

Assessment nurses' knowledge level about procedure of blood transfusion

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ABSTRACT

Background: Nurses' role is warned to view blood transfusion responsibilities, and able to identify the nursing required to care for patients receiving a blood transfusion so that they can develop their skills. The aimed of the study to assess nurses' knowledge level procedure of blood transfusion.

Materials and method: A descriptive study approach was carried out at Al-Salam teaching hospital in Mosul city. A random sample consists of (130) nurses, the questionnaire was used for data collection, it include two parts. Part one was demographic data, and Part two including (16) questions for nurses' knowledge of blood transfusion. Content validity was determined by presenting the items to a panel of (10) experts, and used the Coefficient Correlation for questionnaire items showed that the reliability of the questionnaire which was ($r = 0.90$).

Results: The study finding that there average of true answers (64%), while (36%) false answers of nurses' knowledge of blood transfusion procedure for the patient. Also the present study indicates (65%) of nurses have good knowledge and (35%) of nurses has poor knowledge about procedure of blood transfusion.

Conclusions: The present study showed that a third of nurses' have poor knowledge of blood transfusion, and finding a significant relationship between the nurses knowledge and level of education, also a significant relationship between the nurses' knowledge and course trainings.

Keywords: Assessment, Nurses Knowledge, Blood Transfusion.

INTRODUCTION

Nurses play a crucial role in the administration of blood transfusions (Hijji *et.al.*, 2005), and play a significant role in correct, scientific and safe usage of blood and its components, and if they can do it correctly, the probability of incidence of blood transfusion risks will be reduced to a minimum (Saillour-Glenisson *et.al.*, 2002). The aim of blood and blood components, transfusion in medical treatments is to provide suitable and safe blood products to achieve better clinical outcomes (Ghareh-baghian *et.al.*, 2006). Blood transfusion is an essential part of modern health care services. If blood transfusion is used correctly it can save lives and improve treatment outcomes. Improper use of blood and blood products may cause acute or delayed complications. Poorly screened blood also carries the risk of transmitting infectious blood-borne agents such as HIV, Hepatitis viruses, syphilis and malaria (WHO, 2007). Studies showed that nurses and nursing students do not have sufficient information and correct performance suitable to the importance of the issue (Mole *et. al.*, 2007). All nurses must have the ability to administer blood components safely. Blood transfusion, however, is a complex, multi-step process and there is potential for error at each stage. That the most common risk reported was the transfusion of the wrong blood component (Smith *et. al.*,

2010). Lack of knowledge of various aspects of blood transfusion by clinical staff, including nurses, continues to be a real threat to patient safety (Taylor *et. al.*, 2010). Warming blood or blood products is not normally necessary. It is often sufficient to keep patients warm during transfusion; however, when numerous units of blood are administered quickly, it may be necessary and/or desirable to warm the blood products (JVLHSC and St. Joseph's HCL, 2012). Making mistakes in blood transfusion and insufficient control of patients who receive blood during the transfusion are among the causes of death for such patients (Clark *et.al.*, 2001). Since there is no substituting product for human blood, the need for blood transfusion is still continuing (Bayraktar *et.al.*, 2000). More than 50% of patients hospitalized in intensive care units and 50% to 70% of patients in surgical and orthopedic wards need a blood transfusion (Goodnough *et.al.*, 2000). The study aims to identify the level of nurses' knowledge about procedure of blood transfusion. It also objects to assess the relationship between the nurses' knowledge and demographic data (age, sex, educational level, workplace, tenure years, and training course).

MATERIALS AND METHOD

A descriptive study approach was carried out at Al-Salam teaching hospital in Mosul city.

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After obtaining the required approvals the data collection started on 15th December 2012 to 1st March 2013. Al-Salam teaching hospital located on the left side of Al-Mosul city established in the year 1985 and consists the following: emergency department, outpatient department, pediatric emergency, pediatric department, surgical ward, urinary ward, maternity unit, operation theaters, orthopedic ward, ultrasound department, and laboratory. A random sample consists of (130) nurses, the questionnaire was used as a means of data collection, it include two parts. Part one was demographic data, and part two including (16) questions for nurses'

knowledge of blood transfusion, and the questionnaire constructed from the previous literature (WHO, 2005). Content validity was determined by presenting the items to a panel of (10) experts from the college of nursing, and Al-Salam teaching hospital. Reliability of questionnaire was determined through the use of the Coefficient Correlation which was ($r = 0.90$). The data collected by using interviews, and were analyzed by (SPSS version 16) than using the descriptive statistical data analysis that includes frequency, and percentage, and inferential statistical data analysis that include mean, standard deviation and ANOVA.

RESULTS

Table (1): Distribution socio-demographic data of the whole study sample

Socio Demographic Data		Frequency	Percentage
Age M= 32.65 S.D=8.06	20-29 Year	50	39
	30-39 Year	55	42
	40-49 Year	16	12
	50-59 Year	9	7
Total		130	100
Sex	Male	90	69
	Female	40	31
Total		130	100
Educational level	Nursing School	8	6
	vocational preparatory nursing school	59	45
	Nursing Diploma	41	32
	Nursing B.SC	22	17
Total		130	100
Work-place	Gynecological Ward	31	24
	Surgical Theatre	26	20
	Surgical & Medicine Ward	48	37
	Emergency Department	25	19
Total		130	100
Training years	Less Than 1 Year	38	29
	1-10 Years	57	44
	11-20 Years	19	15
	21-30 Years	16	12
Total		130	100
Training course	Yes	32	25
	No	98	75
Total		130	100

Table (2): Relationship between mean nurses' knowledge and socio-demographic data

Variables	S.O.V	S.S	D.F	M.S	F	P. value 0.05
Age	Between Groups	0.047	3	0.016	2.746 F critical=3.00	N.S
	Within Groups	0.718	126	0.006		
	Total	0.765	129			
Sex	Between Groups	0.003	1	0.003	0.518 F critical=3.84	N.S
	Within Groups	0.762	128	0.006		
	Total	0.765	129			

Level education	Between Groups	0.064	3	0.021	3.847 F critical=3.00	S
	Within Groups	0.701	126	0.006		
	Total	0.765	129			
Work place	Between Groups	0.013	3	0.004	0.735 F critical=3.00	N.S
	Within Groups	0.752	126	0.006		
	Total	0.765	129			
Tenure years	Between Groups	0.041	3	0.014	2.370 F critical=3.00	N.S
	Within Groups	0.724	126			
	Total	0.765	129	0.014		
Training course	Between Groups	0.026	1	0.26	4.433 F critical=3.84	S
	Within Groups	0.740	128			
	Total	0.765	129	0.006		

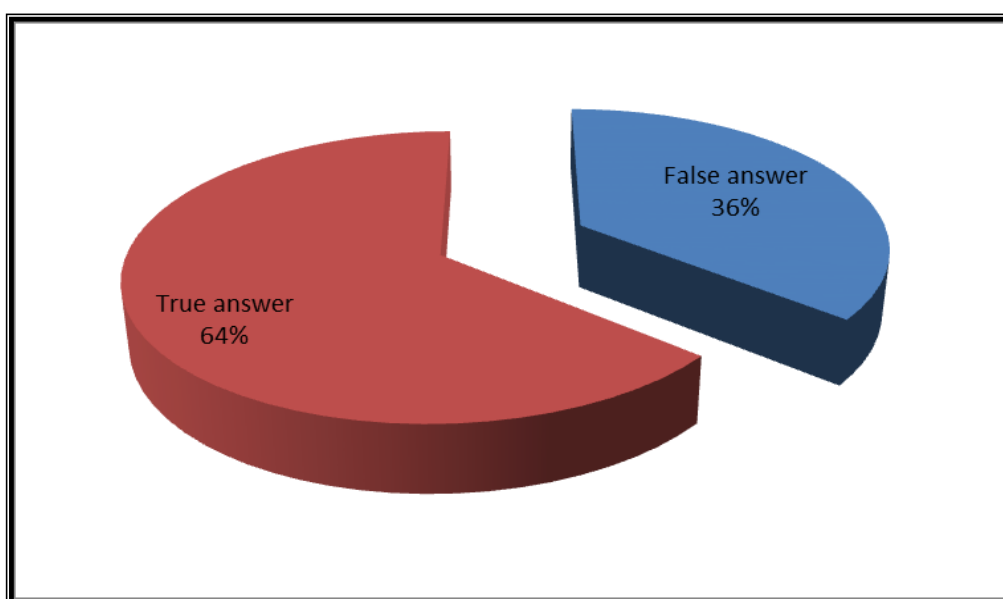


Figure (1): The level of nurses' answers about the blood transfusion

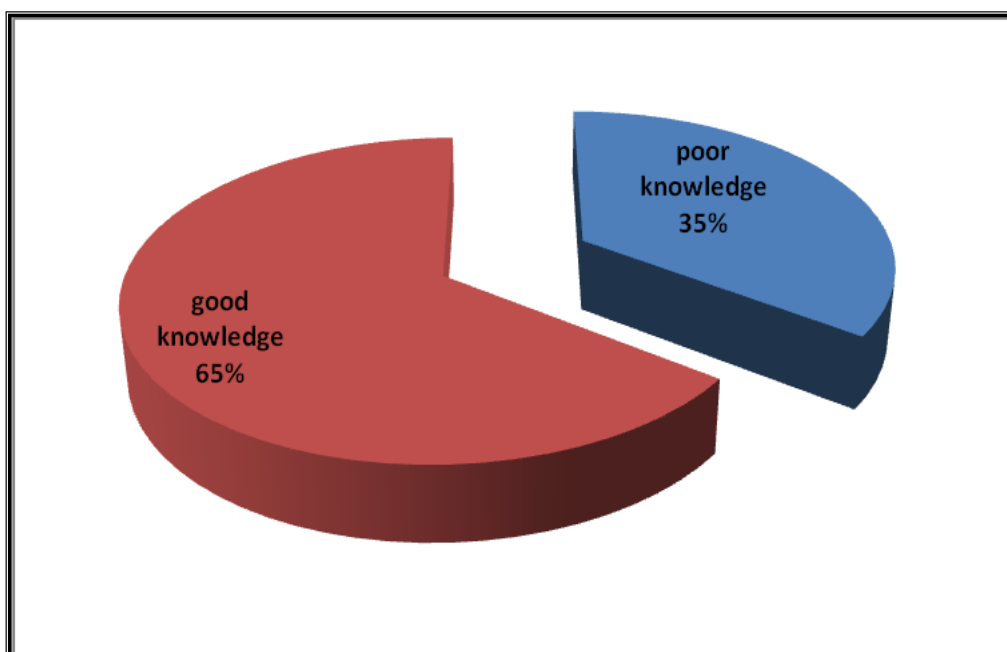


Figure (2): The level of nurses' knowledge about the blood transfusion

DISCUSSION

Nurses have an important role in a safe blood transfusion. Therefore, it is crucial for nurses have sufficient knowledge of situations, amount and methods of using blood components, possible side effects and necessary cares. This study investigated nurses' knowledge of blood transfusion. Table (1) in the present study shows the higher participation of nurses in the study was (42%) among the age group (30-39) years, and the lowest percentage was (7%) for the age group (50-59) years. According to sex the male was (69%) more than female. In relation to educational level (49%) the vocational preparatory nursing school, while (3%) was nursing school. The work place represented the highest percentage was surgical and medicine ward (37%), and the lowest percentage was an emergency department (19%). Concerning to tenure years the period between (1-10) years (39%) show the highest percentage, and the period (21-30) years (12%) was lower percentage. Finally, higher percentage (75%) of nurses does not participate in the blood transfusion course, the remaining (25%) are participating in the blood transfusion course. The present study shows the false answer of nurses about the questions related to temperature to blood storage, if given a unit of blood to the patient escorts to warm, measure the vital signs before one hour of the blood transfusion process, how nurse giving the blood slowly to patient, Monitor the patient's vital signs every (30) minutes during the first hour of the blood transfusion process. Table (2) shows a significant relationship between the nurses' knowledge and educational level, and training course of blood transfusion, while indicating no significant relationship between nurses knowledge and age, sex, work place, and tenure years by using ANOVA test. A study by Aslani, Etemadyfar, and Noryan (2010) showed that 37.2% of subjects were aged between 23-25 years, 31.4% were 26-33 year-old and 31.4% were 34-56 year-old. Regarding career history, 43.7% had 1-3 years of work experience, 28.7% had 4-10 years and 27.6% had 11-28 years. Also, 83% of subjects were women and 17% were men. The educational degree of 7.8% was health diploma, 6.9% had a college degree and 85.2% had a bachelor of nursing. However, (36.8%) of the nurses got a score of (18.33) out of 29 in knowledge and information, which was higher than the average (Aslani *et.al.*, 2010). Three hundred and five nurses (95.3%) completed the questionnaire, of whom 189 (62%) were female.

The age of most of them ranged between 21 and 30 years ($n = 241$, 79%). Approximately, two thirds of the nurses ($n = 200$, 68%) were those with five years of clinical experience or less, while 32 (10.8%) had an experience of ten years or more ($n = 32$, 10.8%). Data were missing from 9 nurses. Two hundred forty nine nurses (82%) had a Bachelor of Nursing degree; 13 (4%) had a Master in Nursing; while the remaining nurses ($n = 39$, 13%) held a diploma in general nursing ($n = 36$), diploma in midwifery ($n = 2$), and bachelor of midwifery ($n = 1$). Data were missing from 4 nurses. During the past 6 months preceding data collection, 272 nurses (89%) administered blood transfusions with a frequency that ranged from 1-4 times to more than 12 times. However, the majority of nurses ($n = 279$, 92.4%) reported that they had never received any in-service training on blood transfusion, with only 100 (33%) of them reporting a perceived need for training in blood administration (Hijji *et. al.*, 2012). Figure (1) shows that the level of nurses' answers about the blood transfusion questionnaire, this figure indicate the highest percentage of the correct answers of nurses was (64%), while (36%) represented the false answers of nurses. Figure (2) shows that the level of nurses' knowledge about blood transfusion, this figure shows the higher percentage of good knowledge was (85, 65%), while poor knowledge was (45, 35%). A study by Hijji *et. al.* (2012) indicates the nurses "knowledge scores were scaled to 100% and ranged from 14% to 70% (mean 51.8, SD 7.21). This means that none of the nurses answered all questions correctly. One hundred and ninety nurses (62%) had a score of 50 or above, while 115 (38%) obtained a score of less than 50%. Some nurses explicitly stated "I do not know" when responding to some items (Hijji *et.al.*, 2012). Another study in Turkey by Bayraktar and Erdil (2000) showed most nurses had a score of 50 out of 100 for knowledge and performance, which means average score. In France, nurses' knowledge and performance in this field was reported weak and the lowest level of knowledge was at the time of blood transfusion that was related to the lack of identifying patients and identifying the required components in 54% of cases (Saillour-Glenisson *et.al.*, 2002). Teimouri *et. al.* (2006) showed that nurses' knowledge did not have correct and scientific knowledge of indications and method of heating blood.

CONCLUSIONS

The study showed that a third of nurses' have poor knowledge of blood transfusion procedure. Also finding a significant relationship between mean nurses' knowledge and level of education and course trainings, while it showed no significant relationship between mean nurses knowledge and age, sex, work place, and tenure years of blood transfusion for patients.

RECOMMENDATIONS

The study recommended activation of a blood transfusion committee in hospitals to control reports of blood transfusion and its components as well as possible complications in wards. Develop and execute in-service training programs for personnel emphasizing the weak points to increase their information and knowledge and continuously supervise this task. Application other research may conduct to evaluate, and assess practices of procedure for blood transfusion among nurses in hospitals of Mosul city.

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