsequent TPE sessions using fresh frozen plasma instead of 5% albumin proceeded without complications. Posttransplant, the patient had a successful outcome with normal graft function.

As an immediate corrective measure, the remaining hospital stock was returned to the supplier. The hospital administration was promptly informed, and the analysis report was also forwarded to the hospital's pharmacovigilance cell for further review. Going forward, a mandatory hemolysis test at our blood center will be required for each new albumin lot. This incident highlights the critical need for stringent quality control in replacement fluids for TPE, as lapses can jeopardize patient safety.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

Conflicts of interest

There are no conflicts of interest.

Abhilasha Soni¹, Manish Chaturvedy¹, Rajesh Jhorawat¹, Nitin Bajpai¹

¹Department of Nephrology, AIIMS, Jodhpur, Jodhpur, India

Corresponding author: Nitin Bajpai, Department of Nephrology, AIIMS, Jodhpur, Jodhpur, India. E-mail: drnitinbajpai@gmail.com

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

How to cite this article: Soni A, Chaturvedy M, Jhorawat R, Bajpai N. Intravascular Hemolysis During Therapeutic Plasma Exchange Using 5% Human Albumin: What Is Missed? Indian J Nephrol. doi: 10.25259/IJN_437_2024

Received: 01-08-2024; Accepted: 12-08-2024

Online First: 12-09-2024; Published: ***

DOI: 10.25259/IJN_437_2024

