Study of reasons for exemption for deferral of blood donors in Ilam blood transfusion center

Farajolah Maleki[1], Hassan Reza Mohammadi[2], Hamid Taghinejad[3], Masoumeh Shoohani[4] Mansour Amraei[5]*

1. Clinical Microbiology Research Center, Faculty of Medicine, Ilam University of Medical Sciences, Ilam, Iran
2. Department of Neurology, Faculty of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran
3. Department of Nursing, Faculty of Nursing and Midwifery, Ilam University of Medical Sciences, Ilam, Iran
4. Department of Nursing, Faculty of Allied Medical Sciences, Ilam University of Medical Sciences, Ilam, Iran
5. Department of Physiology, Faculty of Medicine, Ilam University of Medical Sciences, Ilam, Iran

*Corresponding author: Tel: +98 8432237140
Address: Department of Physiology, Faculty of Medicine, Ilam University of Medical Sciences, Ilam, Iran
E-mail: amraei-m@medilam.ac.ir
Received; 2015/03/13 revised; 2015/04/14 accepted; 2015/06/14

Abstract

Introduction: The main purpose of donor selection is not only the donor protection from blood donation complications but also the blood recipient not be expose to blood- transmitted diseases. This study aimed to determine the reason for exemption from donors among blood donor's who refer to Ilam Blood Transfusion Organization.
Materials and methods: This is a retrospective and descriptive study. That all information recorded in Ilam Blood Transfusion Center in 2010-2011 (including age, gender, occupation, marital status and the exemption) were collected and data were analyzed by using SPSS software.
Results: Research results showed that of 4005 participants, 2349 persons were exempt from blood donors. 1241 persons (31.1%) after reading message of Iranian Blood Transfusion Organization and awareness about blood donation criteria, have found that their blood is not suitable for donation. 1061 patients (26.5%) were exempted from history and physical examination, 41 (1%) After tests have been diagnosed with viral diseases and were exempt from donating blood. 1656 (41.4%) donors were healthy. The most common causes of exemption included, drug use (23.7%), hypertension (21.8%), anemia and blood disorders (15.5%), bloodletting (11.9%), cold (7.3%) and behavior risky (4.9%), respectively.
Conclusion: In present study, there are several causes for deferrals which most of them are temporary and they are disappear after education and proper training, these individuals could be donors.

Keywords: Donor, Exemption, Blood, Donation, Transfusion

Introduction

In spite of this fact that in many situations, the only way to save the patient's life is blood and it's derivatives transfusion, but this transfusion cause to deseases (1). The main purpose of the blood transfusion organization is providing the adequate and safe blood in normal and critical conditions. One of the main concerns of

[Downloaded from jbrms.medilam.ac.ir on 2024-04-23]

blood transfusion, worldwide is infectious agents transmitted through blood, which increasing prevalence of blood-borne infections, risk of transmitting the infection among recipients of blood and blood products will be increased (2-4).

In correct choice of donors the main objective is that donors to be perfectly healthy, to be protected from the risk of complications from blood donation, and the recipient is not to be expose to blood born disease. If the donor not suitable for blood donation this result in him/her permanently or temporarily exempt from donating blood (5). Inappropriate choice can lead to complications for volunteer donors, such as hypotension, nausea, vomiting, fainting, dizziness, and in severe cases, seizures and muscle spasms. As well the blood transfusion recipient will be susceptible to infectious diseases (6). Hence, primerly the post medical history them was obtained, then the donated blood tested for syphilis and HCV-Ab, HIV-Ab, HBS, and in some centers for the HTL V-I, II-Ab (7). According to World Health Organization (WHO), Blood safety is ensuring health monitoring, quality and adequacy of blood for all patients who requiring blood transfusion (8). Hence, considering the importances of this issue; specific strategies to reduce the risk of blood-borne infections have been adopted from this organization (9). To reduce the risk of transmission of infectious agents through the blood and its derivatives different strategies are used by organizations of Blood Transfusion, these including public education programs, in field of blood -transmitted diseases, blood donors are advised to read the FAQ donors posters which contains general and specific eligible characteristics about blood donation, medical examination and apparently healthy evaluation of donors by physician. Questioning about history of disease, especially viral diseases, and the risky behavior of intravenous drug use and unsafe sex, by physician, and lunching confidential self-exclusion system (10,11).

If blood banks taking proper selection method for excluding from blood donation, significant amount of blood is added to blood supply (12). In a study in San Francisco found that Before HIV testing of donated blood only by taking medical history interview and exclusion of high-risk behavior of HIV, up to 90 % of donated blood for HIV infection can be prevented (13).

Some reasons for deferral consist of risky behaviors, history of viral hepatitis after age 10, intravenous drug addicts, in history of close contact with hepatitis or jaundice, receiving anti-hepatitis B Immunoglobulin, recipients of blood and its products, bloodletting, piercing and acupuncture, donors for a year will be exempt from donating blood. In some cases, such as common cold and acute infectious diseases, donors can donate blood after full recovery (14, 15). The results of several studies indicate the importance of proper training, proper selection of donor and the donor's medical history accurately and reduce the incidence of infectious diseases (16, 17). This study aimed to determine the reasons for exemption from donors to the Ilam Blood Transfusion Organization.

Materials and methods

This retrospective study was based on data available. Populations consist of 13901 patients who refer to Ilam Blood Transfusion Organization for blood donation during 2010-2011. The sample size was selected based on number of blood donors, demographic data (age, sex, marital status, education level and occupation), and systolic and diastolic blood pressure, the results of confirmatory HBS Ag, HCV Ab, HIV Ab tests, the number of exemptions and deductions of all blood donors. Data were analyzed by using SPSS statistical software and descriptive statistics. Statistical tests were used including chi-square, t-test and Fisher's exact test. $P<0.05$ was considered statistically significant.

[Downloaded from jbrms.medilam.ac.ir on 2024-04-23]

Results

Of 13901 blood donors referred to Ilam Blood Transfusion Organization, 4005 questionnaires were examined because of lake of data in questionnaire. Following reading those messages from Iranian Blood Transfusion Organization and awareness about blood donation criteria, have found that their blood is not suitable for donation. In the number of remaining, After a medical history and physical examination, 1061 cases (26.5%) were exempt. 41 cases (1%), after confirmation, had been diagnosed with viral diseases and were exempt from donating blood. 1658 donors (41.4%) were healthy. from 1061 Exempted persons, 1042 (98.2%) temporarily and 19 (1.8%) permanently were exempt from donating blood. The most common reasons for exemption were included Drug use (23.7%), hypertension (21.8%), anemia and blood disorders (15.5%), bloodletting (11.9%), cold (7.3%) and risky behavior (4.9%) (Table 1).

Table 1. Distribution and frequency of deferral in the study population.

Code	The deferral	Total	%	Code	The deferral	Total	%
1	Drug use	557	23.7	13	Drug abuse	12	0.5
2	Hypertension	512	21.8	14	Early age	12	0.5
3	Anemia	364	15.5	15	Vessel inappropriate	12	0.5
4	Bloodletting	279	11.9	16	Weight	9	0.4
5	Common cold	171	7.3	17	Allergies	7	0.3
6	Risky behaviors	115	4.9	18	Elderly	5	0.2
7	Cardiovascular diseases	81	3.45	19	Fasting	5	0.2
8	Hypotension	80	3.4	20	Pregnancy	5	0.2
9	Infections	41	1.75	21	Kidney disease	3	0.13
10	Menstruation	37	1.6	22	High blood fat	3	0.13
11	Surgery	19	0.8	23	Others	6	0.24
12	Tattooing	14	0.6				

The most common causes for deferral among men were similarly. Namely drug (24.7%) was the most common reason for exemption, and then hypertension (23.6%), anemia (14.9%), phlebotomy (13.1%), cold (7.7%) and risky behavior (5.4%) were the most common reason for exemption in the men. Among women, the most common reasons for exemption from donating blood were anemia (19.7%), drug use (16.3%), hypotension (13.9%), menstruation (12.9%), hypertension (8.3%) and cold (4.2%) (Table 2).

Table 2. The relative frequency of the most common reasons for deferral to sex.

sex	The most common reason for exemption	%
Men		
	Drug use	24.7
	Hypertension	23.6
	Anemia	14.9
	Bloodletting	13.1
	Common cold	7.7
	Risky behaviors	5.4
Women		
	Anemia	19.7
	Drug use	16.3
	Hypotension	13.9
	Menstruation	12.9
	Hypertension	8.3
	Common cold	4.2

[Downloaded from jbrms.medilam.ac.ir on 2024-04-23]

2062 cases (87.8%) of subjects were male and 287 (12.2%) were female. In terms of education, 148 (3.7%) were illiterate, 929 (23.2%) diploma, 1542 (38.5%) diploma, 601 (15%) diploma, 709 (17.7%) BA, 52 (1.3%), Master of Science, 24 (0.6%) were PhD. In terms of job, 1446 people (36.1%) employed, 953 people (23.8%) employees, 541 of whom (13.5%) students, 72 (1.8%) soldiers, 216 (5.4%) military, 376 cases (9.4%) unemployed, 72 (1.8%) and 329 cases (8.2%) were housewives. As well 1622 cases (40.5%) were unmarried and 2383 (59.5%) were married.

Discussion

The ultimate goal of all blood centers is providing a safe and adequate blood and blood products and minimizing the risk of infection that transmitted through blood transfusion, and one of the ways to improve blood safety is proper selection of blood donors in each case (18). The purpose of this study is to assess the prevalence of exemption to find ways to achieve healthy and sufficient blood supply. Based on these results, 26.5 % of donors who were in 1389 had referred to Ilam blood bank were exempt blood donors. The most common causes of exemption were included drug use (23.7%), low blood pressure (21.8%), anemia and blood disorders (15.5%), cup (11.9%), cold (7.3%) and Risky behaviors and well-known viral diseases (6.65%), respectively.

A study with over 163,184 people had been done in 2002 in Tehran, 20.1 % of donors were exempted which the most common reason for exemption (15.7%) was sexual partners, other factors were antibiotics (12.4%), low blood pressure (11.5%), bloodletting (7.8%) and cold (5.3%) (19). In another study conducted on 26,645 volunteers in Tehran during 2003, 7849 cases (22.5%) were exempted. The risk of transmission of blood-borne diseases in 43.36 %, disease/exposure was at 34.02 % and consumption of drugs in 13.91 % was due to the deferral. 15.42 % of donors were exempted due to other causes (20). In another study in 2008 was conducted on 1047 voluntary blood donation in Mashhad, 88.3 % were accepted as donors (21).

A study was conducted on 18,585 volunteers for donated blood since beginning of the winter of 2002 to the end of 2004 at blood centers in Tehran, Fars, Isfahan, Khorasan, East and West Azerbaijan and Ardabil, The most common cause for deferral was unsafe sexual contacts (17.8%), followed by, drug use (12.3%), hypotension (8.9%), cup (8%) and Polycythemia (5.7%), respectively (22).

In study in India during the years 1995 to 1998, the prevalence of deferral was 30.8 % (23). In study in Yugoslavia, the prevalence of impunity during 1995 to 1999 had been 79/13 %, which the most common reason was the low hemoglobin. In another study on prevalence of deferral in Germany (1999-1997) on 600,000 donors, 5.8 % were exempted, which the main reason was major surgery or serious injury (19%). Other causes were high or low blood pressure (10%), injection drug users (10%), herpes (9%) and the risk of malaria transmission (5%), and only 1 % was exempt due to low hemoglobin (24).

Several studies have been conducted in context of impunity and represent numerous different reasons, according to study conditions as the number of subjects, geographical location and desired culture. In this study, drug use, low blood pressure, anemia and blood disorders, letting cold and risky behaviors was common causes, which is common in other similar studies (24-19). In 6/3 %, the exemption was because of risky behaviors, whereas in other studies (19, 20, 22) cause of exemption was unsafe sexual contact. Studies in foreign countries showed that this reason is not common (25). Sexually uncertain due to social and cultural conditions of our country varies from other

[Downloaded from jbrms.medilam.ac.ir on 2024-04-23]

countries. In European countries, it is equivalent to consider sexual contact with a person suspected to have AIDS. A person may have sexual contact outside of family to visit but in terms of HIV risk behavior does not take into account, While our country is illegitimate any sexual contact outside the family. The questions and answers about details of an unsavory action is not possible to understand the behavior of high risk of AIDS. The statistics about unsafe sexual contact in our country is very high and not comparable with other countries.

In a study in Croatia which were performed on prevalence of high-risk behaviors in young blood donors volunteers, of 678 cases who had responded to questions, 8/2 % intravenous drug users, men who have sex with intravenous drug 2 % , 7 % suspected sexual relationship, 1 % were also homosexual. 4 % had long stay abroad, and 2 % had a history of blood transfusion (26).

In present study, 41 (75 /1%) after confirmation, diagnosed with viral diseases and were exempted of blood donor. In a study in Thailand the prevalence of HBs Ag and anti-HIV in normal blood donors and people who knew their exempt, were examined, and the results showed that positive cases in exempted donors group had a higher prevalence compared with donors. As a result, self-exclusion is effective in reducing the risk of transmission (27).

In our study, anemia (19.7%), drug use (16.3%) and low blood pressure (13.9%) were the most common cause's breaks among women. In Tehran, the most common cause for deferral among women were low blood pressure (11.5%), anemia (2.1%), respectively. Low blood pressure and anemia can be treated easily. Most people who have been exempted, (98.2%) have been temporarily exempted, similar to other studies (19, 20). The groups that make up a large percentage of exemption can refer to fix the breaks as well as other donors. However, studies have shown that people are less likely to visit, because they think that their blood is not healthy and is not suitable for blood donation (28). Therefore, doctors are required to correctly explain the exemption to this people, and ensure them that they are healthy, and inform them that after the grace period, there will be no contraindications to donation. And the date and time to be reminded of their next blood donation. In addition, you can connect the phone to encourage people to donate blood. In (11.9 %) of the exemption was cupping, Which is similar to other studies conducted in the country (19,22). This could be due to the tendency of traditional medicine and its importance in the treatment of many diseases which has become popular in recent years.

Conclusion

In present study, there are several causes for exemption which most of them are temporary and then disappear because they can be donors; however this is subject to proper training of people and to reassure them about their health. The other thing is about high-risk behaviors and prevalence of viral diseases, which are relatively common cause in this study. Given that the deferral is a function of outbreaks and risk behaviors in community, due to the high risk groups, educating them about diseases caused by risky behaviors can be very helpful. Also encouragement to donating blood substitute instead of bloodletting it can be very helpful.

Acknowledgment

This study was supported by the research grant, EC/92/H/151, from Ilam University of Medical Sciences. We thank all the authorities of blood transfusion center for their contribution to the study.

[Downloaded from jbrms.medilam.ac.ir on 2024-04-23]

References

1. Goldman M, Yi QL, Ye X, Tessier L, Brien SF. Donor understanding and attitudes about current and potential deferral criteria for high-risk sexual behavior. Transfusion. 2011; 51(8): 1829-34.
2. McClelland B, Contreras M. Appropriateness and safety of blood transfusion. BMJ. 2005; 330(7483): 104-5.
3. Satake M. Infectious risks associated with the transfusion of blood components and pathogen inactivation in Japan. Int J Hematol. 2004; 80(4): 306-10.
4. Giuseppe a.Safety in transfusion medicine. Blood Transfus. 2008; 6(3): 121-6.
5. Abolghasemi H, Pourmalek Ara D. [Clinical Applications of Blood Components]. Salami Publications, Tehran; 2000. First Chapter.(Persian)
6. Cullough J. Transfusion medicine. New York: MC Graw Hill, 1998; P: 49-55.
7. France CR, France JL, Kowalsky JM, Cornett TL. Education in donation coping strategies encourages individuals to give blood: further evaluation of a donor recruitment brochure. Transfusion. 2010; 50(1):85-91.
8. Bready DC, Buchner LM. Retrospective audit of blood donation at a hospital based blood center. West Indian Med J. 2000; 49(3): 226-8.
9. Editorial. Improving blood safety worldwide. Lancet. 2007; 370(9585): 361.
10. McClelland B, Contreras M. Appropriateness and safety of blood transfusion. BMJ. 2005; 330: 104-5.
11. Hoots WK, Abrams C, Tankersley D. The FDA perspectives on plasma safety. Transfus Med Rev. 2001; 15(2); 20-6.
12. Tomasulo PA, Anderson AJ, Paluso MB. A study of criteria for blood donor deferral. Transfusion. 1980;20(5):511-8.
13. Yanase Y, Ohida T, Kaneita Y, Agamag DM, Leano PS, Gill CJ. The prevalence of HIV, HCV and HBV among Filipino blood donors and overseas work visa applicants. Bull World Health Organ. 2007; 85 (2): 131-7.
14. Custer B, Schlumpf KS, Wright D, Simon TL, Wilkinson S, Ness PM. Donor return after temporary deferral. Transfusion. 2011; 51(6):1188–96.
15. Sally V. Rudman. Text book of blood banking and transfusion Medicine. Philladelphia: W. B. Saunders, 1995; P: 180-224.
16. Wangi JW. Viral markers in a blood donor population. Est Afr Med. 1999;76(1):35-7.
17. Gresens CY, Holland PV. Current risks of viral hepatitis from blood transfusion. J Gastro Entrol Hepatol. 1998;13(4):443-9.
18. Linden JV, Bianco C. Blood safety and surveillance. USA: Marcel Dekker, Inc; 2001.
19. Abolghasemi H, Kheirkhah M, Hoseini SM. [Survey of the reasons for exemption for the deferral of blood donors in Tehran blood transfusion center]. Hakim. 2002; 5(2): 119-26. (Persian)
20. Attarchi Z, Ghafouri M, Hajibaygi B, Assari SH, Alavian SM. [Donor deferral and blood-borne infections in blood donors of Tehran]. Sci J Iran Blood Transfus Organ. 2006; 2(7) :353-64. (Persian)
21. Vafaee Najar A, Saeidi Nejat S, Esmaeili H, Sayadpour Zanjani D, Bazargani R. [Correlation between Demographic factors and deferral rate of voluntary blood donors in Mashad]. Sci J Iran Blood Transfus Organ. 2011; 7(4) :266-71.(Persian)
22. Maghsudlu M, Makipour M, Nasizadeh S. [Evaluation of deferral

[Downloaded from jbrms.medilam.ac.ir on 2024-04-23]

causes of blood donors and relevant factors]. Sci J Iran Blood Transfus Organ. 2006; 3(1):9-16.(Persian)
23. Curcic B, Strbac N, Micetic D. Analysis of the reseans for the defferal of blood donors. Vox san. 2000;78(suppl1.1):333.
24. Fauchald G, Menzel H, Wichman M. Peredonation donor rejection. Vox san. 2000; 78(suppl1.1):327.
25. Chavdhary RK, Gapta RK. Analysis blood donor population. Transfus Med. 1995; 5(3):209-12.
26. Jukic I, Balija M, Mihaljevic C. Blood donor self exclusion. Vox san. 2000; 78(suppl1.1):334.
27. Vrwijitaroon y, Barusrox S, Romphruk A. Reducing the risk of HIV transmisson through blood transfusion by donor self deferral. Southeast Asian J Trop Med Public Health. 1996; 27(3):452-6.
28. Halperin D, Beatens j, Newman B. The effect of short term, temporary deferral on future blood donation. Transfusion. 1998; 38(2):181-3.

[Downloaded from jbrms.medilam.ac.ir on 2024-04-23]