National Journal of Advanced Research
ISSN: 2455-216X; Impact Factor: RJIF 5.12
Received: 26-03-2020; Accepted: 16-04-2020; Published: 23-04-2020
www.allnationaljournal.com
Volume 6; Issue 2; 2020; Page No. 04-07

Knowledge, Attitude and practice of intensive care unit (icu) nurses regarding care of central venous catheter in omdurman military hospital, Khartoum state, Sudan, (2016-2019)

Marwa Adam Abdelrhman Adam[1], Magda Elhadi Ahmed Yousif[2]
[1] BSc in nursing (2011), Alzaiem, Alazhari University, MSc in Community Health Nursing (2015), University of Gezira, Sudan
[2] Professor of Community Medicine, Director of Primary Health Care and Health Center, Faculty of Medicine, University of Gezira, Sudan

Abstract
Central venous catheters (CVCs) are life-sustaining devices but are associated with a risk for infections that can increase morbidity and mortality, Infections associated with intravascular catheters account for 10% to 20% of all nosocomial infections. The mean rate of CVC-related bloodstream infection in the intensive care unit (ICU) is 5.3 per 1000 catheter days From 10% to 70% of all CVC-related infections are preventable, therefore based guidelines have been publish (Galpern, D., Guerrero2013), this study was conducted to study knowledge, Attitude and practice of intensive care unit (ICU) nurses regarding care of Central Venous Catheter in Omdurman military hospital, Khartoum State, Sudan, (2016-2019.)Total of 150 intensive care unit nurses in Omdurman military hospital were selected, A well-structured questionnaire for interviewing the respondents,Check list will include the nurse's practice regarding central venous catheters, data was analyzed using statistical package of social science (SPCC). 55% of the participant using stander precautions in pretest and they improving in posttest by 60% regarding the hand washing compliancy the participant need more awareness and encouragement to perform proper hands washing only 40% of the participant performing hand hygiene before touching the patients, in the posttest 42% performing hand haygeine,53% of the participant performing hand washing after touching patients,in the posttest 39% only performing,20% of the respondent performing hand hygiene after early procedure which is minimum percentage and it is increased in posttest by 30%,37% of the respondent performing hand washing after removing gloves and the is alight improvement in posttest by 39%,55% of the participant aware about organisms that cause central venous catheter 24% of the participants aware about the factor associated with central venous Catheter infection,only 40% of pretest and posttest participant aware about the inserting the central venous catheter, the compliancy of hands hygiene increased from 20%in pretest participant to 30% in posttest participant, using of stander precaution increased from 23%-30%.the participant need more awareness regarding hand hygiene and use of stander precaution the study recommended that Cautiously updating the staff of infection control programmes and policies and Determine a clinical resource nurse to update and evaluate the staff regarding their knowledge and practice.

Keywords: ICU nurses, central venous cathetre, khowledge

1. Introduction
Central venous catheters (CVCs) are life-sustaining devices but are associated with a risk for infections that can increase morbidity and mortality, Infections associated with intravascular catheters account for 10% to 20% of all nosocomial infections. The mean rate of CVC-related bloodstream infection in the intensive care unit (ICU) is 5.3 per 1000 catheter days From 10% to 70% of all CVC-related infections are preventable, therefore, evidence-based guidelines have been publish (Galpern, D., Guerrero 2013). The guidelines for the prevention of intravascular catheter-related infections published by the US Centers for Disease Control and Prevention, provide recommendations for catheter care whose preventive value is supported by scientific research. Although the recommendations are evidence based, no adherence to them has been reported, (The Joint Commission, 2017) [2]. Infection of CVC leads to increased morbidity and costs in health-care systems. According to Graham *et al* infection with subclavian, jugular and femoral approach is associated to 4, 8.6, and 15.3/1,000 catheter-days, respectively. Femoral access has been shown to be associated with an increased risk of infection, but some authors suggest that there is no difference among the three puncture sites when the strict sterile technique is followed. Many types of dressing (gauze, transparent material, frequency of change) and care systems are described, although the optimal type cannot be recommended due to the lack of evidence. The use of medication-impregnated dressing (chlorhexidine gluconate and silver-alginate) reduces catheter colonization and catheter-related bloodstream infection, however, further research is necessary to assess the impact of these measures in CVC infectious complications. (Khanna NN, Jaypee; 2016)

Methodology
The Study Design
This interventional study design to structure a training framework, the study group given pretest and posttest questionnaire respondent given educational training and 10 days lecture Containing haw to deal with central venous catheter dressing.

Study Population
There were 200 registered nurses, working in different intensive care units at Omdurman Military hospital at the time of data collection. Nurses comprise the majority of workers in the Critical Care Units of Omdurman military hospital. These nurses came from different institutions bringing with them their varied training, education and experiences.

Sample Size
Sample size will consist of (150) nurses during the period of the study

Sample selection technique
The total population was 200staff nurses in the Omdurman military hospital. After the inclusion criteria have been met, 150 nurses were randomly selected by purposive sampling technique. The assignment for the respondents in each group was done through a random sampling technique. Sampling was done by the database and the self-administered questionnaires for ICU nurses. All the nurses in the different ICUs were listed in one Rotation Schedule. Experimental and comparison group were then selected from the same pool of potential participants in the ICU. It is important to note that the research acquired rich data, because the participants represented a range of, ages and years of critical care experience across a large critical care unit. Introduced.

Data Collection tools
Data will collect using the fallowing

1. A well-structured questionnaire for interviewing the respondents. The questionnaire will include information that covered the variables under study.
2. 2-Check list will include the nurse's practice regarding central venous catheter

Inclusion criteria
The study choose based on ICU Nurses graduated of bachelor in science in nursing (BSN) or higher, has a contract with the hospital or will stay at least for one year, has an ICU experience At least 1 Year. Nurses staff or a charge nurse has an depth experience in critical care knowledge.

Exclusion criteria
From the study all nurses worked out intensive care unit those nurses who will be resigning within the study period, also the study leave nurses having less than one year experience in intensive care unit.

Data Analysis
For the purposes of this study, the data will be analyzed through using statistical package for social sciences (SPSS).

Results and Discussions

Table 1: Signs of infection

	pre test		*post test*	
	Frequency	***Percent***	***Frequency***	***Percent***
Redness	30	20.0	30	20.0
Drainage	30	20.0	20	13.3
Pain	40	26.7	40	2.67
all above	50	33.3	60	40
Total	150	100.0	150	100.0

Table 2: Do you use slander precaution

	pre test		**post test**	
	Frequency	***Percent***	***Frequency***	***Percent***
proper hand washing	45	30	40	26.66
use alcohol when washing	20	13.3	20	13.3
body fluid controlled	30	20.0	30	20.0
all above	55	36.7	60	40
Total	150	100.0	150	100.0

Table 3: When do you wash hands?

	pre test		*post test*	
	Frequency	***Percent***	***Frequency***	***Percent***
before touching the patient	40	26.7	42	28
After touching the patient	53	35	39	26
after early procedure	20	13.3	30	20
wash your hand immediately after taking off your gloves	37	24.6	39	26
Total	150	100.0	150	100.0

Table 4: The organisms most likely to cause a central venous catheter related bloodstream infection

	pre test		**post test**	
	Frequency	***Percent***	***Frequency***	***Percent***
Staphylococcus epidermis's	30	20.0	24	16.0
Staphylococcus aurous	30	20.0	31	21.0
Candida albinos	20	13.3	20	13.0
Klebsiella pneumonia	25	16.7	30	20.0
All above	45	30	45	30
Total	150	100.0	150	100.0

Table 5: Inserting the catheter, all the necessary equipment should be available

	pre test		**post test**	
	Frequency	**Percent**	**Frequency**	**Percent**
central line kit	20	13.33	20	13.3
normal saline and heparin	20	13.33	30	20.0
Sutures	30	20.0	35	23.3
chest X-ray to check accurate position	20	13.33	30	20.0
strict aseptic precautions	25	16.7	15	10.0
All Above	35	23.3	20	13.3
Total	150	100.0	150	100.0

Table 6: Factors associated with increased risk

	Pretest		**post test**	
	Frequency	**Percent**	**Frequency**	**Percent**
Prolonged hospitalization before catheterization	15	10.0	20	13.33
Prolonged duration of catheterization	30	20.0	30	20.0

Heavy microbial colonization at insertion site	34	22.7	20	13.33
Heavy microbial colonization of the catheter hub	10	6.7	15	10.0
Internal jugular catheterization	10	6.7	5	3.3
Femoral catheterization in adults	13	8.7	15	10.0
Total parenteral nutrition	14	9.3	10	6.7
All above	24	16	35	23.33
Total	150	100.0	150	100.0

Table 7

	pre test		post test	
	Frequency	**Percent**	**Frequency**	**Percent**
monitor central venous pressure in critically ill patients	20	13.3	30	20.0
the rapid administration of intravenous fluids	30	20.0	30	20.0
the administration of drugs, such as antibiotic therapy and cytotoxic drugs	30	20.0	35	23.33
the administration of parenteral nutrition	30	20.0	15	10
All above	40	26.66	40	26.7
Total	150	100.0	150	100.0

Table 8: Decreasing central venous catheter related bloodstream infections

	pre test		post test	
	Frequency	**Percent**	**Frequency**	**Percent**
Hand Hygiene	20	13.3	20	13.3
Maximal Barrier Precautions Upon Insertion	23	15.3	30	20.0
Chlorhexidine Skin Antisepsis	15	10.0	10	6.7
Optimal Catheter Site Selection, with Avoidance of the Femoral Vein	25	16.7	25	16.7
Central Venous Access in Adult Patients	28	18.7	25	25
Daily Review of Line Necessity with Prompt Removal of Unnecessary Lines	39	26	40	26.7
Total	150	100.0	150	100.0

Discussion

- there's improving of the participant knowledge about the infection control sings
- 55% of the participant using stander precautions in pretest and them improving in posttest by 60%
- regarding the hand washing compliancy the participant need more awareness and encouragement to perform proper hands washing only 40% of the participant performing hand hygiene before touching the patients, in the posttest 42% performing hand haygeine,53% of the participant performing hand washing after touching patients,in the posttest 39% only performing,20% of the respondent performing hand hygiene after early procedure which is minimum percentage and it is increased in posttest by 30%,37% of the respondent performing hand washing after removing gloves and the is alight improvement in posttest by 39%
- 55% of the participant aware about organisms that cause central venous catheter
- 24% of the participants aware about the factor associated with central venous Catheter infection
- only 40% of pretest and posttest participant aware about the inserting the central venous catheter
- the compliancy of hands hygiene increased from 20%in pretest participant to 30% in posttest participant, using of stander precaution increased from 23%-30%.the participant need more awareness regarding hand hygiene and use of stander precaution.

Recommendations

1. Conutiosly updating the staff of infection control programmes and policies.
2. countiously evaluation the staff of infection control examinations.
3. Attaching posters and posts consisting of infection.
4. Control practice including the five moment, hand washing and hand rubbing.
5. increasing the infection control committee and improve their practice
6. Encourage staff to attend infection control symposiums and courses.
7. Availability of equipment and solutions needed during handwashing and inserting of central venous catheters.
8. Determine a clinical resource nurse to update and evaluate the staff regarding their knowledge and practice.

Acknowledgements

Firstly, my thanks go to the almighty God for giving me the courage for the preparation, writing and assembling of my study in the way I planned. I thank Gezira University, Faculty of Medicine for the great work they gave to us. I am deeply indebted to and grateful for my first supervisor Prof majda ahmed Elhadi fir her helpful advice and valuable suggestions at the various stages of the research and for her ultimate consultation. My deepest thanks also go to my collages and sisters for their support

References

1. Centers for Disease Control and Prevention. Guidelines for the prevention of intravascular catheter-related infections. MMWR. 2002; 51(RR10):1-28.
2. The Joint Commission. Comprehensive Accreditation Manual for Hospitals: The Official 8-Handbook. Standard NPSG.07.04.01. Oakbrook Terrace, Il. The Joint Commission, 2009.
3. Maki DG, Mermel LA, Kluger D. The efficacy of a chlorhexidine impregnated sponge (Biopatch) for the prevention of intravascular catheter-related infection- a prospective randomized controlled multicenter study

[Abstract]. Presented at the Interscience Conference on Antimicrobial Agents and Chemotherapy. Toronto, Ontario, Canada: American Society of Microbiology, 2000.

4. Stevens V, Geiger K, Concannon C, Nelson RE, Brown J, Dumyati G. "Inpatient costs, mortality and 30-day re-admission in patients with central-line-associated bloodstream infections." Clinical micro biology and infection: the official publication of the European Society of Clinical Microbiology and Infectious Diseases. 2014; 20(5):O318-24. Epub 2013 Nov 06