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EDITORIAL

Leucodepletion in Thalassaemia Major Patients in Pakistan

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Thalassaemia is a blood disorder in which an abnormal form of haemoglobin is made due to genetic aberration. Although no national database exists to calculate the exact number of thalassaemics, but it is estimated that there are 9.8 million carriers of the disease in Pakistan [1]. Consanguineous marriage is the leading cause for this high prevalence rate due to which the thalassaemia gene is trapped within the affected families. These patients are dependent on regular blood transfusions to sustain life in addition to expensive chelation therapy and other medical management. As a result, thalassaemia is a major healthcare challenge and places great psychological and financial trauma on the affected families and is a huge burden on the national healthcare delivery system [2].

As the thalassaemia major patients are dependent on regular transfusions to sustain life [1], a common adverse effect of chronic transfusions in these patients is Febrile Non-Haemolytic Transfusion Reaction (FNHTR) with an occurrence rate of about 0.5-6.8% [3]. The FNHTRs occur due to immune reaction of the recipient against donor leucocytes [4]. Leucodepletion is a process of removing leucocytes from the donated blood either during blood collection, processing or at the bedside. The average amount of leucocytes present in donated human blood is estimated to be 10^9 per unit. According to the guidelines, the total amount of leucocytes present in a blood unit should be less than 5 x 10^6 per unit after preparation [5].

A pilot study was carried out in three major thalassaemia centres of Islamabad and Rawalpindi (Pakistan Institute of Medical Sciences Thalassaemia Centre; Pakistan Bait ul Mal Thalassaemia Centre; Jamila Sultana Thalassaemia Centre) on 120 thalassaemic patients with history of mild to moderate transfusion reactions. The study was conducted from January – April 2018, and the ethical consent was given by the ethical review board of Pakistan Institute of Medical Sciences, Islamabad. Written consent was taken from patients (or their parents) before the start of transfusions and the results were analyzed using Microsoft Excel 2013. Leucolite™ filters (by GLT Medical Co., Ltd.) were used during transfusion to the selected 120 patients. In the past, these patients were routinely given pre-medication [Solu-Cortef (100 Mg) and Avil Injections] to avoid transfusion reactions but with the leucofilter use, no pre-medications was given to observe the effectiveness of the leucofilters. The age of transfused red cell concentrates ranged from 5-27 days. No transfusion reaction of any kind was observed in any of the patients using the leuofilters.

A study conducted by Waheed *et al.,* [6] on thalassaemia major cases, reported an incidence of 26.3% transfusion associated reactions in a total of 2,193 red cell transfusions, with FNHTR being the most common reaction. In the present study, reaction rate declined to 0%, when bedside filter was used and no FNTHRs were documented on cases which had earlier reported high incidence of FNTHRs. On the other hand, use of non leuco-reduced blood resulted in the occurrence of febrile non-haemolytic transfusion reactions with a reaction rate of 100%. This shows that a remarkable reduction occurs in FNTHRs when bedside filter leuco-reduced blood is transfused as compared to non-leucoreduced blood. Hence, leucoreduction of blood components in thalassaemic patients can be helpful in preventing transfusion reactions. Anecdotal evidence claims no effect on the rate of FNHTRs but that is invariably in those centres where the sub-standard filters are being used. The leucofilters sale thus needs to be regulated by the government. This is an on-going study, leucofilters will be used consistently on thalassaemics and other chronic recipients to assess the effectiveness of

leucodepletion and co-relate it with financial impact including prolonging duration of interval of transfusion.

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