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Critical Knowledge Gap in Blood Transfusion Among University Students in Iraq

Kesenjangan Pengetahuan Kritis dalam Transfusi Darah di Kalangan Mahasiswa di Irak

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Abstract

Background: Blood transfusion, a crucial part of modern medical treatment, is believed to be the first successful organ transplant and plays a vital role in modern healthcare interventions. **Knowledge gap:** Despite its importance, awareness and knowledge about blood transfusion and donation are insufficient, particularly among university students. **Aims:** This study aims to assess student knowledge regarding blood transfusion and to raise awareness about blood donation. **Methods:** A cross-sectional study at Bab Al-Zubair University involved 200 students, assessing blood transfusion knowledge using a questionnaire and SPSS version 16, with statistical analysis. **Results:** The study revealed that 46% of students had no knowledge of blood transfusion, while only 31% had information on transfusion and donation. Social media was the primary information source for 32% of students, with only 9% undergoing regular blood tests. Moreover, 82.5% of students had never attended a seminar on blood donation. **Novelty:** This study highlights a significant gap in knowledge and awareness among students regarding blood transfusion and donation, emphasizing the role of social media as a key information source. **Implications:** The study emphasizes the need for targeted educational interventions in university curricula to enhance student awareness and knowledge about blood donation and transfusion.

Highlights:

1. Knowledge Gap: 46% of students lack information on blood transfusion.
2. Seminar Absence: 82.5% never attended blood donation seminars.
3. Educational Need: More training and seminars required to increase awareness.

Keywords: Blood transfusion, Student knowledge, Blood donation, Awareness, Cross-sectional study

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Introduction

Hemotherapy, or blood transfusion, is a therapeutic intervention and a crucial component of contemporary medical treatment. Transfusion, as defined by the World Health Organisation (WHO), is the process of injecting blood or blood products into the recipient's veins from a donor. This is done by first placing an intravenous needle or catheter in the patient, then administering blood or blood products [1]. The first successful organ transplant is thought to have been a blood transfusion [2–3]The body's vascular system transports blood, a "fluid tissue" made up of plasma and cellular constituents such as red blood cells, white blood cells, and platelets [2]. In the US, hemotherapy was regarded as the most effective medical therapeutic intervention in 2011 [4]. Blood transfusions are linked to a higher risk of major and undesired sequelae, according to a 2012 Joint Commission and American Medical Association (AMA) ranking of the fifth most used therapy globally [5].

Its success depends on selecting the correct blood product at the right time for the right indication [1, 6]. It takes certain understanding to utilise blood rationally [5]. Global hemovigilance data show errors at every stage of transfusion, which can put patients at risk and have life-threatening consequences [7]. Transfusion-transmitted infections, sepsis, haemolytic responses, acute lung injury, allergic reaction, bacterial infection, circulatory overload, etc. are among the dangers [8–10]. Analysis has been done on almost 2,800 major adverse reactions linked to improper blood transfusion, 27 fatalities, and 596 instances of patients with considerable morbidity since hemovigilance was established in the UK in 1996 [8].

Blood is injected into the body during a blood transfusion. Using one of the blood arteries, accept given blood during a transfusion. A vein is punctured, usually in the arm, with a needle. A catheter is a small, flexible tube to which the needle is connected. We refer to this as an IV, or intravenous line. This IV line is used to send blood into a vein. There are several components to your blood. Your blood's liquid component is called plasma. It is composed of several things such as water, proteins, clotting factors, and hormones. There are a lot of red blood cells (RBCs) floating in the plasma. Haemoglobin is present in these big cells. RBCs may transport oxygen from the lungs to the rest of the body thanks to haemoglobin. The body need oxygen, thus having enough red blood cells is crucial. White blood cells are also present in your blood. The body uses them to combat illness. Additionally, platelets—tinier cells—are seen in blood. These support the thrombus. Clotting factors are proteins that aid in blood clotting. body cannot stop bleeding from even a little cut without them. Blood that has all of these components is called whole blood. A blood transfusion often uses only a portion of the donor's blood. Depending on your needs, may get one or more of these blood components. The proper blood must be administered while receiving a transfusion. There are four primary kinds of blood: A, B, AB, and O. These kinds speak of substances on blood cell surfaces known as antigens. Antigens are substances that have the ability to activate an individual's immune system. Another kind of antigen is the Rh factor. Rh-positive or Rh-negative blood exists. There are eight distinct kinds of blood that each individual has: A+, A−, B+, B−, AB+, AB−, O+, and O−. A person's immune system will respond negatively if they get the incorrect kind of blood. This is a dangerous illness that can have severe symptoms including fever, pains in the muscles, and difficulty breathing. It may occasionally be lethal. A, B, or Rh molecules are not present on the blood cells of people with O− blood. They are referred to be universal donors since they are able to donate blood to everybody. Individuals who are AB+ may safely accept blood from anyone since they have all three molecules (A, B, and Rh) on their blood cells. Only blood types that match can donate and receive blood from other blood types[14].

2-2 Prepare before a blood transfusion:

For the most part, the donor won't need to do anything in advance of the transfusion. If he has to make any preparations, the donor healthcare practitioner will let him know. It's important to let the donor know if there was a negative outcome from the blood donation. Medication could be administered to the donor in an effort to stop an allergic response. A permission document is typically required by hospitals prior to a blood transfusion. The donor or a designated family member must sign this. Before the transfusion, the donor blood may be examined to determine what kind. This is to make sure he gets the right kind of donor blood. His finger may be pricked to get a few drops of blood. Or blood may be taken from a vein in the donor arm[[14,15].

Methods

Design of the study : A descriptive cross_sectional study was conducted about Assessment of student knowledge regarding blood transfusion among university students (Bab-Alzubair campus).

sample of the study : Random samples (200) from Bab Al-Zubair University students, where the number of males was (97) and the number of females was (103).

project instrument : For the purpose of the study, the questionnaire was designed in two parts: the first part includes demographic information consisting of five variables. The second part of the questionnaire was designed after reviewing relevant literature, researchers' previous studies [about blood transfusion] that identified 23 items to assess knowledge about blood transfusion among nursing school students.

statically and descriptive data analysis: Analysis was made by using SPSS Version 16 program include percentage, frequency, p-value, mean, standard deviation and one-sample T test.

Result and Discussion

Sex	Frequency	Percent	Mean	Std.Deviation	Sig.
Male	97	48.5%	1.51	0.501	p-value= 0.000 Significant
Female	103	51.5%			
Total	200	100%			

Figure 1. *Descriptive statistics for sample's sex*

This table examines the descriptive statistics of the samples of the study showed that there is a significant difference between the sexes where the sample of males (n=97 / 48.5%) more than the sample of females (n=103 / 51.5%).

X	Frequency	Percent	Mean	Std.Deviation	Sig.
Yes	61	31%	1.97	0.887	p-value =0.691 Non-significant
No	91	46%			
Somewhat	48	24%			
Total	200	100%			

Figure 2. *Descriptive statistics of samples for students who have information about the blood transfusion process*

X	Frequency	Percent	Mean	Std.Deviation	Sig.
Yes	28	14%	1.89	0.405	p-value = 0.000 significant
No	165	82.5%			
Somewhat	7	3.5%			
Total	200	100%			

Figure 3. *Descriptive statistics of the number of students who were invited or attended seminars about blood transfusion.*

Student's sources of information about blood donation and transfusion	Frequency	Percent
Social media	64	32%
Doctor	52	26%
Medical fields and sites	63	31.5%
Someone close	21	10.5%
Total	200	100%

Figure 4. *Statistical description of students' sources of information about blood donation and transfusion.*

Discussion

This study was conducted on Basra University students in the Bab Al-Zubair campus in the city of Basra, where the total samples reached 200 students, where the gender ratio was close to (n=97/48.5%) males and (n=103/51.5%) females. This finding is consistent with findings revealed in some studies [11, 16]. The results of our study showed that the largest percentage of students do not have sufficient information about blood transfusion and donation, where (n=91/46%) students out of 200 answered that they had no information about blood transfusion, while only (n=61/31%) students had information about blood transfusion and blood donation, and also (n=48/24%) students had somewhat moderate information on this subject. This finding is consistent with findings revealed in some studies[9]. The most important question was if any of the students had been invited or attended a seminar or conference to talk about blood donation and blood transfusion, as the largest percentage was 165 (82.5%) out of 200 students who were not invited or attended any seminar in the past, while only 28 (14%) students were invited They attended seminars on blood donation. This finding is consistent with findings revealed in some studies[10]. The results also showed that most of the students' sources about blood transfusion and blood donation were from social media 64 (32%) students, medical journals and medical sites 63 (31.5%) students, while 52 (26%) students answered that their sources of information were from the doctor, while 21 (10.5%) students answered that their sources of information were from a close person. Studies close to ours did not have such a test. The results also showed that 130 (65%) students out of 200 students, which is the largest percentage, do not do a periodic and regular blood test, while only 30 (9%) students do a periodic and regular blood test, and 40 (20%) students do a blood test, but not on a regular and regular basis. This finding is not consistent with findings revealed in some studies[10]. The largest percentage of students from other colleges at Bab Al-Zubair University was 126 (63%) students out of 200 students, while only 74 (37%) students were from medical colleges. The distribution was random. The vast majority of students knew their blood type and knew the number of blood groups, as 167 (83.5%) out of 200 students answered that they knew their blood type and only 32 (16%) students did not know their blood type. As for blood groups, 164 (82%) answered Students asked that they know the number of blood groups, while 22 (11%) students were not sure of the number of blood groups, and 14 (7%) students answered that they did not know the number of blood groups. This finding is consistent with findings revealed in some studies[`9]. Through the results, it was found that most of the students had not received blood before, and also they had not donated before, as 181 (90.5%) out of 200 students answered that they had not received blood earlier, while 172 (86%) students answered that they had never donated blood before, and the number of students was Only 28 (14%) students had donated blood. This finding is not consistent with findings revealed in some studies[10]. The results showed that the students suffer from a weakness in the medical instructions about blood donation and blood transfusion, as 151 (75.5%) students out of 200 students answered that they do not need to follow the medical instructions before donating and transfusion. This weakness in the students' medical instructions affects their lives. The results also showed that 22 (11%) out of 200 students had answered that it is not necessary to match the donor's blood with the recipient's blood before transfusion, It is not a small percentage and its risks affect their lives in the event that they do not obtain sufficient medical information before donating and transfusing blood, while he answered 171 (85.5%) students said that the blood of the donor must be matched with the blood of the recipient. This question was not present in the tests of these studies[9][10][11][12,13]. The results showed that only 60 (30%) out of 200 students, when asked about the number of times a donor can donate blood, answered every two months, while 70% of the students did not know the correct answer. Subsequent studies had no such test[9][10][11][12]. The results show that 166 (83%) students answered 18 years and over about the age condition for blood donation. Also, only 76 (38%) students answered that the amount sufficient to donate blood is half a liter, while 62% answered incorrectly because of their poor information. Among the cases that prevent a person from donating blood, 172 (86%) students answered that people with severe anemia cannot donate blood. The following studies did not have such tests[9][10,17][11][12,18]. The final test was about what frequent blood transfusions and blood donations can lead to. where 37 (18.5%) students answered that this leads to iron accumulation, while 163 (81.5%) of the students gave wrong answers because of their poor knowledge.

Conclusion

Students suffer from a great lack of knowledge and information about blood donation and transfusion. Therefore, more effort is needed to increase the level of knowledge about blood transfusion and blood donation by instilling short training courses for these groups of students in the current curricula and establishing scientific seminars or scientific conferences within the university to increase the level of awareness among students.

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