

IgE-MEDIATED BLOOD TRANSFUSION REACTION: A CASE REPORT¹Sincy Elsa Sabu, ^{2*}Sreelakshmi G. and ³Dr Nithin Thomas Philip^{1,2}Pharm D. Intern, Nazareth College of Pharmacy, Othara.³Assistant Professor, Dept of Orthopaedics, Believers Church Medical College Hospital, Thiruvalla.***Corresponding Author: Sreelakshmi G.**

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ABSTRACT

Allergic reactions are commonly seen during transfusion practice, however severe anaphylactic reactions occurs rarely.^[1] Non-hemolytic transfusion reactions are most commonly seen during blood transfusion which includes allergic reactions, febrile non-hemolytic transfusion reaction (FNHTR), anaphylactic reaction, transfusion related acute lung injury (TRALI), bacterial contamination transfusion associated circulatory overload and graft-versus-host disease.^[2] Mostly during blood transfusion IgE mediated hypersensitivity reactions occurs. IgE-mediated hypersensitivity reaction during blood transfusion may be caused by parasitic hyperimmunization for IgE antibodies.^[1]

KEYWORDS: Non-hemolytic transfusion reactions, Allergic reactions, IgE-mediated hypersensitivity reaction.**INTRODUCTION**

Transfusion reactions are any unfavorable and harmful transfusion related events occurring in the patient during or after transfusion of blood or components. Allergic transfusion reaction is one of the most common transfusion reactions, among which PRBC transfusion related allergic reaction is second most common. Allergic transfusion reactions may be immune mediated, hemolytic or non-hemolytic transfusion reactions and non-immune mediated transfusion reactions.^[3] Allergic reactions due to blood transfusion may be caused by the presence of sensitizing antigens in the donor's blood, or due to the transfusion of allergic donor antibodies and then exposure to antigen.

In this case report we are discussing about IgE mediated hypersensitivity reaction caused by the transfusion of one pint packed red blood cells in a 22 year old male patient in view of anemia who developed immediate immune mediated hypersensitivity reaction during PRBC transfusion.

CASE REPORT

A 22 year old male was admitted to Orthopaedic ward with alleged history of skid and fall from two wheeler. He sustained injury to his left knee. X ray showed closed distal femur fracture for which he underwent open reduction and internal fixation with distal femur lateral locking plate and inter fragmentary screws. His postoperative hemoglobin level showed falling trends and was given 1 pint PRBC transfusion. After two hours of transfusion he developed rashes, fever and transfusion reaction. The transfusion was stopped and the patient

was given Inj. Hydrocortisone, Inj. Avil, Tab. Acton OR. As the patient's Hb level was 6.9 g /dl 1 pint PRBC transfusion was advised. Inj. Avil 1 ampoule was given prior to 1 pint PRBC transfusion. Post transfusion vitals were stable and have no further reactions.

DISCUSSION

IgE mediated Allergic reactions are usually attributed to sudden massive systemic release of mediators such as histamine and tryptase in response to an IgE (or IgG)-mediated immune response.^[4] Some reports revealed that allergic transfusion reaction with platelets and packed rbc have incidence rate of 3.7 percentage and 0.15 percentage respectively, and this rate varied by more than 100 folds, because of premedication use, patient characteristics etc.^[5] The antibodies involved in the immunologically mediated hypersensitivity response are immunoglobulin (Ig) E(IgE-mediated allergy), produced by plasma cells, and more rarely IgG or IgM. The binding of the allergen to the IgE molecules bound on the surface of mast cells and basophils, preformed and newly synthesized mediators are activated and released. This initiates the development of clinical manifestations of allergy which involves mucocutaneous, cardiovascular, respiratory and gastrointestinal symptoms and the mediators as follows:

- Histamine and tryptase (preformed mediators)
- Leukotrienes and prostaglandins (newly formed mediators)
- Platelet-activating factor and cytokines (eg, interleukin [IL] 4, IL-5, IL-10, IL-13, tumor necrosis factor [TNF] α).

Three sources of mechanism are described in the development of transfusion reaction.

First one is donor related Mechanisms: The transfused blood components (BC) may contain the antibodies or the lymphocytes of a sensitized donor and will trigger a reaction in the recipient if he/she is then exposed to the allergen.

Second one is Blood component-Related mechanism: The Blood component may contain mediators accumulated during storage that may trigger a reaction mimicking allergy.

Last one is Recipient-Related Mechanisms: recipient antibodies may react with an allergen contained in the blood component^[6]

In our case, patient developed urticaria and fever within the first four hours of transfusion (Febrile Non Hemolytic Transfusion Reaction(FNHTR). The patient has predisposition to allergic reaction upon intake of certain food, which might be the cause of development of transfusion reaction in this case scenario.

CONCLUSION

IgE mediated blood transfusion reactions are commonly seen during blood transfusion reactions. The above case report represents an incidence of IgE mediated hypersensitivity reaction caused by transfusion of 1 pint PRBC. IgE mediated blood transfusion reactions are common during transfusion practice which occurs either immediately or delayed after the initiation of blood transfusion. In this case report the patient developed IgE mediated hypersensitivity reaction immediately after 1 pint PRBC transfusion and the transfusion was stopped and the patient was given Inj. Avil 1 ampoule and stabilized.

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CONFLICT OF INTEREST

The author declares that there is no conflict of interest.

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