ANALYSIS OF BLOOD TRANSFER SAFETY KNOWLEDGE AND PRACTICE ON PERSONS WITH HIV/AIDS THROUGH THE NURSING SKILLS EXAMINATION AT NHAN AI HOSPITAL, 2020

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Summary

Introduction: Assured blood transfusion safety is based on a quality blood supply and rational clinical use of blood. In treatment facilities, blood transfusion is usually done by nurses, so nurses play an important role in the safe implementation of blood transfusions.

Objectives: Describe the knowledge and practice of nurses about blood transfusion safety in HIV/AIDS patients and related factors at Nhan Ai Hospital. Subjects and methods: A cross - sectional descriptive study on 122 nurses taking care of HIV/AIDS patients participating in a job replacement exam at the hospital in 2020.

Results and conclusions: Nurses' general knowledge of blood transfusion safety accounted for 77 percent. 77.8% and 87.7% are the percentages of general practice nurses achieving blood transfusion safety. There is a statistically significant relationship between the knowledge score ($p < 0.05$) in blood transfusion safety and the general characteristics of nurses at the hospital. The relationship was not statistically significant ($p > 0.05$) between the knowledge score and the practice score in blood transfusion safety of nurses at the hospital.

Key words: *Knowledge, practice, blood transfusion, HIV/AIDS.*

INTRODUCTION

Safe blood transfusion for patients in general and people with HIV/AIDS in particular is a closed process from appointing the right blood transfusion, using the right blood and suitable preparations, monitoring and well handling the symptoms. during blood transfusion, monitoring for possible complications during and after transfusion. In order to meet the needs of blood for treatment of patients, it includes many stages, from the collection, preparation, storage, indication, correct blood transfusion practice, monitoring and good management of the patients. Variables can occur during and after blood transfusion[1,2].

In Jordan, the survey on blood transfusion safety in nurses showed that 95.3% completed the questionnaire on blood transfusion knowledge with an average score of 51.3%, most of the nurses lacked knowledge. Regarding the preparation of the patient prior to blood transfusion, 92% used potentially hazardous methods of hemolysis[3].

Currently, nurses are an important pillar in providing patient care services and undertaking the implementation of Procedures and Techniques, including Blood Transfusion Technique. Therefore, nurses play an important role. However, lack of knowledge about various aspects of blood transfusion by healthcare workers including nurses is a real threat to patient safety. In addition, the implementation of the steps in the Procedures and Techniques of the nurses has not been checked, urged, monitored, supported and evaluated regularly and continuously, so the compliance is still inaccurate[4,5]. This shows that

it is necessary to evaluate the practice capacity of clinical nurses regularly to contribute to continuously improving the quality and efficiency in the care of patients in general and people living with HIV/AIDS at the hospital in particular. Stemming from the above reasons, we carried out the project: *Analysis of knowledge and practice of safe blood transfusion on HIV/AIDS infected people through nursing skills exam at Nhan Ai Hospital, 2020*, with 2 objectives: (1) Describe the knowledge and practice of nurses on safe blood transfusion in HIV/AIDS patients through the nursing skills exam at Nhan Ai Hospital 2020. (2) Determining the factors related to the knowledge and practice of safe blood transfusion of nurses at Nhan Ai Hospital 2020.

SUBJECTS AND METHODS

Research subjects: All nurses are working at Nhan Ai Hospital during the study period from August 2020 to September 2020.

Research Methods

Study design: Cross - sectional description.

Sampling method and sample size: Full selection, 122 nurses.

Standards for assessing knowledge and practice of blood transfusion safety

Standards for assessing knowledge of blood transfusion safety:

Assessment of knowledge about blood transfusion safety is based on the number of points obtained when correctly answering related content about blood transfusion safety. Each correct answer gets 1 point, incorrect answer 0 points. The scale to assess the knowledge of blood transfusion safety of nurses has 2 levels: pass and fail. The level of knowledge is achieved when there is a score of 80 - 100% of the total score (≥ 5 points). Failed when there is a score of < 80% of the total score (< 5 points). Maximum knowledge score 6 points.

- Content of knowledge about blood transfusion safety:

+ In which cases blood transfusion is indicated.

+ Transfusion blood group is safe.

+ Blood transfusion scheme.

+ Complications in blood transfusion.

+ Maximum units for blood transfusion of different groups.

+ Blood storage temperature.

Practice assessment standards for blood transfusion safety

Evaluation of practice on blood transfusion safety is based on the number of points obtained when correctly practicing relevant contents of blood transfusion safety. Each correct answer gets 1 point, incorrect answer 0 points. The scale for assessing practice on blood transfusion safety procedures of nurses has 2 levels: pass and fail.

The level of practice is achieved when the score achieved is from 80 - 100% of the total score (≥ 6 points). Did not reach < 80% (< 6 points). Maximum practice score 7 points.

- Contents of practice on blood transfusion safety:

+ Perform cross - reactivity at the bed.

+ Perform biological reactions.

+ Blood cooling time.

+ The task of monitoring patients in blood transfusion.

+ Issues to monitor in blood transfusion.

+ The first thing to do when there are abnormal signs.

+ The volume retained in the blood bag.

Methods of data collection, processing and analysis

- Data collection: The data is taken from the results of the medical skills exam 2020.

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- Processing and analyzing data: Data is cleaned before entering into the analysis. Enter data using Excel 2010 software.

- Data analysis: The collected data are processed by Stata 12.0 software. The study evaluated the odds ratio (OR) and 95% confidence interval (95% CI) to find the relationship between the overall assessment of nurses' knowledge in blood transfusion safety in HIV/AIDS patients. at Nhan Ai Hospital.

RESULTS

General information about research subjects

Table 1. Characteristics of study subjects (n = 122)

Content	Frequency	Rate(%)
Sex		
Male	43	35.2
Female	79	64.8
Age group		
< 30 years old	35	28.6
≥ 30 years old	87	71.4
Mean = 33.06; SD = 4.44; th percentile 34 (29 – 36); mim = 22; Max = 49; NR = 26		
Working years		
< 10 years	42	34.4
≥ 10 years	80	65.6
Professional qualifications		
Intermediate	29	23.7
College	4	3.2
University	89	73.1

Females account for nearly two - thirds (64.8%), the average age is 33.06 years old, mainly those with ≥ 10 years of service experience 65.6%, most of them have university degrees 73.1%.

Knowledge and practice of safe blood transfusion of nurses.

Knowledge of blood transfusion safety of nurses.

Table 2. Knowledge of nurses about blood transfusion safety in people living with HIV/AIDS

Content knowledge	True N (%)	False N (%)
Know cases in which blood transfusion is indicated	99 (81.1)	23(18.9)
Safely Transfused Blood Type	121(99.1)	1 (0.9)

The concept of blood transfusion complications	89 (72.9)	33 (27.1)
Draw diagram of blood transfusion in ABO system	98 (80.3)	24 (19.7)
Blood transfusion events occurred	112 (91.8)	10 (8.1)
Maximum number of blood transfusions other than group	88 (72.1)	34 (27.9)
Suitable temperature for blood storage	91(74.5)	31(25.5)
General Knowledge	95 (77.8)	27(22.2)

Nearly 100% of nurses know that the blood type is safely transfused.

Practice of blood transfusion safety of nurses.

Table 3. Nurses' practice on blood transfusion safety in HIV/AIDS patients

Contents of practice	True N (%)	False N (%)
Perform cross-reaction at bed.	109 (89.3)	13 (10.7)
Perform biological reaction.	107 (87.7)	15 (12.3)
Blood Cooling Time.	99 (81.1)	23 (17.9)
Monitoring tasks in blood transfusion.	110 (90.1)	12 (9.9)
Issues to monitor in blood transfusion.	109 (89.3)	13 ((10.7)
First action when there are abnormal signs.	118 (96.7)	4 (3.3)
Volume retained in the blood bag.	109 (89.3)	13 (9.9)
General Practice	107 (87.7)	15 (12.3)

Most nurses know the first job when there are signs of abnormality 96.7%.

Table 4. Relationship between some social and demographic factors and knowledge

Social factors and			Knowledge		p	OR; 95% CI
			Pass	Not pass		
Pass Not pass	Male	43	31(72.1)	12(27.9)	0.00	0.99 (0.40-2.52)
	Female	79	57(72.2)	22(27.8)		
Age group	< 30 years old	35	25(71.4)	10(28.6)	0.01	0.95 (0.37-2.56)
	≥ 30 years old	87	63(72.4)	24(27.6)		
Working experience	< 10 years	42	30(71.4)	12(28.6)	0.02	0.94

	≥ 10 years	80	58(72.5)	22(27.5)		(0.38-2.40)
Specialization	Intermediate	29	21(72.4)	8(27.6)	**0.000**	1.1(0.37-3.00)
	College+University	93	67(81.7)	26(18.3)		

The above table shows that there is a statistically significant relationship between knowledge scores and general characteristics of nursing subjects participating in the skills test (p < 0.05).

Table 5. Relationship between some social and demographic factors and practice

Social factors and			**Practice**		**p**	**OR; 95% CI**
			Pass	**Not pass**		
Pass Not pass	Male	43	37(86.0)	6(14.0)	0.05	0.85 (26-3.16)
	Female	79	69(87.3)	10(12.7)		
Age group	< 30 years old	35	30(85.7)	5*(14.3)	0.5	0.86 (0.25-3.46)
	≥ 30 years old	87	76(87.3)	11(12.7)		
Working experience	< 10 years	42	36(85.7)	6(14.3)	0.08	0.85 (0.25-3.11)
	≥ 10 years	80	70(87.5)	10(12.5)		
Specialization	Intermediate	29	25(86,2)	4*(13,8)	0.55	0.92 (0.25-4.29)
	College+University	93	81(87.0)	12(13.0)		

* Fisher's test

The above table shows that there is no statistically significant relationship between practice scores and gender and age group of nursing subjects participating in the skills test (p > 0.05).

Table 6. The relationship between knowledge and practice of blood transfusion safety of nurses

Relation		**Practice**		**p**	**OR KTC 95%**
		Correct	**Incorrect**		
Knowledge	Correc	87(90.9)	8(9.1)	0.08	2.5(0.72 -8.99)
	Incorrect	20(79.4)	7(20.2)		

The above table shows that there is no statistically significant relationship between the knowledge score and the blood transfusion practice score of nurses in the skill test (p > 0.05).

DISCUSSIONS

General characteristics of the study sample

Through the analysis of 122 nurses participating in the skills contest in 2020, we commented that: female nurses are more dominant than men (64.8%), most of them are nurses in the age group over 30 years old (71.4%). more than two thirds of nurses have college and university degrees, accounting for 76.3%, and seniority of work ≥ 10 years accounted for 65.8%.

Knowledge of blood transfusion

Blood transfusion is an indispensable treatment method in many specialties[6]. However, blood transfusion can also lead to many consequences for patients such as: acute hemolysis, hypersensitivity reactions, infection, acute spectrum edema due to circulatory overload, thrombosis, if the safety of blood transfusion is not ensured. told[7]. Therefore, each medical staff has an important role in reducing the risks caused by blood transfusion, ensuring continuous updating of knowledge and skills for themselves to serve the process of caring for patients.

In this study, it was found that the majority of nurses had common knowledge in blood transfusion safety, accounting for 77.8%, this result compared to the study of the author Doan Thi Truc Ly is equivalent (78.8%)[7], but compared with the results in the study of the author Pham Thi Ha et al (60.5%) is higher[1], and also higher than the results in the study of author Kobra Noryan on blood transfusion knowledge of nurses at Shahrekord University Medical Training Center with good knowledge is 16.2%, the

average is 59%, the remaining 24.8% has poor knowledge. on blood transfusion[8].

The nurse's poor knowledge about blood transfusion safety will affect the clinical practice of blood transfusion during medical examination and treatment. However, a study by the authors Asmaa Hamed Abd Elhy and Zeinab Abdel Aziz Kasemy on assessing the knowledge of nurses in blood transfusion at Menoufia University Hospital showed that up to 61.2% of nurses had a satisfactory knowledge of blood transfusion at Menoufia University Hospital. on blood transfusion[9]. This result is much lower than the result of our study. This disparity may be because our sample is smaller than the author's, and or our professional qualifications are also different from that of the author.

Practice on safety of blood transfusion

Although complications can occur during blood transfusion, a good and effective implementation of a blood transfusion safety program in health facilities contributes to a significant reduction in blood transfusion. List the above complications. Transfusion safety is that the recipient of blood achieves a therapeutic effect without being affected by the adverse events brought about by blood transfusion. Thus, the safety of blood transfusion is safe for blood donors, blood recipients and related medical staff. The results of this study show that 87.8% of practicing nurses have a common score in blood transfusion safety, this rate is equivalent to 86% compared with the results in the study of Pham Thi Ha et al., higher than the rate in the study of Doan Thi Truc Ly (42.2%)[7]. Table (3) shows that most nurses perform cross-reaction at the bed before blood transfusion, accounting for 89.3%, this result of Doan Thi Truc Ly accounted for 90.8%[7]. Trinh Xuan Quang's research accounts for 80%[5], our ratio compared with Doan Thi Truc Ly, Trinh Xuan Quang is appropriate. Research results show that 87.7% of nurses have biological reactions when transfecting blood. This result is higher than the study of Phan Thi Kim Hoa at Dinh Quan area general hospital, accounting for 66%[2] but compared to this result of Doan Thi Truc Ly (87.2%) is the same[7]. Cooling of blood before transfusion is not more than 30 minutes after receiving blood from the laboratory is also very important, accounting for 81.1%. This result is higher than the study of Doan Thi Truc Ly at 57.8%[7], of Trinh Xuan Quang accounted for 56.5%[5]. This difference may be that the professional qualification of our nurses in the study has the majority of colleges and universities 76.3%. In the study, 90.1% of nurses knew that the task of monitoring the patient during blood transfusion was the doctor and nurse's responsibility. This result is higher than the study of Doan Thi Truc Ly (62.4%)[7], and the study of Trinh Xuan Quang with (78.4%)[5]. 96% of the nurses knew that the first thing to do when there was an abnormality in blood transfusion was to stop the blood transfusion immediately. This result in the study of Doan Thi Truc Ly is 94.5%[7], of Trinh Xuan Quang accounted for 92%[5]. Our results compared to Doan Thi Truc Ly or Trinh Xuan Quang are equivalent. In general, the rate of results of safe practice in blood transfusion in this study compared with the results of some domestic authors is higher, but the rate of overall practice scores is appropriate[10].

CONCLUSIONS

Knowledge of blood transfusion safety of nurses accounted for 77.8%.

Practice on blood transfusion safety of nurses accounted for 87.7%.

There is a statistically significant relationship between knowledge of blood transfusion safety and general characteristics of nurses. There is no statistically significant relationship between the knowledge score and the practice score on blood transfusion safety of nurses.

RECOMMENDATIONS

Nurses actively participate in training courses, seminars, update knowledge and practice on blood transfusion safety fully.

Nurses strictly follow the steps in the safe blood transfusion process, improve self - discipline and sense of responsibility.

The nursing room and the head nurses of the clinical departments have strengthened the inspection and reminded the compliance with the Safe Procedures and Techniques in blood transfusion at the hospital.

REFERENCES

1. Pham Thi Ha, Tran Thi Chi Na, Lam Thi Hanh, Bui Thi Kim Dung, Nguyen Thi Hang (2019), Assessment of the knowledge and practice of safe blood transfusion of nurses before and after training at the system departments Internal Medicine at Thai Binh provincial General Hospital in 2019, Journal of Nursing Science, volume 03(04), pp. 70-76.

2. Phan Thi Kim Hoa, Hua Hong Tai (2014), Survey of nurses' knowledge of blood transfusion safety at Dinh Quan Regional General Hospital, Dong Nai 2014.

3. Jordanian (2012). Measuring Knowledge of Blood Transfusion. American International Journal of Contemporary Research Vol. 2 No.10; October 2012, pp.77-94.

4. Do Trung Phan (2006), Lecture on hematology - blood transfusion, Medical Publishing House, Hanoi, pp. 298-395.

5. Trinh Xuan Quang et al. (2009), Knowledge and practice of blood transfusion safety of nurses at Tien Giang General Hospital in 2009, Journal of Practical Medicine,14(4), pp. 227-233.

6. Trinh Xuan Quang et al (2009). Survey on knowledge and practice of blood transfusion safety of nurses at Tien Giang General Hospital. Journal of Medical Research.

7. Doan Thi Truc Ly (2017), Survey on knowledge and practice of blood transfusion safety of nurses at Can Tho City General Hospital in 2017, Bachelor of Nursing Thesis, Western University Do, pp 24-27.

8. Kobra Noryan, Shanhram Etemadyfar, Yosef Aslain (2004). Nurses' knowledge of blood transfusion in medical training centers of Shahrekord University of Medical Science.

9. Asmaa Hamed Abd Elhy, Zeinab Abdel Aziz Kasemy (2017). Nurses' Knowledge Assessment Regarding Blood Transfusion to Ensure Patient Safety.

10. Ministry of Health (2012). Summary of scientific and technological results of the research project on building a blood transfusion network plan in Vietnam for the period 2011 - 2020, pp. 2-11.