

Knowledge and Attitude towards Blood Transfusion Related Infections among Voluntary Blood Donors in Vijayapura District

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ABSTRACT

BACKGROUND

Blood transfusion is the major cause of infectious diseases in recipient and transfusion related an infection (TRI) is the commonest cause of death. All patients who require frequent blood transfusion like thalassemia patients are at increased risk of transmitted related infections. However, there is a paucity of studies regarding the awareness and attitude among the general population on transfusion related infections.

The purpose of this study was to explore the knowledge and attitude towards the blood transfusion related infections among voluntary blood donors and factors relating to it.

METHODS

This was a cross sectional study conducted during voluntary blood donation camps from the year January 2019 till December 2020. The blood donation camps were conducted in various places of Vijayapura district. A total of 1732 voluntary blood donors comprised of both the genders from the age group of 18 - 60 years were taken in two years.

RESULTS

The overall knowledge about the TRI was good, but knowledge level was found highest among the camps conducted in institutions and hospitals and lowest among the general population mostly including females and elderly age group. Among all 1732 voluntary blood donors, only 346 (20 %) donors had scored their knowledge and awareness regarding transfusion related infections. All of them fall into the age group category of 20 - 40 years. There was a positive attitude in these donors about blood donation and transfusion related infections but on the other side, there are few students who never donated blood and who did not have any knowledge about the voluntary blood donations and transfusion related infections.

CONCLUSIONS

Since educational programs about transfusion related infections are not frequently conducted in developing countries, there is a need to emphasize education as a key to improve population knowledge, awareness and attitude towards the transfusion related infections. If appropriate strategies are designed and implemented to improve knowledge and attitude, general population not only becomes the future blood donor but also motivators and role models for the community.

KEYWORDS

Transfusion Related Infections, Knowledge, Attitude, Blood Donation Camps

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BACKGROUND

Blood can save millions of life and young people are the future of safe blood supply in the world. Blood safety remains a major concern in transfusion medicine in developing countries where national blood transfusion services and policies, educational programmes, appropriate infrastructure, trained personnel and financial resources are lacking.¹ Transfusion related infections, that is, human immunodeficiency virus (HIV), hepatitis B virus (HBV), hepatitis C virus (HCV), causes serious mortality, morbidity, and financial burden and are, thus, a major global health problem.^{1,2} Since infectious diseases can be transmitted through blood transfusion, there is a need to source blood from a low risk population³ and moreover, it is important to educate the donors about the infectious diseases that can happen due to blood transfusion, if not paid proper attention towards the testing of blood for TRI. Over a million blood units are collected from donors every year, but still more millions need to be collected to meet the global demand and ensure sufficient and timely provision of blood.⁴ Before increasing the blood donations, there should be proper education, knowledge and attitude regarding the donation and transfusion related infections among the voluntary donors to recruit safe blood donation practices. Patients who require transfusion as part of their clinical management have the right to expect that sufficient blood will be available to meet their needs and to receive the safest blood possible. However, many patients still die or suffer unnecessarily because they do not have access to safe blood transfusion. The timely availability of safe blood and blood products is essential in all health facilities in which transfusion is performed, but in many developing and transitional countries there is a widespread shortfall between blood requirements and blood supplies.⁵

Physicians by the virtue of their training and medical practices are expected to be highly informed on the process of donor blood procurement and the challenges of supply as well as potential hazards of infections. They also constitute a potential pool of eligible but yet under explored donors.⁶ So, they should also take a step forward to practice a safe infected free blood donation in order to meet the global demand of blood donation.

Aims and Objectives

To explore the knowledge and attitude towards the blood transfusion related infections among voluntary blood donors and factors relating to it.

METHODS

This was a cross sectional study conducted during blood donation camps from the year January 2019 till December 2020. The blood donation camps were conducted in various places of Vijayapura district including hospitals and institutions. A total of 1732 voluntary blood donors comprising of both the genders were taken, out of that 79

% were males and 21 % were females and majority of blood donors belong to age group < 40 years.

Criteria for Blood Donation as Per NACO and Drug and Cosmetic Act⁷

Inclusion Criteria

1. Age group between 18 - 60 years
2. Weight more than 50 kg for females and 45 kg for males
3. Haemoglobin > 12.5 gm/dl.

Exclusion Criteria

1. Person who donated blood in last 3 months.
2. Person with recent history of major surgery.
3. In females: Active menstrual blood loss, pregnant, lactation, and child less than 1 year.
4. Person with diagnosed diseases like HIV, HBsAg, HCV, syphilis.

Statistical Analysis

- The data obtained was entered in Microsoft Excel sheet, and statistical analysis was done using Excel software (Microsoft office 10)
- Results were presented as counts, percentages and diagrams.

RESULTS

The responses were surveyed from a total of 1732 respondents who voluntarily participated in blood donation camps. The study sample in two years comprised of 1369 males (79 %) and 363 females (21 %). Among 1732 blood donors, 1280 have donated blood only once and 452 have donated more than once. The awareness and knowledge is seen more in donors who have donated blood more than once and belongs to the age group of 20 - 40 years while it faces a decreasing trend towards those who have donated blood only once and belong to the age group > 40 years. Moreover, knowledge and positive attitude is seen more in students and literate people rather than elderly and illiterate people.

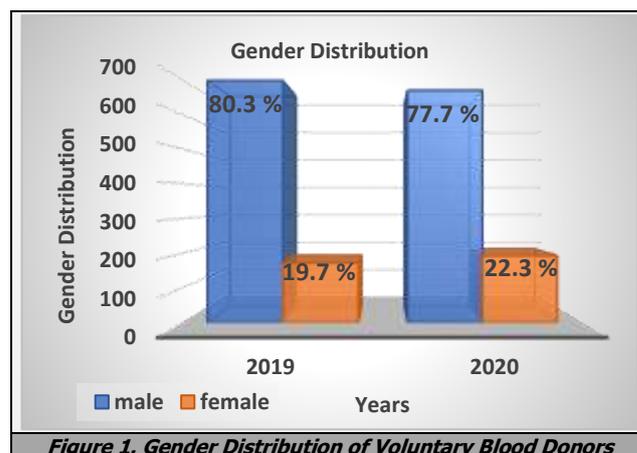


Figure 1. Gender Distribution of Voluntary Blood Donors

Out of all the total 1732 voluntary blood donors, majority blood donors were males in the year 2019 and 2020. In the year 2019, 699 (80.3 %) were males and 171 (19.7 %) were females. In the year 2020, 670 were males who donated blood constituting 77.7 % and 192 were females accounting for 22.3 %.

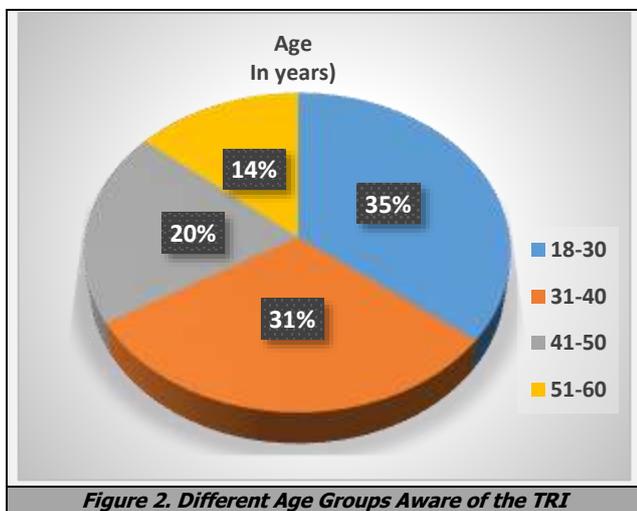


Figure 2. Different Age Groups Aware of the TRI

In the current study, majority of the awareness about TRI was seen falling into the age group of 18 - 30 years amounting to 612 (35 %) followed by 31 - 40 years constituting about 533 (31 %) and 41 - 50 years amounting to 341 (20 %) and least awareness about TRI was seen in the age group of 51 - 60 years. amounting to 239 (14 %).

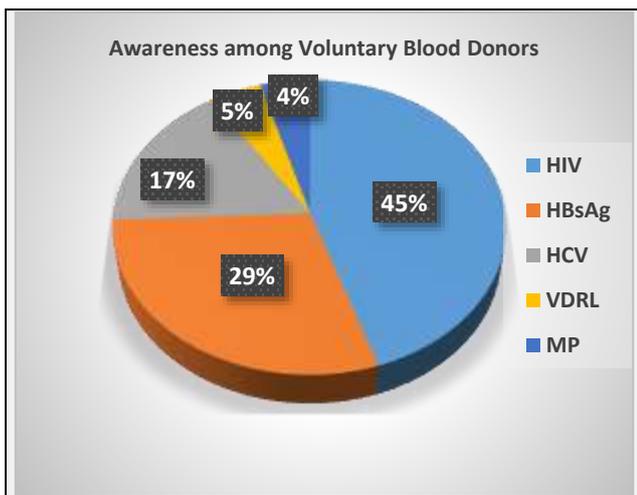


Figure 3. Awareness among Voluntary Blood Donors about TRI

Majority (45 %) of the voluntary blood donors were aware about HIV followed by 29 % aware about HBsAg, 17 % were aware about hepatitis C virus infection and around 5 % of the blood donors were aware of syphilis and malaria infection. There were also voluntary blood donors (21 %) who were aware of all the five transfusion related infection and those donors were from the camp conducted in institutions. Out of that, majority fall into the age group category of 18 - 30 years and most of them donated blood which was conducted in institution and hospital camps.

Year	Age (In Years)	Awareness About					Unaware About			
		M	F	Total	HIV (%)	HBsAg (%)	HCV (%)	VDRL (%)	MP (%)	Transfusion Related Infections (%)
2019-20	18-30	479	140	619	428 (69.14)	281 (45.3)	149 (24)	60 (9.69)	42 (6.78)	14 (2.26)
	31-40	422	111	533	420 (78.7)	230 (43.1)	127 (23.8)	23 (4.3)	41 (7.69)	59 (11)
	41-50	266	75	341	226 (66.2)	175 (51.3)	101 (29.6)	41 (12)	29 (8.5)	120 (35.2)
	51-60	202	37	239	160 (67)	125 (52.3)	79 (33)	13 (5.43)	12 (5)	168 (70.2)

Table 1. Gender Distribution and Awareness towards TRI among Voluntary Blood Donors

The above table shows that there is unequal gender distribution among the voluntary blood donors which shows more inequality as age factor increases. It also shows population has more knowledge about HIV as compared to any other TRI. Many of the voluntary blood donors did not have much knowledge about venereal disease research laboratory (VDRL) test and malaria test, few among them being healthcare students. Few of the blood donors did not have any knowledge about the transmitted related infections, minority i.e., 2.26 % belonged to age group of 18 - 30 years whereas there is a surge towards the elderly age group amounting to 70.2 %.

DISCUSSION

Escalating demand for safe blood and its availability in our country can only be ensured through enhancing voluntary blood donation and knowledge and positive attitude towards the TRI. Moreover, youngsters who have a better understanding on healthcare requirements of our country should come in forefront. Therefore, there is need for understanding various factors contributing the knowledge, positive attitude about the blood donation and also towards TRI.⁸

The prevalence of these TRI varies by nationality and geography.⁹ 85 % of the blood donors had donated voluntarily in the blood donation camps organized by different clubs, religious organizations, NSS units, Indian red cross society (IRCS), political parties, social workers etc., or voluntarily at the blood donation center. Therefore, the prevalence of viral carrier rates in blood donors is similar to that of the general population.⁹

The current study reported about the knowledge, awareness and attitude towards the TRI of blood donations which contributes to the growing body of evidence supporting the assertion that the knowledge about the same establish safe blood supply based on voluntary, non-remunerated donors in many countries across the globe.¹⁰

As there is an increasing trend of transfusion related infections across the globe, it is important to educate and aware the general population about the transfusion related infections and their consequence. A study done by Jacobs B et al.¹¹ and Olaiya MA et al.¹² in the year 1995 and 2004 respectively revealed that knowledge of donors population is necessary in relation to blood donation and related

infections.^{10,12} While the result of the current study showed that only 21 % of voluntary blood donors had knowledge about transfusion related infections, moreover, blood donors tend to have more knowledge than the non-blood donors.

A study conducted by Elias E et al.¹³ revealed that the student proportion of repeated blood donation among those who had ever donated was convincing. Awareness was seen to be high from participants such that a significant number reported to have heard about blood donation, knowing a person who had donated blood, and awareness of their blood groups. The participants had significant knowledge on the amount of blood to be donated and related infections in one setting. There was a significant positive attitude towards blood donation and TRI as majority of them were willing to donate in the future for anyone and did not expect any post donation reward. What was positive about university students in Kilimanjaro was that more than 90 % have positive attitude towards voluntary blood donation and related infections which was higher compared to a study in Ethiopia (47 %)¹⁴ and was almost as equal to other studies done in other universities. All these above findings in their study was concordance with the current study.¹³

Sustaining the necessary level of blood supply is the core concern of many organizations working in health care facility. For this reason, identifying the level of knowledge, attitude and practice is crucial. An attempt was made to assess the knowledge, attitude and practice regarding blood donation and also identify its associated factors. A study done by Melku M et al.¹⁵ showed that 123 (48.2 %) of the study participants were knowledgeable about blood donation and related infections. This is comparable with a study conducted in Central India (52.5 %), it was higher than the findings of studies done in Nepal (32.4 %), South India (35.65 %), Manipur (9 %) and Kollam, Kerala. The possible reason for the variation might be attributed to the differences in sociodemography and access to learning opportunities on the importance of blood donation. In this study, nearly half of the study participants were knowledgeable, and nearly 80 % of them had positive attitude regarding blood donation and associated factors like TRI. However, a small proportion of them had ever donated blood before, 12.5 % which was in discordance with our study.¹⁵

Students represent the safest group for prevalence of transfusion related infections.¹⁶ But this contradicts the findings among blood donors by Jutavijittum et al.¹⁷ in Lao people's democratic republic where the student donors showed seropositive of HBV, HIV and syphilis. This finding may be due to low level of awareness among students regarding the TRI risk before blood donation, current lifestyle that might contribute to the seropositivity and increasing number of donation made by students compared to others.¹⁷

A study done by Karakkamandapam S et al.⁸ revealed that the knowledge levels among majority of respondents were either good (42.7 %) or average (43.9 %). The knowledge level and gender do not show any statistical association which is similar to the finding of other studies.⁸

Majority of male (90.2 %) and female (85.6 %) respondents participated in the study have shown positive attitude towards blood donation and TRI.⁸ The result of the study is similar to the results conducted among illiterate and uneducated population. As health care students are more educated and literate about saving human life, it is expected that they should have more knowledge on blood donation and TRI as compared to illiterate and uneducated strata of population.⁸ This study showed similar results as our study.

Another study done by Salaudeen and Odeh et al.³ revealed that the mean age group of respondents was 22 years and they had good knowledge about the blood donation and related infections, however it did not find any significant relationship between the age, ethnic group and literacy level, which was in concordance to our study taking age group into consideration. Additionally, in their study, blood donation practice was poor because of inadequate information about HIV/hepatitis infection from blood donation. This clearly shows that wrong perception is still held by general population for transmission of HIV infection. This is mainly due to lack of knowledge about the infectious diseases.³ This proves that there is a huge need for the general public to have minimum knowledge about transfusion related infections.

In the current study, we found that voluntary male donors and students have knowledge about all the transfusion related infections studied but majority of the voluntary blood donors mostly including female gender, donors having age group > 40 years did not have any idea about the TRI. Therefore, continuous educational program for donors must be improved in order to increase donor's awareness regarding pre-donation measures taken to reduce the risk of TRI and probably once the donors are aware about donation process, the seroprevalence among them will be further reduced. The findings of the research indicated that the perception towards transfusion related infections could be influenced to a larger extent by knowledge which was significantly related to occupation and education among the general population to assess safe blood transfusion practices.

Although there is increase in the percentage of voluntary, non-remunerated blood donors and in the number of blood units collected per 1000 population since 2003 have been reported, whole blood remain insufficient to meet the demand. Only 4 countries met the World Health Organization (WHO) recommended minimum of 10 units per 10,000 population.¹⁸ Although majority of 14 countries reported decrease in the blood units testing positive for HIV collected since 2003, HIV prevalence among donated units in all 14 countries remains higher than 0.002 % reported in high income countries.¹⁸ Six of the 14 countries have HIV prevalence rates > 1 % among donated units, and two have rates > 3 %. Sustaining progress made in reducing the risk for transfusion transmitted HIV in Sub-saharan Africa will depend on implementation of blood bank safety standards and quality management systems.¹⁹

Another study conducted by Sajjadi SM et al.²⁰ revealed that over a period of 10 year (2005 to 2014), a total of

1,80,304 donations were collected from volunteer donors, with a mean of 18030.4 donations per year. Screening tests were done for all donations according to the Iranian blood transfusion organization (IBTO) guidelines. Among all donors, 250 were found to be positive for HBsAg (0.13 %) and 115 for HCV (0.06 %), while there were only three, confirmed positive results for HIV. The prevalence of HBV infection among first-time donors increased from 315 per 100000 donations in 2005 to 991 per 100000 donations in 2008. The most frequent infection in first-time donors was HBV (69.34 %), followed by HCV (29.76 %), which together represented more than 99 % of all positive first-time donations. As we can see an increasing trend of TRI among general population, the need to have knowledge and positive attitude towards TRI among voluntary blood donors is important so that they follow safe practices to protect themselves from transfusion related infections.²⁰

CONCLUSIONS

Overall in our study, there is an increase in number of blood donation programmes but on the other hand, there is decline in education, knowledge and attitude towards transfusion related infections among the general population. The implementation of various educational programmes in terms of educational sessions, media presentations, brochure distribution and raising awareness among general population on transfusion related infections can be new and emerging part in health care practices. There is a need for large prospective multi-center epidemiological studies in the country for a better understanding of the burden of TRIs, impact of testing procedures and influence of mitigation strategies such as hemovigilance system and TRI tracking networks.

Data sharing statement provided by the authors is available with the full text of this article at jebmh.com.

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