

A Study on Awareness about Blood Donation and Blood Transfusion among Junior Doctors in Teaching Hospitals of Meerut

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ABSTRACT

Introduction: Junior doctors of teaching hospitals are those who directly come in contact with blood donors, recipients and their families. They are also responsible for encouraging voluntary blood donation. It is therefore, necessary to assess their own knowledge, beliefs and attitude towards blood safety and blood donation. This study is conducted to know the awareness of junior doctors in teaching hospitals about blood donation and transfusion.

Material and methods: The study was undertaken at two teaching hospitals, Subharti Medical College and Lala Lajpat Rai Memorial Medical College, Meerut in October 2015- January 2016. The study population comprised of one hundred two junior doctors of the above mentioned two institutes. A pre-designed questionnaire was used to collect data.

Results: Junior doctors were well aware about blood donation and blood transfusion. But, awareness about components was less. Most had satisfactory knowledge about blood group and sample collection.

Conclusion: Our study gives a good insight into the awareness levels of junior doctors in teaching hospitals, which is satisfactory regarding few aspects of blood banking, but, very much lacking in others. It calls for encouraging education about blood donation, safety and other aspects of blood banking among the junior doctors.

Keywords: Blood donation, Transfusion, Component, Awareness

INTRODUCTION

There is no ideal substitute of blood and hence, blood transfusion still remains a vital component of patient management. Thus, safety and availability of blood and blood products is an important issue of concern.¹

According to WHO, 'Safe Blood' is blood that does not harm to the person who receives it. 83% of global population living in developing countries have access to only 40% of blood supplied, and 60% of cases of this blood is collected from paid or replacement blood donors rather than from voluntary non-remunerated low-risk donors.²

In our country, collected blood is tested mostly for HIV, HBsAg, VDRL and Malaria. Studies among blood donors regarding presence of infection in different cities have shown high rates in Delhi having 4.5% VDRL positive, 3.2% HBsAg positive and 1.35% HIV positive, and Calcutta showing lower rates with 0.14% VDRL positive, 1.2% HBsAg positive and 0.04% HIV positive.³

Thus, it is very important to encourage voluntary blood donation, proper testing and storage of blood components and creating awareness about blood donation and safety among health care providers as well as general population.

Optimal utilization of blood helps in eliminating the use of allogenic blood and often prevents unnecessary exposure of

a patient to the risk of blood-borne endogenous infections. Appropriate and rational use of blood/blood components is required to ensure their availability to needy patients as well as to avoid unnecessary risk of transfusion mediated diseases.

Rational use of blood means providing the blood product in the right quantity, for the right patient.⁴

Junior doctors of teaching hospitals are those who directly come in contact with blood donation and recipients with their families. Some of them as teachers, are also responsible for giving the right message to their students. Therefore it is necessary to assess their own awareness, knowledge, beliefs and attitude towards blood safety, donation and transfusion.

Organizing doctors awareness and training sessions, including CME programmes should be held in various hospitals.

Aims and Objectives

To assess awareness about blood donation and transfusion among junior doctors in teaching hospitals.

MATERIAL AND METHODS

The study was undertaken at two teaching hospitals, Subharti Medical College and Lala Lajpat Rai Memorial Medical College, Meerut in October 2015- January 2016. The study population comprised of one hundred two junior doctors of the above mentioned two institutes selected randomly.

A pre-designed questionnaire was used to collect data.

The Questionnaire consisted of multiple choice questions and required approximately 15 minutes to complete.

In general, the questions concerned:

1. Donor age and haemoglobin criteria
2. Level of knowledge about blood components-PRBC, Platelets, FFP etc
3. Awareness about transfusion practices
4. General information about blood groups and sample collection

STATISTICAL ANALYSIS

Statistical analysis was done by calculating the mean and percentage of correct and incorrect answers given by the participants, thereby assessing the awareness regarding the questions asked. Data calculated was combined and assembled

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in tabulated form.

RESULTS

Table-1 shows that most junior doctors have knowledge about age limit for autologous blood donation (81.0%), but there is less knowledge about age criteria for donor (30.39%) and least about minimum haemoglobin criteria for blood donation (22.0%).

Table-2 shows that majority of participants know about storage temperature of PRBC (81.0%) and shelf life of platelets (86.73%). But, knowledge about components is limited as far as storage temperature of platelets (58.0%) and contraindication for platelet concentrate (21.88%) are concerned. Awareness about use of stored whole blood (79.00%) and indication for cryoprecipitate (78.79%) is satisfactory.

Table-3 is to assess knowledge of participants regarding blood transfusion practices which shows that maximum number of participants know about management of immediate transfusion reactions (86.27%), most frequent cause of fatal transfusion reaction (70.0%) and transfusion transmitted diseases (88.24%). But, there is limited knowledge about time for transfusion of one unit pRBC (70.00%), increase in platelet count by transfusion of one unit platelets (28.00%), transfusion trigger for PRBC / whole blood (15.79%) and best blood group for emergency transfusion (51.00%).

Table-4 indicates that the level of awareness about Bombay

blood group (78.43%) and vacutainer used for sample collection for DCT (73.53%) are satisfactory.

DISCUSSION

The study reveals that though most of the junior doctors of the teaching institutes were aware about 'safe blood' and importance of blood donation, only few of them knew about all the mandatory tests and requirements of blood banking. In another study done to check awareness and perceptions regarding blood safety and blood donation among health care providers in a teaching hospital of Calcutta, only 69.7% of resident doctors, 43.3% of 'other group' of staff, 23.3% doctors, 8% of nurses and no group D staff knew about all mandatory tests for collected blood.¹

In our study, 88.24% junior doctors knew about transfusion transmitted diseases. The finding is comparable to the finding of a study among senior secondary students in Delhi in which 86% knew that AIDS can be spread by blood transfusion.⁵ In another study, in south India, 2.2% out of 14.2% illiterate and 52.9% out of 85.8% literate respondents attributed blood transfusion as a means of spread of AIDS.⁶

Regarding awareness about guidelines and pre-requisites for blood donors and blood donation, only 30.39% junior doctors had satisfactory knowledge about age criteria of donor, very few (only 22.0%) knew the minimum haemoglobin criteria for blood donation, whereas, 81.0% knew the age limit for

Awareness about	Number of participants with correct answers	Number of participants attempting the question	Percentage
Age criteria of donor	31	102	30.39
Minimum Hb criteria	22	100	22.0
Age limit of autologous donor	81	100	81.0

Table-1: Knowledge of junior doctors about guidelines for blood donation

Awareness about	Correct answer	Attempted by	Percentage
Storage temperature of PRBC	81	100	81.0
Storage temperature of platelets	58	100	58.0
Shelf life of platelets	85	98	86.73
Advantages of leucocyte reduced RBC	90	102	88.24
Indication for cryoprecipitate	45	97	46.39
Indication for FFP	88	102	86.27
Contraindication for platelet concentrate	21	96	21.88
Use of stored whole blood	55	100	55.0

Table-2: Awareness about blood components among junior doctors

Knowledge about	Correct answers	Attempted by	Percentage
Increase in count by 1 unit platelet	28	100	28.00
Time for transfusion of 1 unit pRBC	70	100	70.00
Management of immediate transfusion reaction	88	102	86.27
Transfusion trigger for PRBC/whole blood	15	95	15.79
Best blood group for emergency transfusion	51	100	51.00
Most frequent cause of fatal transfusion reaction	70	100	70.00
Not a common transfusion transmitted disease	90	102	88.24

Table-3: Knowledge about blood transfusion practices

Knowledge about	Correct answer	Attempted by	Percentage
Bombay blood group	80	102	78.43
Vacutainer for DCT sample	75	102	73.53

Table-4: Awareness about blood grouping and sample collection

autologous blood donation. In a similar study done among health care providers, most were aware about needle safety (70.7%), highest being the doctors (93.3%), followed by nurses (84%) and trainee doctors (81.8%). 'Other group' staff were most knowledgeable among these in most of these aspects probably because a high percentage among them were also blood donors.¹ A possible explanation for the discrepant findings between these studies may be the different survey groups selected. A total of 102 junior doctors were selected in our study, but in the study mentioned above, the survey group included different categories of health care providers as nurses, trainee doctors and technicians and 'other group' including pharmacists, social welfare officers, shopkeepers etc.¹ In a study done in Delhi, senior secondary students were surveyed⁵ whereas a survey done in south India included general population comprising of illiterates as well as literates.⁶

Another reason for varied results may be the use of a pre-designed and semi-structured questionnaire for data collection which was not pretested. Also, no control group was included in the survey for ruling out the bias and subjective variation in the survey group.

Considering these factors, our study still gives a good insight into the awareness levels of junior doctors in teaching hospitals, which is satisfactory regarding few aspects of blood banking, but, very much lacking in others. It calls for encouraging education about blood donation, safety and other aspects of blood banking among the junior doctors.

CONCLUSIONS

The study is highly revealing in the context of global endeavour by WHO to generate awareness and motivation for voluntary blood donation. This calls for immediate continuous medical education especially involving junior doctors of teaching hospitals who constitute the largest section of health providers with huge potentiality for blood donation and motivation for the same. This will also help removing misconceptions.

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Questionnaire**Awareness about blood transfusion among junior doctors**

Name:

Department:

Date:

Designation:

Institute:

Q.1. Which among the following is not a common Transfusion Transmitted Disease

- (i) Hepatitis B (ii) Malaria (iii) Hepatitis A (iv) HIV 1 and 2

Q.2. Age criteria for donor is

- (i) 16-50 years (ii) 18-60years (iii) 18-50 years (iv) 16-60 years

Q.3. Minimum Haemoglobin criteria for donor is

- (i) 11.0gm% (ii) 11.5gm% (iii) 12.0gm% (iv) 12.5gm%

Q.4. Storage temperature of PRBC is

- (i) 1-2°C (ii) 2-6°C (iii) 6-10 °C (iv) 20-24°C

Q.5. Storage temperature of Platelets is

- (i) 1-2°C (ii) 2-6°C (iii) 6-10 °C (iv) 20-24°C

Q.6. Shelf life of platelets is

- (i) 5days (ii) 5weeks (iii) 20-24days (iv) 1month

Q.7. 1 Unit of platelet should produce increase in platelet count in an adult approximately

- (i) 5-10,000/unit (ii) 10-20,000/unit (iii) 40-60,000/unit (iv) 60-80,000/unit

Q.8. Leucocytes reduced RBC is advantageous as it reduces the risk of

- (i) Non haemolytic febrile transfusion reactions (ii) CMV transmission
(iii) HTLV-1 transmission (iv) All

Q.9. Sample used in DCT should be collected in which vacutainer

- (i) Plain (ii) EDTA (iii) Citrate (iv) Any of these

Q.10. Age limit for autologous donation is

- (i) 18-60 years (ii) No age limit (iii) 16-50 years (iv) 19-65 years

Q.11. Bombay blood group lacks

- (i) A gene (ii) B gene (iii) H gene (iv) O gene

Q.12. 1 Unit of PRBC transfusion should be completed within

- (i) 4hr (ii) 8hr (iii) 10hr (iv) 12hr

Q.13. Most appropriate indication for cryoprecipitate is

- (i) Fibrinogen deficiency (ii) Hemophilia B (iii) Hemophilia A (iv) Multifactorial deficiency

Q.14. Indication for fresh frozen plasma is

- (i) Multiple coagulation factor deficiency (ii) Disseminated Intravascular Coagulation (DIC)
(iii) Thrombotic Thrombocytopenic Purpura (TTP) (iv) All

Q.15. Platelet concentrate is contraindicated in

- (i) Thrombotic Thrombocytopenic Purpura (TTP) (ii) Idiopathic Thrombocytopenic Purpura (ITP)
(iii) Disseminated Intravascular Coagulation (DIC) (iv) All

Q.16. Management of immediate transfusion reaction includes

- (i) Stop blood transfusion immediately
(ii) Notify the blood bank and describe signs and symptoms
(iii) Blood bag, post transfusion sample and transfusion set with transfusion reaction form sent to blood bank
(iv) All

Q.17. Stored whole blood transfusion produces

- (i) Increase in haemoglobin (ii) Increase in platelet count
(iii) Increase in labile coagulation factors (iv) All

Q.18. Transfusion trigger for PRBC/Whole blood transfusion is at

- (i) 10gm/dl Hb (ii) 9gm/dl Hb (iii) 8gm/dl Hb (iv) No trigger

Q.19. What type of blood should be given in an emergency transfusion when there is no time to type the recipient's sample

- (i) O-ve whole blood (ii) O+ve whole blood (iii) O+ve packed cells (iv) O-ve packed cells

Q.20. Fatal transfusion reactions are most frequently caused by

- (i) Clerical errors (ii) Improper registration (iii) Overheating blood (iv) Mechanical trauma