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AN AUDIT OF APPROPRIATE USAGE OF BLOOD PRODUCTS IN BLOOD BANK IN A TERTIARY CARE HOSPITAL RAJKOT

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ABSTRACT

Transfusion of blood and blood products such as Whole Blood, Red Cell Concentrate, Platelet Concentrate, and Fresh Frozen Plasma play an important role in treating hospitalised patients. The irrational use of medical technology is a major factor in increased healthcare expenses. We have done a crossectional studyto estimate the appropriate usage of blood and blood products transfusions in P.D.U. Medical College and Hospital, Rajkot,Gujarat,(India).

Methodology: We analysed 1050 blood and blood products requests for transfusion. A total of 1078 blood and blood products transfusions were evaluated in these patients. A review of the patients medical record was done on each request for blood and blood products for examplediagnosis, indication for transfusion, number of units requested and the speciality prescribing it. Overall prevalence of appropriate use of blood and blood products was assessed according to NACO (National AIDS Control Organization) guidelines.

Results: A total of 1050 requests were received for blood and blood products transfusion from various departments .These patients received 1078 transfusions.Maximum number of blood transfusion requests were received from Obstetrics and Gynecology department. Maximumnumber of transfusions were done in Medicine department. Out of these total transfusions, Red Cell Concentrates were maximum. According to our study maximum inappropriate transfusions were of Red Cell Concentrates.Total prevalence of appropriate use of blood and blood products was 81%.

Conclusion: There is a need for continuous auditabout the use of blood and blood products as therapy. This helps in reduction of prevalence of inappropriate use of blood products, thus thereby reduces the expenditure on health care.

Keywords- whole blood, RCC (Red Cell Concentrate, PC(Platelet Concentrate), FFP(Fresh Frozen Plasma), Prevalenceof appropriate use

INTRODUCTION

Blood transfusion has become a very important part of modern health care. If used correctly, it can save life and improve health.However, like other therapeutic interventions, it may result in various types of complications. In addition, it carries the riskof transmission of infections like HIV (Human Immunodeficiency Virus), HBV (Hepatitis B Virus), HCV (Hepatitis C Virus), Syphilis etc. It is also expensive and uses a scarcehuman resource. Inappropriate use causes increase in health expenditure and also puts patients at higher risk in acquiring Transfusion Transmitted Infections.The risks associated with transfusion can only be decreased by collaboration between the blood transfusion service and clinicians in managing the blood components for transfusion, approach of both should be to provide an adequate supply of safe blood and blood products and the effective clinical use of blood and blood products

There is no any absolute acceptable level for all patients exists. But the concept of transfusion is only indicated when Hemoglobin<7 g/dl. This concept has been accepted as general in most of the countries in the world[1] .The blood component implies separation of whole blood into various potential components like packed red cells, platelet concentrate and fresh frozen plasma[2-5].To increase the efficacy, safety and utilizationof blood and blood components clinicians and hematologists should have knowledge regarding the potential risk associated with blood component therapy[6].

Various strategies have been developed to reduce the inappropriate use of blood components. These includeguidelines and consensus conferences as well as monitoring of transfusion practice, educationand self-audit by clinicians[5,7,8].

MATERIALS AND METHODS

A crossectional study was done to estimate the appropriate use of blood and blood products transfusions in Blood Bank at P.D.U. Medical College and Hospital, Rajkot, Gujarat,(India). A review of the patients medical record was done on each request for blood and blood products for example diagnosis, indication for transfusion, number of units requested and the speciality prescribing it.

RESULTS

A total of 1050 requests were received. Out of which189 requests were from medicine, 273 from gynaecology, 201 from orthopaedics, 108 from general surgery, 93 from paediatrics, 174 from thalassaemia ward and 12 from others (skin, ENT, pulmonary medicine) [TABLE-1]. These patients received 1078 transfusions. Total number of transfusions done in medicine was 398, obstetrics and gynecology 133, orthopaedics 115, general surgery 114, paediatrics 110 ,thalassaemia 202 and others 06 respectively [TABLE-3].

Out of total 1078 transfusions Whole Blood were 128, Red Cell Concentrate were 668, Platelet Concentrate were 75 and Fresh Frozen Plasma were 207 [TABLE-2].

Prevalence of appropriate use of Whole Blood , Red Cell Concentrate, Platelet Concentrate and Fresh Frozen Plasma was 90%, 76.3%, 88% and 87.9% respectively [TABLE-4].

Prevalence for appropriate use of Blood and Blood components for all departments was 81% [TABLE-4].

DISCUSSION

Maximum number of blood transfusion requests were received from Obstetrics and Gynecology department. Maximum number of transfusions were done in Medicine department. Out of these total transfusions, Red Cell Concentrates were maximum. According to our study maximum inappropriate transfusions were of Red Cell Concentrates.

Due to easy availability of blood and blood components, indiscriminate use of blood components is on arise. To reduce that internal audits should be regularly done as a part of the quality control programme in any blood bank[9-10].

These Internal quality programs aims at proper selection of blood components and avoid their overuse[11-12].The demand for blood and its components is increasing day by day,but the supply is limited. High rate of inappropriate use causes considerable impact on the health care cost, wastage of resourcesand increased risk of transmission transmitted infections. First reason for limited appropriate use of blood component is use of laboratory criteria alone to determine the request of transfusion. Ideally clinical status and laboratory reports should be considered. Second reason is, denial to issue blood can cause conflicts between clinician and laboratory personnels and may also lead to medicolegal issues, ultimately compromising patient care.Third reason is lack of any oversight program to monitor quality of transfusion practices.

CONCLUSION

Inappropriate use of blood and its products can be reduced effectively through various stratigies such as Medical audits, Continuing Medical Education and various educational stratigies including blood bank personnels and clinicians.In addition to their economic impact, these educational programs improve appropriate use of blood components and also have impact on the rate of transfusion transmitted diseases.

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Table-1: Requests for blood and blood components from different departments

DEPARTMENTS	NO. OF REQUESTS RECIEVED
MEDICINE	189
OBSTETRICS/GYNAECOLOGY	273
ORTHOPEDICS	201
GENERAL SURGERY	108
PEDIATRICS	93
THALASSAEMIA	174
OTHERS (ENT, SKIN, PULMONARY MEDICINE)	12
TOTAL	1050

Table-2: Total no. of blood and blood components issued

TYPE OF COMPONENT	NO. OF COMPONENTS ISSUED
WHOLE BLOOD	128
RED CELL CONCENTRATE	668
PLATELET CONCENTRATE	75
FRESH FROZEN PLASMA	207
TOTAL	1078

Table-3: Department wise issue data of blood and blood components

DEPARTMENT	WHOLE BLOOD	RED CELL CONCENTRATE	PLATELET CONCENTRATE	FRESH FROZEN PLASMA	TOTAL
MEDICINE	18	179	54	147	398
OBSTETRICS/GYNECOLOGY	48	52	05	28	133
ORTHOPEDICS	34	77	00	04	115
GENERAL SURGERY	26	76	00	12	114
PEDIATRICS	02	76	16	16	110
THALASSAEMIA	00	202	00	00	202
OTHERS(SKIN,ENT,PULMONARY MEDICINE)	00	06	00	00	06
TOTAL	128	668	75	207	1078

Table-4: Appropriate use of blood and blood components

TYPE OF COMPONENT	PREVALENCE OF APPROPRIATE USE
WHOLE BLOOD	90%
RED CELL CONCENTRATE	76.3%
PLATELET CONCENTRATE	88%
FRESH FROZEN PLASMA	87.9%
TOTAL PREVALANCE OF APROPRIATE USE	81%