

Effectiveness of Leucodepletion Filters in Reducing Adverse Transfusion Reactions in Multi-Transfused Beta Thalassaemia Major Patients

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Leukoreduction involves the removal of white blood cells from cellular components to reduce the risk of adverse transfusion reactions, most notably febrile nonhaemolytic transfusion reactions (FNHTRs). Currently, leukoreduction is achieved by using Leukocyte Reduction Filters (LRFs) that trap leukocytes while permitting the desired blood product to pass through. The processes of barrier retention and cell adsorption onto the filter membrane enable leukoreduction by filtration. LRFs may be used at the bedside, in a hospital, or in a blood centre at the time of collection. The current study was conducted to document the prevalence of adverse transfusion reactions in multi-transfused thalassaemia patients. This was a case-control, prospective study, conducted at the Mirpur Regional Blood Centre, Divisional Headquarters Teaching Hospital, Mirpur, AJK, Pakistan, and the Clinical Trials Unit, Dr. Akbar Niazi Teaching Hospital, Islamabad, Pakistan. Registered patients suffering from thalassaemia major with a history of red cell transfusions were studied. 200 units of red cell concentrates were

transfused to 200 beta-thalassaemia major patients (aged 11–17 years) with a history of FNHTRs. In 100 patients (Group-1), PuriBlood bed-side leukocyte filters (PuriBlood Medical Co., Ltd., Taiwan) supplied by Alpha Evolution Enterprises Pvt. Ltd., Pakistan, were used. In Group-2 patients, non-leukoreduced blood was routinely transfused. Leukoreduction was achieved by using Leukocyte Reduction Filters (LRFs). The age of transfused red cells ranged from 4–19 days. Adverse transfusion reactions occurred in 52.85% (n = 37) of transfusions. The median onset and duration of the reaction were two hours (range 20 minutes–17 hours) and four hours (range 1/2–23 hours), respectively. About 79.80% (n = 83) of the reactions occurred during transfusion. None of the transfusions were discontinued. The results showed that a significant reduction occurs in FNHTRs when bedside LRFs are used as compared to non-leukoreduced blood. Hence, leucoreduction of blood components in thalassaemia patients can be useful in preventing transfusion reactions.

Disclosure

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