CODEN [USA]: IAJPBB ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES

http://doi.org/10.5281/zenodo.2577282

Available online at: http://www.iajps.com ***Research Article***

PREVALENCE OF MULTIPLE BLOOD TRANSFUSIONS RELATED COMPLICATIONS AMONG THALASSEMIA MAJOR PATIENTS.

[1]Dr. Hafiz Abdul Haseeb, [2]Dr. Nurmeen Ayaz, [3]Dr. Muhammad Adil Khan

[1]MBBS; King Edward Medical University, Lahore, Pakistan, [2]MBBS; King Edward Medical University, Lahore, Pakistan, [3]MBBS; Ameer Ud Din Medical College, Lahore, Pakistan.

Abstract:

Background: *Thalassemia major patients require multiple blood transfusions in their life. The blood transfusion related infections are viral hepatitis B and C, HIV.*

Objective: *The purpose of this study is to find out the prevalence of these transfusion related infections among thalassemia major patients.*

Materials and methods: *this study was conducted over period of 15 months at Govt. Nawaz Sharif Hospital, Lahore. It is a descriptive, cross sectional study. 211 thalassemia major patients who underwent multiple transfusions were selected and were screened for transfusion related infections, hepatitis B and C pus HIV.*

Results: *there were 151 females and 60 were males, out of 211 sample size. It was observed that patients who underwent more frequent or multiple blood transfusions suffered transfusions related infections more commonly. No relation between gender, age and risk of infections was observed.10 to 100 transfusions were received by 70 patients (33.1%), 47 had received 101 to 200 transfusions, 55% patients had transfusions from 201 to 300. 48% had transfusion from 301to 400. 66.6% patients had more than 400 blood transfusions. Seropositivity of blood transfusion related infections was commonly seen among these patients.*

Conclusion: *Thalassemia is a chronic disease which requires multiple blood transfusions, treatment complications are iron overload, leading to iron accumulation in multiple organs and increasing risk of morbidity and mortality. In addition, transfusion related infections like hepatitis B, C and HIV are commonly seen in these patients. Risk of these complications increases with increased number of transfusions. These infections can be reduced by proper screening of donors and blood before transfusion.*

Key Words: *Thalassemia Major, Blood Transfusions, Infections, Complications, Screening.*

Corresponding author:

Dr. Hafiz Abdul Haseeb,

MBBS; King Edward Medical University, Lahore, Pakistan.

QR code

Please cite this article in press Hafiz Abdul Haseeb et al., ***Prevalence Of Multiple Blood Transfusions Related Complications Among Thalassemia Major Patients..,*** *Indo Am. J. P. Sci, 2019; 06(02).*

INTRODUCTION:

Thalassemia is a hemolytic disorder caused by defect in alpha or beta globin chains. Per annum 60,000 babies have thalassemia [1]. It is congenitally transmitted disease. It has two different types depending on type of chain involved. Alpha thalassemia and beta thalassemia [2]. Depending upon severity it is divided into two groups, minor, intermediate and major. Thalassemia minor usually does not require blood transfusion, but thalassemia intermedia and major require lifelong multiple blood transfusions [3]. These patients suffer transfusion related complications like transfusion reactions, hemosiderosis, infections like malaria, hepatitis, HIV etc. [4].

The purpose of this study is to find the frequency of transfusion related infections in patients with thalassemia major and to find its association with age and frequency of transfusions.

MATERIALS AND METHODS:

The study was conducted at Nawaz Sharif Hospital, Lahore over period of 15 months. It is a descriptive, cross sectional study. 211 thalassemia major patients who underwent multiple transfusions were selected. Informed written consent was taken from all participants. No ethical issue certificate was obtained from research ethical committee. The objective of study was explained to all patients. Patients who has been transfused at least 10 times for thalassemia treatment were included in study. Those with less frequent transfusions or those already having hemosiderosis or pre-treatment initiation hepatitis were excluded.

Screening for hepatitis B and C, HIV, syphilis and malarial parasites was done. Detailed history was taken from all patients and complete physical examination was done and recorded on a predesigned proforma along with demographic data. Baseline investigations like CBC, LFTs, RTFs, HIV, HbsAg, HCV, status was investigation at the initiation of study and was repeated with 3 months interval for the period of 1 year and 3 months. Microwell ELISA technique was used for hepatitis B screening, HIV and third generation HCV microwell ELISA was utilized for hepatitis C virus screening.

SPSS version 18 was used for data analysis. Mean and standard deviation of mean was calculated for quantitative data while percentages and frequencies were calculated for qualitative data.

RESULTS:

Male patients comprised 28% of study population while 72% study population was female, out of 211 enrolled patients. Patients were stratified on basis of age into several groups, from 0 to 5, 6 to 10, 11 to 15, 16 to 20, 21 to 25, more than 26. Number of patients in first age group were 44 (20.85%), 60 (28.44%), 47 (22.27%), 35 (16.59%), 19 (9%), 6 (2.84%), respectively [table:1].

Patients distribution with reference to blood transfusion is shown in table: 2 showing more risk of transfusion related infection among those with multiple transfusions than those with less frequent transfusions.

Age in years	Number	Percentage
0 to 5	44	20.8
6 to 10	60	28.4
11 to 15	47	22.2
16 to 20	35	16.5
21 to 25	19	9
More than 26	6	2.84
Total	211	100

Table:1 Patients' distribution according to age group

Blood transfusions	Patients	HCV	HBV	HIV	Seropositivity percentage
10-100	70(33.1%)	26	1	0	27(28.5%)
101-200	27(29%)	0	0	0	0(0.00%)
201-300	60(24.1%)	31	2	0	33(55%)
301-400	25(11.5%)	12	0	0	12(48%)
>400	12(5.6%)	36	2	0	8(66.6%)

Table 2: Prevalence of transfusion related infections with number of transfusions.

DISCUSSION:

Life blood transfusion is the main treatment for the patients suffering from thalassemia major. These patients frequently suffer transfusion related complications, commonest of all is blood transfusion related infections, that is, malaria, hepatitis, HIV, tetany, hyperkalemia, hemosiderosis, etc.[5]

Chronic red blood cell transfusion is the first-line treatment for severe forms of thalassaemia. This therapy is, however, hampered by a number of adverse effects, including red blood cell alloimmunisation. Matching transfusion-dependent thalassaemia patients and red blood cell units for Rh and Kell antigens should be able to reduce the risk of red blood cell alloimmunisation by about 80% [6]. In a study conducted by Mettananda S, et al. [7] it was concluded that over 60% of regularly transfused patients with β-thalassemia have low pretransfusion hemoglobin levels despite receiving large transfusion volumes. Patients with hemoglobin E β-thalassemia are undertransfused and specific recommendations should be developed to guide transfusions in these patients.

A study in Pakistan was conducted by Hoodbhoy Z, et al in 2018 [8]. The aim of this study was to establish multidisciplinary care for patients with transfusion-dependent thalassaemia (TDT) by creating a TDT quality improvement (QI) collaborative in a resource-constrained setting. Using T2* CMR and endocrine testing, we have identified significant burden of iron siderosis in our patients with TDT. Lack of adequate iron load assessment and standardised management was observed. Interventions designed to target these key drivers of outcome are the unique part of this QI-based TDT registry.

CONCLUSION:

Thalassemia is a chronic disease which requires multiple blood transfusions, treatment complications are iron overload, leading to iron accumulation in multiple organs and increasing risk of morbidity and mortality. In addition transfusion related infections like hepatitis B, C and HIV are commonly seen in these patients. Risk of these complications increases with increased number of transfusions. These infections can be reduced by proper screening of donors and blood before transfusion.

REFERENCES:

1. Afzal S, Fatima I, Zulfiqar I. Frequency of transfusion transmitted infections in beta-thalassemia major cases. International Journal of Advanced Biotechnology and Research 2018; 9(4): 215-219.
2. Melody J, Eric A, Ellis J, Alan R. Complications of beta thalassemia major in North America. Blood 2004; 104:34-39.
3. Prati D. benefits and complications of regular blood transfusion in patients with beta thalassemia major. Vox Sang 2000; 79: 129-137.
4. A Zanella, F. Rossi, C Cesana, A Foresti, et al. Transfusion transmitted human parvovirus B19 infection in a thalassemic patient. The Journal of AABB Transfusion. 1995;35(9): 769-772.
5. P Rebulla. Blood transfusion in beta thalassemia patients. Transfusion Medicine 1995; 5(4): 247-258.
6. Franchini M, Forni CL, Marano G, Cruciani M, Mangoli C, et al. Red blood cells alloimmunisation in transfusion dependent thalassemia: a systematic review. Blood Transfuse 2019; 17(1): 4-15.
7. Mettananda S, Pathiraja H, Peiris R, Wickramarathne N, et al. Blood transfusion therapy for beta thalassemia major and hemoglobin E beta thalassemia: adequacy, trends and determinants in Sri Lanka. Pediatric Blood and Cancer 2019.
8. Hoodbhoy Z, Ehsan L, Alvi N, Sajjad F, Asghar A, et al. Establishment of a thalassemia major quality improvement collaborative in Pakistan. Archives of Diseases in Childhood 2018.