Does multiple transfusion history necessitate additional cross matching evaluation prior to subsequent transfusions?

Sir,
Multiple major surgical procedures often necessitate multiple transfusions, occasionally leading to formation of antibodies against non-ABO or rare blood groups such as Duffy, Kid, Kell, and Lutheran in the donor units. Such patients pose the challenge of finding compatible donor blood units for subsequent transfusions. We hereby discuss a 51-year-old patient with recurrent right falcine meningioma who was scheduled for re-exploration and excision through a right frontotemporoparietal craniotomy.

Preoperative laboratory investigations were unremarkable. Patient’s blood group was A “positive,” but crossmatching showed incompatibility with multiple donor samples. Indirect antihuman globulin test was positive. Red cell antibody screening showed antibody directed against the Duffy antigen (anti-Fya) and antigen typing revealed Duffy A “negative” (Fy [a−b+]) phenotype. Since allogenic transfusion was not feasible, acute normovolemic haemodilution (ANH) and autologous blood transfusion was planned.

Following induction and intubation, ANH was done. A volume of 1100 ml of whole blood was collected and stored at room temperature in three standard blood bags containing anticoagulant. Isotonic crystalloids and colloids were infused to maintain circulating blood volume. Balanced general
anesthetic technique was employed. Surgical procedure was uneventful with a blood loss of about 1000 ml. Blood was transfused in the reverse order of collection, hemostasis. At the end of the procedure, patient’s trachea was extubated. Postextubation, patient was conscious and obeying commands and left hemiparesis persisted. At discharge, he was conscious with persistent left sided hemiparesis.

The Duffy blood group system comprises of glycoprotein receptors present on the red cell membrane. There are four main Duffy phenotypes: Fy (a+b−), Fy (a+b+), Fy (a−b+), and Fy (a−b−). Our patient had Fy (a−b+) phenotype possibly resulting from multiple transfusions during three previous surgeries. The anti-Fya antibody is an IgG alloantibody and when present in high titers is known to cause hemolytic transfusion reactions. Hemolytic transfusion reaction due to anti-Fya antibody was described as early as 1952. It was suggested that Fya antigen sensitization probably occurs only after many transfusions and there is a definite hazard if anti-Fya is present in the serum. Compton and Haber have described that sensitization to Fya and formation of anti-Fya may occur even with single unit transfusion. In a review of Duffy blood group system, Marsh and Schmidt have mentioned severe reactions to blood transfusion may be caused by incompatibility involving anti-Fya.

Blood conservation strategy is an important part of perioperative planning and management. In a study of 20 neurosurgical patients, it was found that ANH was well tolerated hemodynamically, no osmolar changes occurred and no adverse effects on hemostatic mechanisms were observed. It was concluded that ANH is a safe blood conservation technique in patients undergoing intracranial surgeries.

The purpose of reporting this case is to highlight the importance of eliciting history of blood and blood product transfusions in the past and any incompatibility to multiple donor units during preoperative evaluation should prompt a search for minor blood group antigen systems, thus ensuring compatible transfusions. Anesthesiologists should be prepared for blood conservation and alternative transfusion strategies in such situations.

Veena Sheshadri,
Keshavan Hallimysore Venkatesh
Departments of Neuroanaesthesia,
Vikram Hospital, Apollo Hospitals,
Bengaluru, Karnataka, India

Access this article online
Quick Response Code:
Website: www.joacp.org
DOI: 10.4103/0970-9185.161688

References
1. Reid ME, Lomas-Francis C. The Blood Group Antigen Facts Book. 2nd ed. San Diego: Academic press; 2003. p. 278-89.
2. Hutcheson JB, Haber JM, Kellner A. A hazard of repeated blood transfusions; hemolytic reaction due to antibodies to the Duffy (Fya) factor. J Am Med Assoc 1952;149:274-5.
3. Compton A, Haber JM. The Duffy blood group system in transfusion reactions: A review of the literature and report of four cases. Blood 1960;15:186-91.
4. Marsh WL, Schmidt PJ. Present status of the Duffy blood group system: Articles reviewed. Crit Rev Clin Lab Sci 1975;5:387-412.
5. Kiran Prasad KM, Devaragudi TS, Christopher R, Chandramouli BA, Umanaheswara Rao GS. Safety of acute normovolemic haemodilution with hydroxyethyl starch during intracranial surgery. Neurol India 2000;48:63-7.

---

Sir,

Tuberculoma during pregnancy is an uncommon clinical entity. Various approaches are required for its diagnosis and treatment. Seizures in peripartal period are due to eclampsia, unless proved otherwise. A 23-year-old primigravida with 38 weeks of gestation was admitted with a history of fever and cough for 6 days. Evaluation included full blood counts and chest X-ray for lower respiratory tract infection. Her antenatal history and examination were otherwise insignificant. She underwent an emergency lower segment cesarean section for nonreassuring fetal status. She was administered 2.0 mL of 0.5% bupivacaine (heavy) and she delivered a healthy 2.8 kg male baby. Eight hours after surgery, the patient had generalized tonic clonic seizures, which were treated with lorazepam 4 mg stat and phenytoin 300 mg over 10 min, both given intravenously. Her airway was maintained and oxygen was given through simple face mask. Seizures subsided, but the patient remained irritable and improved gradually.

Magnetic resonance imaging (MRI) of brain revealed numerous small rounded enhancing intra axial lesions measuring around 3-5 mm, which were distributed...