

A study on Knowledge and Awareness about Blood Donation among Undergraduate Medical Students in a Tertiary Care Centre in Haryana, India

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Received: 09-02-2020 / Revised: 14-03-2021 / Accepted: 12-04-2021

Abstract

Introduction : This study was undertaken to study Knowledge and Awareness about Blood Donation among Undergraduate Medical Students which would serve the dual purpose of stimulating the curiosity of medical students about safe blood bank practises and at the same time lets the teaching staff know about those areas of the subject where they need to focus while teaching the students. There is paucity of studies on this subject in Northern India. **Material & Methods :** The study was conducted on 150 2nd year MBBS students of 2017 entrance batch of this tertiary care centre by the Department of Pathology. A questionnaire covering various aspects of blood donation was prepared. The answers were analysed to know the particular areas where the teachers need to focus while educating the students on the subject of blood donation. Scoring was done out of maximum 20 marks. **Results :** 18 students scored between 5 and 10 marks. 115 students scored between 10 and 15 marks and 17 scored between 15 and 20 marks. The students showed good knowledge about blood donor requirements, preservation of donated blood and about mismatched transfusions. However, they showed lack of knowledge in fields of transfusion transmissible infections, blood fractions and sophisticated blood banking procedures. **Conclusions :** Assessing the knowledge of medical students about blood transfusion through questionnaire serves the dual purpose of stimulating the curiosity of medical students about safe blood bank practises and at the same time lets the teaching staff know about those areas of the subject where they need to focus while teaching the students.

Keywords : Blood donation, knowledge, medical students, blood safety, transfusion medicine

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Introduction

Blood transfusion is an essential and an obligatory part of any nation's health care delivery system for lifesaving interventions.[1] Inculcating good working knowledge about various aspects of blood donation to undergraduate medical students would lay the foundation for future Physicians who have sound knowledge about transfusion medicine. At present, the medical curriculum of undergraduate medical studies does not provide any specific training regarding transfusion medicine.[2] Need is often felt by teachers of undergraduate medical students to know those aspects of blood donation about which the knowledge of medical students is particularly deficient. This need can be fulfilled by conducting a survey among medical students through a questionnaire focussed on basic knowledge about blood donation. Such an exercise would also stimulate the curiosity of medical students about safe blood bank

practices. Present study is an effort in that direction.

Material and methods

Inclusion criteria : The study was conducted on 150 2nd year MBBS students of 2017 entrance batch of this tertiary care centre by the Department of Pathology.

Study Design : A multiple choice strategy for evaluation of medical student's knowledge was adopted as it can be implemented rapidly, is objective and is cost-efficient.

A questionnaire covering various aspects of blood donation like voluntary blood donation, donor screening, blood grouping and cross matching, coping with blood requirement in dire medical emergencies, blood preservation, blood fractions, complications of blood transfusion, infections transmissible by blood transfusion etc. was prepared. The questionnaire was distributed to the students and filled questionnaire (as shown in Fig. 1) was collected back for evaluation. There were a total of twenty questions. One mark was given for each correct answer. The student's score was thus calculated out of maximum twenty marks. The answers were analysed to know the particular areas where the teachers need to focus while educating the students on the subject of blood donation.

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Fig. 1 : Blood Donation Questionnaire for II Year MBBS students

		Roll No./17
1.	The scientist who discovered ABO Blood group system was (a) Richard Lower (b) Karl Landsteiner (c) James Blund (d) Bernard Fantus	
2.	Antibodies to both A and B antigens are present in the serum of individual with the following blood group (a) A (b) AB (c) B (d) O	
3.	The ABO locus is on the following chromosome number (a) 7 (b) 9 (c) 8 (d) 11	
4.	Which is the major antigen of Rh system (a) A antigen (b) B antigen (c) C antigen (d) D antigen	
5.	The donor blood must meet the following criteria except (a) It must be leucodepleted (b) It must be ABO and Rh compatible (c) It must be free from blood transmissible infection (d) It should not contain irregular antibodies	
6.	Which type of blood should be given to a patient in an emergency situation when there is no time to type the patient's sample? (a) O Rh D positive whole blood (b) O Rh D negative whole blood (c) O Rh D positive packed red cells (d) O Rh D negative packed red cells	
7.	Blood from which type of donor is supposed to be totally free from risk of transmissible infection (a) Voluntary non-remunerated donor (b) Replacement or relative donor (c) Professional or commercial paid donor (d) Autologous donor	
8.	The anticoagulant preservative most commonly used currently to store blood is (a) Heparin (b) Acid Citrate Dextrose (c) Citrate Phosphate Dextrose (d) Citrate Phosphate Dextrose Adenine	
9.	The temperature at which the donated packed red cells should be stored is (a) -20°C (b) 0°C (c) 2 – 6°C (d) 6-10°C	
10.	Fresh Frozen Plasma finds utility in the management of following disorder (a) Breast carcinoma (b) Multiple coagulation factor deficiencies (c) Irritable bowel syndrome (d) Interstitial lung disease	
11.	Plateletpheresis is (a) Buffy coat removal method for preparation of platelet concentrate (b) Platelet transfusion (c) Removal of platelets from a donor with return of donor red cells, white cells and plasma (d) Platelet crosshatch	
12.	The following is not a complication of Massive Blood transfusion (a) Aplastic Anaemia (b) Hypocalcaemia (c) Hypothermia (d) Acidosis	
13.	Exchange transfusion in new-born infants during first 48 hrs is must if serum bilirubin level is (a) 10 mg/dl (b) 15 mg/dl (c) 20 mg/dl (d) 25 mg/dl	
14.	Which of the following vaccines is contraindicated for donation (a) Post exposure prophylaxis with Rabies vaccines &/or immunoglobulin (b) HPV vaccine (c) Tetanus Toxoid (d) Injected Polio vaccine	
15.	The following infection cannot be transmitted by blood transfusion (a) Hepatitis A (b) Hepatitis C (c) HIV (d) Hepatitis B	
16.	Which infection agent is commonly transmitted by WBCs? (a) HIV (b) Treponema Pallidum (c) Cytomegalovirus (d) Malarial parasite	
17.	All of the following are immunologic blood transfusion reactions except (a) Allergic reaction (b) Acute haemolytic transfusion reaction (c) Transfusion related acute lung injury (d) Citrate toxicity	
18.	The blood donors have to fulfil the following requirements except (a) The weight of the donor shall not be less than 60 kilograms (b) The donor shall be in the age group of 18 to 65 years (c) Temperature and pulse of the donor should be normal (d) Haemoglobin should not be less than 12.5 g/dl	
19.	Reverse grouping requires (a) Unknown antibody and known RBCs (b) Unknown RBCs and known antibody (c) Unknown antibody and unknown RBCs (d) None of the above	
20.	Ideal investigation for Blood donor screening for HIV, HBV and HCV infections is (a) ELISA (b) Nucleic Acid testing (c) Western Blot test (d) Electron Microscopy	

Results

As shown in Fig. 2, 18 students scored between 5 and 10 marks out of maximum 20 marks. 115 students scored between 10 and 15 marks and 17 students scored between 15 and 20 marks.

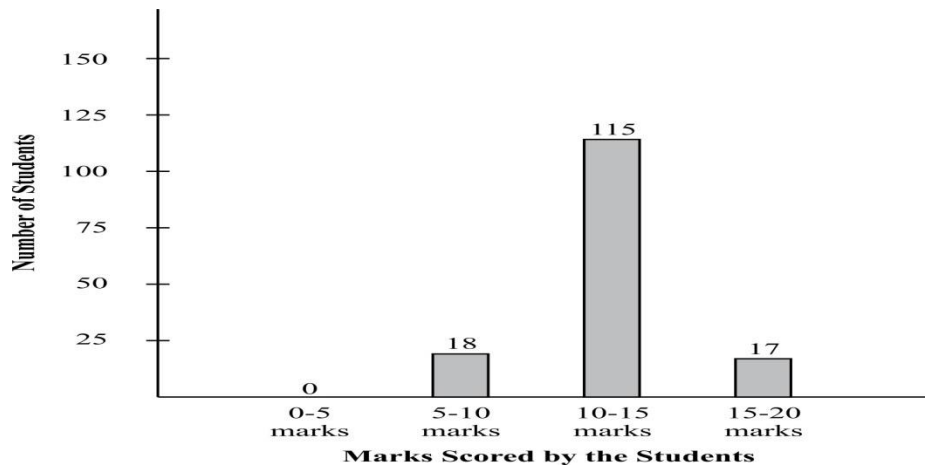


Fig. 2 : Showing the marks obtained by the students in the blood donation questionnaire.

Table 1 shows the how the students attempted various question. For example, Question 1 was attempted correctly by 132 students (88%), incorrectly by 8 (5.3%) students and left unanswered by 10 (6.7%) students.

Table 1 : Showing how students attempted various questions

Ques. No.	Correct Answers	Incorrect Answers	Left Unanswered
1	132 (88.0%)	8 (5.3%)	10 (6.7%)
2	136 (90.7%)	6 (4.0%)	8 (5.3%)
3	23 (15.3%)	72 (48.0%)	55 (36.7%)
4	104 (69.3%)	25 (16.7%)	21 (14.0%)
5	135 (90.0%)	11 (7.3%)	4 (2.7%)
6	90 (60.0%)	60 (40.0%)	-
7	145 (96.7%)	4 (2.7%)	1 (0.6%)
8	136 (90.7%)	9 (6.0%)	5 (3.3%)
9	94 (62.7%)	26 (17.3%)	30 (20.0%)
10	137 (91.3%)	7 (4.7%)	6 (4.0%)
11	79 (52.7%)	31 (20.7%)	40 (26.6%)
12	129 (86.0%)	9 (6.0%)	12 (8.0%)
13	66 (44.0%)	47 (31.3%)	37 (24.7%)
14	65 (43.3%)	65 (43.3%)	20 (13.4%)
15	134 (89.3%)	9 (6.0%)	7 (4.7%)
16	38 (25.3%)	65 (43.3%)	47 (31.4%)
17	128 (85.3%)	12 (8.0%)	10 (6.7%)
18	129 (86.0%)	11 (7.3%)	10 (6.7%)
19	41 (27.3%)	44 (29.3%)	65 (43.4%)
20	54 (36.0%)	64 (42.7%)	32 (21.3%)

Table number 2 and Figure number 3 show the performance of the students in various fields of knowledge as regards blood donation

Table 2 : Showing the performance of students in various fields of knowledge as regards Blood Donation

S.No.	Field of Knowledge	% showing correct knowledge	% showing lack of knowledge
1.	About Blood Groups	58.1	41.9
2.	Blood Donor requirements	83.2	16.8
3.	Preservation of Donated Blood	76.7	23.3
4.	Mismatched transfusions	85.3	14.7
5.	Transfusion Transmissible infections	50.2	49.8
6.	Blood fractions (optimum blood utilisation)	60	40
7.	Sophisticated procedures	60.9	39.1

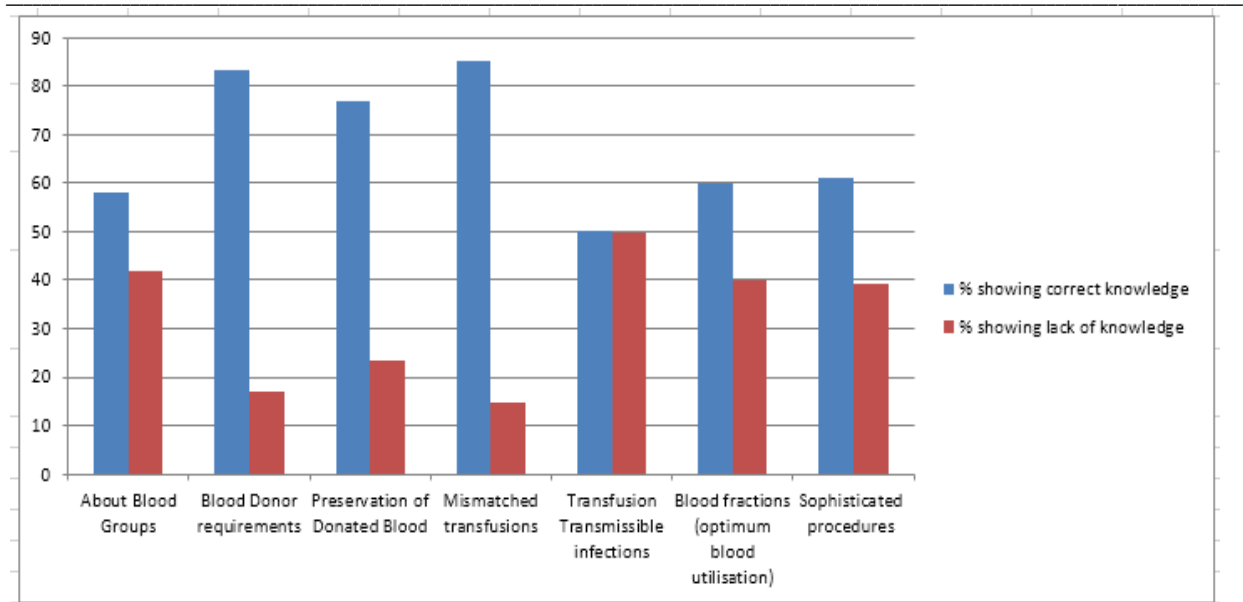


Fig. 3 : Showing the performance of students in various fields of knowledge as regards Blood Donation.

Discussion

Realising the importance of blood donation in current day medical care, various studies in India and abroad have been carried out to assess the knowledge of medical students on the topic. Kanani *et al* conducted a random cross-sectional study among 500 undergraduate medical students of various streams and found greater awareness among the medical and physiotherapy students in comparison to nursing, dental and ayurvedic students.[3] Our study was confined to 150 students of medical stream only. Sabu K *et al* conducted a cross-sectional study among 410 health services students from different streams in a University Campus of South India through a structured questionnaire in the year 2009 and stressed the importance of adopting effective measures to motivate about voluntary blood donation among students.[4] The questionnaire in our study covered a broader spectrum covering fields like possible transfusion reactions and about infections transmissible by blood transfusion. Singh S *et al* conducted a cross-sectional study about blood donation awareness and beliefs on 300 medical and 100 nursing students in a medical and nursing college in Karnataka and found significant difference in the knowledge and practice of blood donation among medical and nursing students which needs to be addressed by creating awareness at the initial stage of higher education by conducting periodic awareness programs.[5] The present study was confined to medical students. Sahoo DP *et al* conducted a cross-sectional descriptive study on 111 interns of a medical college in Mumbai on the subject of voluntary blood transfusion and found that almost half of medical students under study did not have adequate knowledge on blood safety and donor eligibility.[6] The medical students in the present study performed better but still, their lack of knowledge about procedures like apheresis, exchange transfusion etc. became obvious (as seen in Table No. 2 and Figure No. 3). There have been a number of studies focussing on knowledge and attitude of medical students about voluntary blood donation [7-12]. Bharatwaj RS *et al* conducted a study on 104 medical undergraduate students in Pondicherry with regard to voluntary blood donation and concluded that interactive awareness sessions on voluntary blood donation should be organised early after college entry.[7] Ponmari *et al* conducted a study on knowledge, attitude and practice on blood donation among 100

medical students in a tertiary care hospital in Chennai and found that students had adequate knowledge and attitude.[8] Chauhan R *et al* studied 235 medical students of a medical college in North India on the subject of voluntary blood donation and found that the study population had relatively good knowledge and a favourable attitude about voluntary blood donation.[9] Syiemlieh *et al* studied knowledge, perception and practice of voluntary blood donation among 454 Health Professional students in a medical college in Manipur and found that majority of students lacked information about blood donation.[10] Bachhotiya *et al* in their study on 209 students in medical college in Indore found that knowledge and practice of voluntary blood donation among the study participants was much better than results of previous studies.[11] Ahmed Z *et al* in their study about knowledge, attitude and practices about blood donation on 600 medical students in Karachi concluded that interactive awareness sessions on blood donation should be organized during undergraduate years.[12] Al-Asadi *et al* in their study on 393 medical and non-medical students as regards their knowledge, attitude and practice of blood donation found that a substantial number of university students had inadequate blood donation knowledge.[13] However, voluntary blood donation was only one of the several subjects about transfusion medicine touched upon in the questionnaire in this study. Then there has been studies similar to ours conducted upon medical students at a more senior level (Ref. 13 and 14 below). Philip J *et al* from India found in a study on 85 resident doctors in a tertiary care hospital that they had inadequate knowledge about transfusion medicine.[14] In a similar study on 57 post-intern doctors in a specialized hospital in Srilanka, Kumarage *et al* observed that knowledge of transfusion medicines is the key element of better transfusion practices.[15]

Conclusion

Budding Doctors need to have a working knowledge about various aspects of Blood Donation, Blood transfusion and possible transfusion reactions and about infections transmissible by blood transfusion. Assessing their knowledge through questionnaire serves the dual purpose of stimulating the curiosity of medical students about safe blood bank practises and at the same time lets the teaching staff know about those areas of the subject where they need to focus while teaching the students.

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Conflict of Interest: Nil**Source of support:Nil**