International Journal of Clinical and Diagnostic Pathology

ISSN (P): 2617-7226
ISSN (E): 2617-7234
www.patholjournal.com
2019; 2(2): 14-16
Received: 11-05-2019
Accepted: 13-06-2019

Mourouguessine Vimal
Associate Professor,
Department of Pathology,
Sri Manakula Vinayagar
Medical College and Hospital,
Puducherry, India

Balla Rakesh
Undergraduate Student,
Department of Pathology,
Sri Manakula Vinayagar
Medical College and Hospital,
Puducherry, India

Anandabaskar Nishanthi
Assistant Professor,
Department of Pharmacology,
Sri Manakula Vinayagar
Medical College and Hospital,
Puducherry, India

Correspondence
Mourouguessine Vimal
Associate Professor,
Department of Pathology,
Sri Manakula Vinayagar
Medical College and Hospital,
Puducherry, India

Demographic and clinical profile of blood transfusion recipients of a tertiary care hospital

Mourouguessine Vimal, Balla Rakesh and Anandabaskar Nishanthi

DOI: https://doi.org/10.33545/pathol.2019.v2.i2a.72

Abstract
Background: Periodic review and evaluation of the transfusion practices is essential to ensure a quality blood bank services.
Aims and Objectives: To study the demographic and clinical characteristics of blood transfusion recipients in the tertiary care hospital.
Materials and methods: This was a retrospective cross-sectional study carried out in the blood bank of a tertiary care hospital where the received requisition forms were reviewed for a period of three years (2015-2018).
Results: Of the 10072 transfusion requisition recipients, majority, 6133(60.9%) were females and 4996(49.6%) belonged to the age group 18-40years of age. Major indications for transfusion were 4588(45.6%) need during surgeries followed by 3331(33.1%) for hematological conditions and 595(5.9%) were emergency transfusions
Conclusion: It is essential for all stakeholders involved in the transfusion should be aware of the characteristics of the transfusion recipients, their indications for the transfusions and standard guidelines for transfusion to ensure a quality transfusion services.

Keywords: Transfusion practices, transfusion recipients, blood bank, indications for transfusions, transfusion guidelines

Introduction
Blood is a precious and scarce resource and the demand of the blood and blood products is on the rise every day, especially with the advent of the modern technologies in the medicine practice. Periodic review and evaluation of the transfusion practices is essential to ensure a quality blood bank services. This includes reviewing the blood requisition forms to determine the demographic characteristics of the transfusion recipients, their clinical indications and pretransfusion laboratory parameters. It is thus vital to assess the present and future demands of the hospital and minimize the unnecessary transfusion requisitions. Studies on blood transfusion recipient characteristics have revealed varying demographic and clinical characteristics owing to the geographical characteristics and methodological heterogeneity of the study [1, 2]. Hence this study was carried out to study the demographic and clinical characteristics of blood transfusion recipients in the tertiary care hospital.

Materials and Methods
This was a retrospective cross-sectional study carried out in the blood bank of a tertiary care hospital. The requisition forms received at the blood bank for a period of three years (2015-2018) were reviewed. The recipient characteristics including their age, gender, clinical indication for transfusion, and nature of the blood product requested from the blood bank, its requirement on an elective or emergency basis, the pretransfusion laboratory parameters like values of hemoglobin and platelets were collected from the requisition forms. The data was tabulated in the excel and their frequency and percentage was calculated.

Results
Of the 10072 transfusion requisition recipients, 3939 (39.1%) were males and 6133 (60.9%) were females. Most of the transfusion recipients 4996 (49.6%) belonged to the age group 18-40years of age, followed by 41-64 years (3310 (32.9%). The year wise split up of the age group of the transfusion recipients were shown in Table. 1.

Table. 2 shows the major indications for transfusion among the recipients in which 4588 (45.6%) requisitions were due to need during surgeries followed by 3331 (33.1%) of hematological conditions and 1387 (13.8%) due to pregnancy and associated conditions. O positive was the most common blood group among the recipients 3468 (34.4%), followed by B positive 3432 (34.1%). The distribution of ABO blood groups of the transfusion recipients is shown in the table. 3. Out of the 10072 transfusion, 9477 (94.1%) were routine transfusions and 595 (5.9%) were emergency transfusions and 2044 (20.3%) of the recipients had previous history of transfusion. The requirements of transfusion in the recipients during the study period are shown in the table. 4.

Discussion

In our study, majority of the recipients belonged to the age group of 18-40 years. This finding is similar to the findings of Okoroiwu *et al.* [3] and Mafirakureva *et al.* [4], but in contrast to the findings of Borkent-Raven *et al.* [5] Wells *et al.* [6] and Vamvakas *et al.* [7] who reported the major transfusion recipients were above the age group of 60. However the earlier studies from developing nations and the later studies were from the developed nations and the increased mean life expectancy of the population in the western world can be the reason for such variation in these studies.

With younger age group of transfusion recipients in the developing nations signifies the impact of transfusion related complications, including the transfusion transmissible infections on them and necessitates quality assurance of the transfusions in these settings. Approximately 6% of the transfusion recipients in our study were less than 18 years and transfusion in pediatric patients is often challenging. This requires knowledge of physiological changes in hemoglobin and other parameters during different ages and also the choice of blood products for the indications of transfusion [8].

Majority 6133(60.9%) of the transfusion recipients in our study were females, which is similar to that of Bugge *et al.* [9] and Schneider *et al.* [10] that women receive many blood transfusions owing to the complications related to intrapartum and postpartum hemorrhage and gynecological procedures. Further many females in developing nation are severely anemic often requiring blood transfusion. Borkent-Raven *et al.* [5] and Gebbel *et al.* [11] reported higher number of male transfusion recipients which can be attributed to the advanced obstetric care and less cases of nutritional anemias in developed nations.

Some studies [3, 12] have reported higher percentage of requisition and utilization of whole blood. Due to unavailability of facilities for component separation in resource poor settings, still whole blood usage is unavoidable in these settings and however usage of whole blood should be limited to massive hemorrhages and exchange transfusion.

In our study, the major indications for transfusion among the recipients were due to need during surgeries 4588(45.6%), followed by 3331(33.1%) of hematological conditions and 1387 (13.8%) due to pregnancy and associated conditions. Presence of cases with the indication of anemia for transfusion contributed to the most cases of hematological conditions signifies the higher prevalence rate in our setting and also with a possibility of other hidden diagnosis. Other similar studies [3, 4, 13, 14] have reported varying indications and this depicts the variation in the demographic characteristics of the transfusion recipients, their clinical indications for transfusion and also the variation in the disease burden, level of advancement of the health care settings [3, 4].

In our study, O positive was the most common blood group among the recipients, followed by B positive. It is essential for the blood banks to have details of blood group of their transfusion recipients to plan for the blood requirements especially in times of emergency. Maintenance of electronic registries of transfusion recipients is essential in every blood bank to improve the transfusion practices as extracting the data from manual registries is labour intensive and time consuming. It is also essential to maintain data of actual number of blood components transfused to the recipients against the requested products from the blood bank. This data can serve as a surrogate marker for consumption of blood products and also for planning and strictly adhering to the transfusion guidelines.

Table 1: Age group of the transfusion recipients during the study period

Age	2015	2016	2017	Total
<1	17 (0.6)	9(0.3)	5(0.1)	31(0.3)
1-17	145(5.06)	180(5.8)	213(5.17%)	538(5.3)
18-40	1435(50.1)	1550(50.1)	2011(48.9%)	4996(49.6)
41-64	954(33.2)	995(32.14%)	1361(33.09%)	3310(32.9)
>65	314(11)	361(11.6%)	522(12.69%)	1197 (11.9)
Total	2865	3095	4112	10072(100)

Table 2: Distribution of transfusion recipients as per their clinical indication for the transfusion

Indications	Number (Percentage)
Pregnancy, child birth, puerperium	1387 (13.8)
Blood and blood forming organs	3331(33.1)
Neoplasms	54(0.5)
Genitourinary system	204(2)
Digestive system	50(0.5)
Circulatory system	63(0.6)
Respiratory system	14(0.1)
Infectious and parasitic diseases	106(1.1)
Symptoms, signs and abnormal clinical and laboratory findings	272(2.7)
Musculoskeletal system and connective tissue	3(0.02)
Surgeries	4588(45.6)
Total	10072

Table 3: Distribution of ABO blood groups of the transfusion recipients during the study period

Blood group	Number (Percentage)
A+	2178(21.6)
A-	66(0.7)
B+	3432(34.1)
B-	84(0.1)
O+	3468(34.4)
O-	137(1.4)
AB+	664(6.6)
AB-	43(0.4)
Total	10072(100)

Table 4: Requirements of transfusion in the recipients during the study period

Year	Total number of transfusions	Routine transfusions	Emergency transfusions	Recipients with history of previous transfusions
2015	2865	2669(93.2)	196(6.8)	578(20.2)
2016	3095	2919(94.3)	176(5.7)	625(20.2)
2017	4112	3889(94.6)	223(5.4)	841(20.5)
Total	10072(100)	9477(94.1)	595(5.9)	2044(20.3)

Conclusion

It is essential for all stakeholders involved in the transfusion should be aware of the characteristics of the transfusion recipients, their indications for transfusions and also the standard guidelines for the transfusion to ensure a quality transfusion services. Future studies incorporating all blood banks in different locations are essential to provide an overview and also a better representation of the transfusion recipients throughout the country. Such data will provide an insight and aid in the proper utilization of blood and blood products in the blood banks.

References

1. Kipkulei JC, Buziba N, Mining S, Jepngetich H. Demographic and Clinical Profiles of Blood Transfusion Recipients at a Teaching and Referral Hospital in Kenya. Open J Blood Dis. 2019; 9(1):30-40.
2. Biggin K, Warner P, Prescott R, McClelland B. A review of methods used in comprehensive, descriptive studies that relate red blood cell transfusion to clinical data. Transfusion (Paris). 2010; 50(3):711-8.
3. Okoroiwu HU, Okafor IM. Demographic characteristics of blood and blood components transfusion recipients and pattern of blood utilization in a tertiary health institution in southern Nigeria. BMC Hematol. 2018; 18:16.
4. Mafirakureva N, Khoza S, Hassall O, Faragher BE, Kajja I, Mvere DA *et al*. Profiles of blood and blood component transfusion recipients in Zimbabwe. Blood Transfus. 2015; 13(4):600-9.
5. Borkent-Raven BA, Janssen MP, Van der Poel CL, Schaasberg WP, Bonsel GJ, Van Hout BA. The PROTON study: profiles of blood product transfusion recipients in the Netherlands. Vox Sang. 2010; 99(1):54-64.
6. Wells AW, Llewelyn CA, Casbard A, Johnson AJ, Amin M, Ballard S *et al*. The EASTR Study: indications for transfusion and estimates of transfusion recipient numbers in hospitals supplied by the National Blood Service. Transfus Med Oxf Engl. 2009; 19(6):315-28.
7. Vamvakas EC, Taswell HF. Epidemiology of blood transfusion. Transfusion (Paris). 1994; 34(6):464-70.
8. Kuliya-Gwarzo A. Survey of blood transfusion needs in a tertiary Nigerian institute. Sahel Med J. 2007; 10(1):19.
9. Bugge HF, Karlsen NCT, Oydna E, Rake MM, Wexels N, Bendabenda J *et al*. A study of blood transfusion services at a district hospital in Malawi. Vox Sang. 2013; 104(1):37-45.
10. Schneider WH. History of blood transfusion in sub-saharan Africa. Transfus Med Rev. 2013; 27(1):21-8.
11. Geißler RG, Franz D, Buddendick H, Krakowitzky P, Bunzemeier H, Roeder N *et al*. Retrospective Analysis of the Blood Component Utilization in a University Hospital of Maximum Medical Care. Transfus Med Hemotherapy. 2012; 39(2):129.
12. Aliyu I, Michael G, Ibrahim H, Ibrahim ZF, Aliyu G, Isaiah AT. Blood transfusion request pattern in a medical center in Northwestern Nigeria. Glob J Transfus Med. 2017; 2:52-5
13. Mathoulin-Pélissier S, Salmi LR, Verret C, Demoures B. Blood transfusion in a random sample of hospitals in France. Transfusion (Paris). 2000; 40(9):1140-6.
14. Goncalez T, Sabino E, Capuani L, Liu J, Wright D, Walsh J *et al*. Blood transfusion utilization and recipient survival at Hospital das Clinicas in São Paulo, Brazil. Transfusion (Paris). 2012; 52(4):729-38.