Anaphylactic Reactions to Blood Transfusion in a Patient with Iron Deficiency Anemia: A Case Report

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Abstract

Obstacles of transfusion of blood are uncommon but can endanger the health. Anaphylactic reactions associated with the blood transfusion (BT) of PRC blood components presents as bradycardia followed by tachycardia and urticaria within 15 minutes of transfusion. In suchcases, clinicians should strictly monitor the patient's condition at least while the patient receives blood transfusion.

Here we are reporting a case of 28 year old pregnant female presented with Iron deficiency anemia (IDA), a LSCS (caesarean section) delivery was performed and blood was transfused, who was affected by an acute anaphylactic reaction following red cell transfusion. This case highpoints the need to examine potential risk of transfusion of the blood component against the alleged advantage.

Keywords: *Anaphylactic reaction, Caesarean, Iron Deficiency anemia, blood component transfusion.*

Introduction

Anaphylactic transfusion reactions are unusual complications accompanying blood transfusions.[1] Knowledge with reference to a variety of better prognosis can be provided by the clinical characteristics of acute and delays in transfusion reactions that allow severe reactions to be evaluated in time. [2] The intravenous administration of the blood components complement or accompanies these reactions. The severity varies, depending on blood transfusion, form of treatment, and general health of the person, from mild (temperature and chills) to severe (acute kidney failure or complete vascular collapse and death).[3]

Types of transfusion reactions:[4]

Non Hemolytic:

- Bacterial infection
- Febrile non-hemolytic transfusion reaction
- Allergic reaction
- Anaphylactic reaction
- Transfusion-related acute lung injury
- Transfusion-associated circulatory overload

Hemolytic:

- ABO incompatibility (immediate intravascular red celldestruction)
- Other red cell incompatibility e.g. Rhesus, Kell (extravascular red cell destruction)[5]

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The incidence of anti-IgA mediated anaphylactic transfusion reactions is extremely low. As, in 2015, about 86 out of 2,5 million blood transfusions occurred per year in the UK in acute and extreme anaphylactic or hypotensive transfusion reactions (excluding hemolytic reactions and transfusion-related lung injury)[6]. Sensitization of IgA-deficient patients by IgA exposure and subsequent reactions to anti-IgA-mediated anaphylaxis are the expected mechanism for anaphylaxis.[5]

Our patient as per past history has never received blood transfusion, and also had provided all care to expose him to IgA, for example Immunoglobulin or immunoglobulin intravenous tetanus. There are also anti-IgA antibodies. of the 39 blood donors with detectable anti-IgA antibodies only 9 naturally, in one study, had history of Transfusion or pregnancy.[7] IgA red cells or platelets deficient donors not regularly are available. Pre-to issue red cell and platelets may be washed to reduce the plasma in the blood component of the donor.[5]

Urticarial reaction: The manifestation of urticaria throughout and right away after blood component transfusion, is seen approximately in 1% of the recipients. Generally, a slight reaction is harmless. In conjunction with others like fever, may be suggestive of evaluation for a hemolytic reaction.[8]

In such cases of mild urticarial reaction blood specimens should not be submitted after transfusion.

One can reinitiate the blood transfusion.[9]

Case Report: Authors report a case of 28-year-old pregnant female patient second gravida (G2P1L1) with IDA and history of amenorrhea since 9 months was admitted in the OBS GYN maternity ward I/V/O previousscar in labor. Her family history was not significant. She had blood pressure (112/68) and anemia (hemoglobin-7.2g/dl), Spo2- 99%, respiratory rate 20/min.

In the Summary of anemia, the patient had to be admitted in ward and posted for lower segment cesarean section (LSCS) on 20th April, and blood transfusion of PRC blood components was planned to be given. On the same day whilein OT, while the patient was anaesthetized, she started developing blood transfusion reaction after 10 minutes i.e. approx. 30ml of blood transfusion after attaching the blood bag.

Following clinical signs of BT reaction wereas noted:

- Bradycardia followed by tachycardia
- Blood pressure (BP) 170/110 mmHg,
- Pulse rate 58/min,
- Respiratory rate 18/min, and
- Body temperature 98°F,
- SPO2 86 %
- Urticaria
- B/L crepts.

The transfusion was stopped and a quick respiratory, and circular assessment was carried out. The patient's details were verified against blood bag and no inconsistency were found. The IV saline, hydrocortisone 100 mg and Inj. Avil (1amp) i. v. was administered immediately

A diagnosis anaphylactic reactions to blood transfusion was made.

Rapid onset of pain or swelling of the lip or throat or hives indicates anaphylactic reactions[5].

Parameters of the laboratory:

The laboratory features at the time of admission were as follows:

RBS -140mg/dl; Fasting blood sugar- 90mg/dl; RBC- 3.17, Hb- 7.2gm %, WBC- 11400/ cu.mm, Platelet-1.07 lac/cu.mm, MCV- 68, MCHC 33.6%, sickling negative.

Treatment: She was treated with 100 mg injection hydrocortisone and Avil 1ampule I.V in single doses in stat. Rashes subsided over 4 hours. Later on Tab Atrax 25mg BD and tab Allegra 120mg BD were given for 3 days. Patient recovered and was discharged. Other drugs given in this period were Cap Becasule 1 OD, Cap Autrin 1 OD and Tab Albendazole 400mg. Other drugs for her anaemia were continued.

For acute transfusion reaction the patient was examined. Normal experiments were conducted, including total blood count, renal and liver function tests and hemolysis tests. As the fever persisted, the unit was returned for repeated reliability checks to the laboratory and the patient was screened for red cell antibodies. The unit was sent to cultivate bacteria.

The call manager for the blood transfusion service was contacted. The transfusion reaction was documented in the Haemovigilance Monitoring System for serious hazards of transfusion (SHOT).

No serological incompatibility between the patient and the donor red cells was verified by repeated compatibility checking. It was a negative repetition screening. Culture did not produce any bacterial growth.

Discussion

In an emergency that threatens life, if the risk of delaying in the waiting for washed cells outweighs the need for an urgent transfusion, then standard cells should be used. The incidence of transfusion reaction, as discussed above, is extremely low.[5] Any transfusion must be conducted in an environment where staff have been trained and access to adrenaline[10,11] in anaphylaxis management.

The transfusion with standard components should be given to patients with IgA deficiency who never had previously received transfusions or who received standard blood components without reaction. [12]

Points to Learn:

- Early treatment is separate from clinical test findings for an immediate transfusion reaction.
- Anaphylactic transfusion reaction control requires timely assistance and IM adrenaline steps.
- The degree of IgA should be assessed in patients with anaphylactic transfusion reactions.
- Blood is typically really healthy to transfuse. There has been a chance of serious harm

(Even by extreme transfusion or infection) 1 in 15,000 and death chance 100,000 in the United Kingdom[4].

- Annual transfusion in the UK reaches 2.5 million units of blood drug.

The risk minimization includes checking the transfusion indication for each patient.

It is the combined liability of the blood transfusion advisor and their clinical complement to create awareness about safe transfusion services so that proper haemovigilance system can be achieved providing patient care.[13]

Conclusion

Authors hereby would like to conclude that blood transfusion of PRC blood components

bear a slight chance of life-threatening adverse reactions if not properly treated. The benefits of the components ignore the dangers of anaemia therapy.

Clinician's must carefully observe the patient's condition at least during the 6 h while the patient gets blood transfusion. I.V drugs should be provided only when well-trained professionals are available with resuscitation facilities to diagnose and treat hypersensitivity reactions.

This could be mistrust worthy that a test dosage is not sufficient. For signs of adverse events (HSR), patients should be closely observed at least 60 minutes following each administration.

Patients with documented allergies, extreme atopy, or inflammatory systemic diseases (e.g., systemic lupus erythematosus, rheumatoid arthritis) should be given special precautions.

Products should only be administered, when well trained staff to assess and manage hypersensitivity reactions, with resuscitation facilities, are available.

A test dose is not appropriate as it may give false assurance.

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