Conference Abstract

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Effectiveness of Leukoreduction: A Tertiary Care Hospital Thalassaemia and Haemophilia Centre Experience

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Introduction: Genetic blood disorders in Pakistan constitute a huge burden to blood transfusion system. A common adverse effect of multiple transfusions of blood and components in these patients is febrile non haemolytic transfusion reaction (FNHTR). Febrile non haemolytic transfusion reactions occur due to immune response of recipient to donor leukocytes. Leukoreduction is a process in which white blood cells are removed from donated blood by using filtration. It can be implemented during blood collection, processing or at the bedside. These reactions are generally not life threatening but increase morbidity and are associated with blood product wastage. The study aims to assess the clinical effectiveness of bedside leukoreduction filters in minimizing febrile non haemolytic transfusion reaction in patients with multiple transfusions.

Methodology: A retrospective study was done in thalassaemia and haemophilia centre in Pakistan Institute of Medical Sciences from January 2022 to October 2024. Ethical approval was taken from the review board of PIMS. Data were collected from Blood Transfusion Information System (BTIS), computerized reports. All adverse transfusion reactions were reported on predesigned adverse transfusion reaction reporting forms filled by clinicians and reported to blood bank. Adverse Transfusion Reactions (ATRs) were analysed on the basis of clinical features and lab tests. Only patients with multiple transfusion reactions are included in this study. Puri blood and Kansuk leukocyte reduction filters were used. Leukoreduction was started from 1st January 2023.

Results: In 2022, before the start of leukoreduction filters a total number of 474 (2.09%) transfusion reactions out of 22,691 blood component transfusion were reported including RCC 263 (3.03%), FFPs 193 (1.54 %), Platelets 18 (1.23%) of which FNHTR were 71.9%, allergic were 22.4% and miscellaneous transfusion reactions were 5.7%. After the start of leukoreduction filters, from January 2023 to October 2024 a total number of 220 (0.47%) transfusion reactions were reported on 46674 transfusions including RCC 46 (0.28%), FFPs 161 (0.62%), Platelets 13 (0.32%) of which FNHTR were 48.3% and allergic were 46.4%. Anaphylactic reactions were 1.9% and miscellaneous transfusion reactions were 3.4%.

Conclusion: Leukoreduction significantly reduced the rate of febrile non haemolytic transfusion reactions in the patients with history of multiple transfusions, but the rate of allergic reactions remained the same. Leukoreduction needs to be implemented in resource constrained settings to minimize the wastage of blood components, morbidity of patients and to reduce workload on hospital/ lab staff. Standards for leukocyte reduction of RBC and platelets have been defined. More studies need to be done on the effectiveness of bedside filters in minimizing reactions with plasma.

Disclosure

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