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Raja Danasekaran

*Assistant Professor, Department of
Community Medicine, Shri
Sathya Sai Medical College and
Research Institute,
Kancheepuram, Tamil Nadu,
India.*

Geetha Mani

*Assistant Professor, Department of
Community Medicine, Shri
Sathya Sai Medical College and
Research Institute, Kancheepuram,
Tamil Nadu, India.*

Kalaivani Annadurai

*Assistant Professor, Department of
Community Medicine, Shri
Sathya Sai Medical College and
Research Institute,
Kancheepuram, Tamil Nadu,
India.*

Correspondence:

Raja Danasekaran

*Assistant Professor, Department
of Community Medicine, Shri
Sathya Sai Medical College and
Research Institute,
Kancheepuram, Tamil Nadu,
India.*

A Cross-sectional study on Awareness and Practices about Blood donation among Medical students

Raja Danasekaran, Geetha Mani, Kalaivani Annadurai

Abstract

Background - Understanding the knowledge level and practices about blood donation among medical students is essential since they are expected to convey the information regarding the need for voluntary blood donation to the general population.

Objectives - To assess the awareness level and practices regarding blood donation among medical students.

Methodology - A cross sectional descriptive study was done among 135 students studying Final Year Medicine in a medical college during the month of October 2013. A pre tested and semi structured questionnaire was used. Chi square test and Fisher's exact test were used for analysis.

Results - The results revealed that students were well aware of the minimum age limit for blood donation (95.5 percent), frequency of blood donation (89.6 percent) & recommended type of blood donation (94.8 percent). However, the maximum age limit (8.8 percent) & minimum weight (34 percent) were areas of poor knowledge among the students. 54 percent of the students had ever donated blood. The reasons attributed by those who had not donated blood were anaemia (41.9 percent), underweight (14.5 percent) and fear (4.8 percent). There was no significant difference in awareness among males and females, but blood donation practices were found to be significantly higher among males.

Conclusion - It was seen that even though the knowledge of medical students about blood donation was fair, there are areas which lack adequate awareness. They have to be motivated in the right path to promote blood donation practices since they are a potential source of voluntary donors and also they are going to be the future health care providers.

Keywords: Blood donation, awareness, anaemia, donor.

1. Introduction

Blood and blood products are a unique and precious resource because they can be obtained only from individuals who donate blood or its components. About 92 million blood donations are being done annually throughout the world. ^[1] Nevertheless, many more millions are still needed to meet the global demand and ensure sufficient and timely provision of blood. The World Blood Donor Day theme for 2013- "Give the gift of life" reinforces the need for more people world over to become life savers by doing voluntary blood donation. ^[2]

Developing countries still have issues regarding the safety and quality of blood and blood products used for transfusion. According to World Health Organization reports, donated blood is still not being routinely tested for transfusion-transmissible infections such as HIV, Hepatitis B, Hepatitis C and Syphilis in 39 nations of the world. Blood will be safe only if there is an organized and coordinated blood transfusion service, collection of blood only from voluntary non-remunerated donors, routine testing of blood for infections transmissible through transfusion and by ensuring transfusion of the right blood to the right patient. ^[3]

National Blood policy in India has been framed with the objective of ensuring easily accessible and adequate supply of safe and quality blood and blood components collected from a voluntary blood donor in well equipped settings, which are free from transfusion transmitted infections. The collected blood has to be stored and transported in optimal conditions. In India the number of voluntary blood donations was 4.6 million in the year 2008. ^[4]

Health care Professionals are those who are expected to convey the information regarding the need of voluntary blood donation to the general population. For this the health care providers should have the knowledge about blood donation practices. The medical professionals with their knowledge form a potential yet underutilized source of blood donors. This study was done to assess the awareness level of medical students and also their practices regarding blood donation.

2. Materials and Methods

A cross sectional descriptive study was conducted among the undergraduate medical students of a medical college in Tamil Nadu, India during October 2013. The sample size was calculated assuming 75% awareness among the study population with an allowable error of 10%. The resultant sample size was calculated as 134. Out of the four batches of medical students (First year, Second year, Pre final year and Final year) Final Year batch was selected randomly by lottery method. The total enrolment in the Final year was 162, of which 96 were males and 66 were females. By convenient sampling method the students were included for this study after consent until the desired sample size of 135 was achieved. Those who were absent during the study and those who were not willing were excluded.

A pre tested and semi structured questionnaire consisting of two parts was used in the study. A pilot study was done to pretest the questionnaire among the medical students and necessary changes were made. The results of the pilot study were not included in the analysis. The first part of the questionnaire consisted of awareness about blood donation. In this part awareness on nine questions related to facts about blood donation were considered as essential for medical students. The questions on awareness were based on the National guidebook on blood donor motivation by the National AIDS Control Organization. [4] The next part was regarding the practices of blood donation. Permission to conduct the study was obtained from the Institutional Ethical Committee. After getting the informed consent from the students, questionnaires were administered to them and collected back after completion. Data was entered into Micro Soft Excel and analysis was done using Statistical Package for Social Sciences version 15. Chi square test and Fisher’s Exact test were used for analysis. Probability (P) value <0.05 was taken as statistically significant.

3. Results

The number of participants in the study was 135. Out of them 76 (56.3%) were males and 59 (43.7%) were females. Majority of the students were in the age group of 20 -23 years. The age and sex wise distribution was shown in Table 1. All students were therefore above the minimum age limit of blood donation.

The students fared well in knowing the essential facts on blood donation such as minimum age limit for blood donation (95.5%), frequency of blood donation (89.6%), recommended type of blood donation (94.8%), measurements to be taken before donation (88.8%) and the diseases for which donated blood is screened (88.8%). 72.5% answered correctly about the amount of blood that can be

donated by a 50 kg person and 62.9% about the contraindications of blood donation. Only 45.9% knew the minimum haemoglobin level for blood donation and 34% about minimum weight for blood donation. There was no statistically significant difference observed between males and females regarding awareness about essential facts on blood donation (Table 2).

However, they were found to be less aware of other facts of blood donation such as the maximum age limit (8.8%), theme for World Blood Donor Day- 2013(7.4%) and amount that can be donated by an individual of 60kg (22.2%). With regard to other questions 54.8% knew the method of haemoglobin estimation before blood donation, 45.9% knew the time taken for replenishment of donated blood and 59.2% were aware of the World Blood Donor day. There was no statistically significant difference observed between males and females regarding awareness about other facts on blood donation (Table 3).

In the study group 73(54%) of the students had donated blood (Table 4). Among the 76 males 60 had ever donated blood and in 59 females 13 had donated blood and this difference was found to be statistically significant (P<0.001) (Table 5).

Among the group of donors, the average number of donations made was 2.6. Of the study group 23 had donated blood once, 15 & 18 had donated twice & thrice respectively. Maximum number of donations made was 7 (Table 6).

72.6% of those who had donated blood were voluntary donors and 10.96% were replacement donors. The remaining 16.44% had been both voluntary & replacement donors and there were no paid donors (Table 7).

The reasons attributed by those who had not donated blood were anaemia 26(41.9%), underweight 9(14.5%) and fear 4(4.8%). 24(38.7%) of the students did not attribute any reason for their non donation of blood. The reasons given by males and females was also shown in Table 8. Among females 22 had stated anaemia and 7 had stated underweight as the cause of non blood donation.

Table 1: Age wise distribution of the study population

Age (in years)	Males	Females	Total
20	30	36	66
21	40	18	58
22	2	3	5
23	2	2	4
27	2	-	2
Total	76 (56.3%)	59 (43.7%)	135

Table 2: Awareness among students regarding essential facts on blood donation (N=135)

Question (Answers)	Number answered correctly			Chi square	P-value
	Males	Females	Total (%)		
Minimum age limit (18 years)	72	57	129(95.5%)	0.274	0.600
Minimum weight (45 kg)	28	18	46(34%)	0.593	0.441
Frequency of donation (once in 3 months)	71	50	121(89.6%)	2.689	0.101
Minimum haemoglobin level (12 gm/dl)	36	26	62(45.9%)	0.146	0.703
Amount donated by 50 kg person (350 ml)	58	40	98(72.5%)	1.212	0.271
Recommended type of donation(Voluntary)	70	58	128(94.8%)	2.597	0.107
Contra indications (HIV, Hepatitis B, Auto immune disorders, Chronic Renal disease)	47	38	85(62.9%)	0.094	0.760
Measurements taken before donation (Blood group, Haemoglobin, Weight, Temperature, Blood pressure)	68	52	120(88.8%)	0.060	0.806
Diseases screened (HIV, Malaria, Syphilis, Hepatitis B)	65	55	120(88.8%)	1.991	0.158

Table 3: Awareness among students regarding other facts on blood donation (N=135)

Question (Answers)	Number answered correctly			Chi square value	P- value
	Males	Females	Total (%)		
Maximum age limit (65 years)	7	5	12(8.8%)	0.022	0.882
Amount donated by 60 kg person (450 ml)	15	15	30(22.2%)	1.212	0.430
Method of Haemoglobin estimation (Specific gravity method)	39	35	74(54.8%)	0.860	0.354
Time to replenish the donated blood (24-48 hours)	38	24	62(45.9%)	1.162	0.281
World Blood Donor Day Theme, 2013 (Give the gift of life)	4	6	10(7.4%)	-	0.332 (Fisher's exact value)
World Blood Donor Day (June 14)	40	40	80(59.2%)	3.164	0.075

Table 4: Practices of students regarding blood donation (N=135)

Question	Yes	Percentage (%)
Ever donated blood	73	54%
Ever advised others to donate	98	72.5%

Table 5: Sex and Blood Donation practices

Blood donation practices	Males	Females	Total	
Ever donated blood	60	13	73 (54.1%)	P<0.001*
Not donated blood	16	46	62 (45.9%)	
Total	76	59	135(100%)	

*-Statistically significant

Table 6: Number of Blood donations among the study population

Number of Blood donations	Frequency	Percentage
1	23	31.5%
2	15	20.5%
3	18	24.7%
4	7	9.6%
5	7	9.6%
6	2	2.7%
7	1	1.4%
Total	73	100%

Mean No. of Blood donations - 2.6; SD – 1.73

Table 7: Types of Blood donors in the study population

Type of Blood Donation	Number	Percentage (%)
Voluntary	53	72.60%
Replacement	8	10.96%
Both Voluntary and Replacement	12	16.44%
Paid Donors	-	-
Total	73	100%

Table 8: Reasons for not having donated blood

Reason	Number		Total (%)
	Male	Female	
Anaemia	4	22	26 (41.9%)
Underweight	2	7	9 (14.5%)
Fear	2	1	3 (4.8%)
Not specified	8	16	24 (38.7%)
Total	16	46	62 100%

4. Discussion

In this study 95.5% of the respondents had knowledge on the minimum age limit for blood donation. Shahshahani HJ et al. in their study among the adult population of Iran found that less than half the respondents knew the minimum age limit for blood donation. [5] Surprisingly, only 45.9% of the students knew about the minimum haemoglobin level for donating blood. The minimum weight for donation of blood also received a poor rate of correct answer by the medical students (34%). The knowledge regarding the frequency of blood donation that is once in 3 months was high among the students (89.6%). A majority of students (94.8%) knew that voluntary non remunerated type of donation was the acceptable means of blood donation.

62.9% of the students knew the contraindications of blood donation, but this seems to be knowledge below par considering that medical students are equipped with better literature reading and teaching on this. 88.8% of the respondents knew the investigations to be done before bleeding a potential donor. The medical background of the students is put to the fore with the display of this knowledge. When it came to the maximum age limit only 8.8% were aware and 54.8% knew that haemoglobin was tested using the specific gravity method before blood donation. Knowledge on the time taken for replenishment of donated blood was poor (45.9%).

The diseases for which screening is done after blood donation was rightly answered by 88.8% of the students. This shows a healthy knowledge on the part of the medical students. The lowest and very poor correct answer was evoked when asked about the theme of the World Blood Donor Day. Only 7.4% knew that “Give the gift of life” was the 2013 theme though 59.2% were aware that June 14th was the World Blood Donor’s Day.

On analyzing the practices of the medical students regarding blood donation it was seen that 54% of the students had ever donated blood which was comparatively higher than those reported by other studies. Mitra K et al. reported that less than 50% of health care providers only had ever donated blood. [6] In a study conducted among Dhaka University students by Hosain GM *et al.* only 16% of the students had ever donated blood voluntarily though 82% had positive attitude towards blood donation. [7]

Gilani I et al in their study noted 43% blood donation among Pakistani medical personnel. [8] Sabu et al reported that 62% of final year health science students of a university had never donated blood. [9] A study conducted at Tehran among married women homemakers showed that 24.1% had ever donated blood. [10] A study in Palestine revealed only 20% had ever donated blood. [11]

Among those who had donated blood, a maximum of 7 donations had been made by a single individual. Several of the students had donated only once. The average number of blood donations made accounted to 2.6 donations per student. 73% of the students had donated blood voluntarily and 10.9% had been replacement donors. The rest of those who had donated blood had donated as both voluntary and replacement donors. No student had ever been a paid donor. This can be attributed to the sense of morals and altruism among the medical students. 56.4% of the students attributed their reasons for non donation as medical, commonly underweight and anaemia and the remaining was out of fear or non specified reasons. Boulware LE et al. reported fear and suspicion of hospitals as the reason for non donation among general population.^[12]

There was no statistically significant difference in awareness about blood donation among males and females. But blood donation practices were higher among males than females and it was found to be statistically significant. This was due to the fact that anaemia and underweight were more among females. The limitation of the study is that we have conducted the study only among Final year MBBS students. Further studies including all the undergraduate and postgraduate medical students will provide a better idea about the situation.

5. Conclusion

From our study it was seen that even though the knowledge of medical students about the essential facts of blood donation was fair, there were areas which lack such awareness. These lacunae can be corrected by arranging frequent classes, seminars, etc. on blood donation and making all the students to participate in such occasions. And also they are going to be the future healthcare providers who are expected to spread the message of need for voluntary blood donation among the general public. Regarding the practice of blood donation more than half of the students had ever donated blood. Anaemia and underweight were identified as the medical causes for non donation of blood. These two issues have to be addressed.

Even though the medical students were expected to have a positive attitude towards blood donation, some of them were having fear of it. This potential donor population can be motivated in the right ways to promote blood donation practices through effective, informative and motivating classes and discussions. It was concluded that the awareness about blood donation among the medical students needs to be improved and also they should be motivated for voluntary blood donation.

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