



Nurses' knowledge regarding infection control in intensive care unit (ICU) in Omdurman military hospital in Khartoum State, Sudan, 2014

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Abstract

Nosocomial infections are considered to be one of the important unsolved problems around the world. A lack of knowledge regarding infection control among nurses decreases compliance with these practices around the world. This descriptive hospital-based study was conducted in Omdurman Military Hospital, It aimed at assessing knowledge of nurses regarding infection control in Intensive Care Unit (ICU). The study covered 30 nurses. They constitute the available sample during the study period 2014-2015. Data were collected by a questionnaire designed for the study. Data were analyzed using the Statistical Packages for Social Sciences (SPSS). The results showed that (40%) of the study sample washed their hand after any procedure, (50%) of the study sample did not use gown before touching the body fluid. (6%) washed their hands as soon as they come, (26.7%) washed their hands before going to patients, (43.3%) of respondents wearing gloves when touching body fluid (50%) of respondents used personal protective measures (40%) of the study sample kept equipment and supplies sterile (26.7%) of the respondent use a septic technique when inserting intravascular catheters, (53.3%) of respondents replaced tubing used in blood, blood product within 24 hours to avoid infection and occlusion the sets of fluids. Knowledge about infection control were inadequate. The study concluded that knowledge of intensive care unit nurses staff could be improved by providing them with well-organized practical training. The study recommended that there is providing training programs for the newly joined ICU nurses about infection control precautions at regular intervals is recommended.

Keywords: knowledge, infection, ICU, military

Introduction

Hospital-acquired infections can be caused by bacteria, viruses, fungi, or parasites. These microorganisms may already be present in the patient's body or may come from the environment, contaminated hospital equipment, health care workers, or other patients. Nosocomial infections are transmitted due to the fact that hospitals house large numbers of people who are sick and whose immune systems are often in a weakened state. Moreover, some medical procedures bypass the body's natural protective barriers. Since medical staff moves from patient to patient, the staff themselves serves as a means for spreading pathogen. Every year, many lives are lost because of the spread of infections in hospitals. nurses can take steps to prevent the spread of infectious diseases. Infection controls the discipline concerned with preventing the spread of infections within the health-care setting. Infection control concerns itself both with prevention and with investigation and management of demonstrated or suspected spread of infection within a particular health-care setting. Intensive care units (ICUs) carry high risk for nosocomial infection contributing to an increasing morbidity, mortality and health care cost. In order to limit the incidence of nosocomial infection health care providers should adopt aggressive infection control measure. In (2008), the central for disease control and prevention and the national health care safety network (NHSN) collaborate to health care assassinated infection (HAI) as localized or systematic condition result from infectious agent or it toxin. (Horn TC, Andrus S M, Dudeck MA, 2008) [1].

The infection control knowledge among the nurses was fairly good; however, there is still a wide scope of improvement with regular educational programs and in-house training, awareness and experiences as quick as possible to save patients' lives. They are also required to permanently seek to increase their knowledge and awareness. Therefore, increasing knowledge. Continuous educational programs are necessary for empowerment of nurses to maintain their current skills and theoretical knowledge nurses provide advanced critical care to those patients in ICU. The patients who are admitted to ICU are those having weakened immune system and are more prone to nosocomial infections. Many studies shows that hospital acquired infection or nosocomial infections is one of the major causes for the mortality rate, increased length of stay in the hospital and high cost of treatment among ICU patient. ICU nurses can impart high quality care for the patients if they have an increased knowledge about infection control. Aseptic techniques performed by the ICU nurses can reduce the mortality rate and increased length of hospital stay. (Klevens RM, Edwards JR, 2007).

Problem Statement

World Wide Over half of the patients in intensive care units (ICUs) had some kind of infection. Patients who had been in the ICU longer had higher infection rates, particularly from resistant staphylococci, *Acinetobacter*, *Pseudomonas species*, and *Candida*. The ICU mortality rate for infected patients was 25 percent compared to 11 percent for non-infected ICU patients; in-hospital mortality rates were 33

and 15 percent, respective Infections are common in patients in contemporary ICUs, and risk of infection increases with duration of ICU stay. Infection was independently associated with an increased risk of hospital death, A recent study looked at the rate of HAI in a single day of more than 1,200 intensive care units in 75 countries around the world. (WHO). 2010)

In Developed Countries

ICU prevalence rates of HAI in developed countries range from 9-37% in Europe and USA with crude estimates of mortality rates from 12-80%. In ICU settings, the use of invasive devices is one of the most important risk factors for acquiring HAI. Catheter related bloodstream infections caused by MRSA may cause US\$ 38,000 per episode (Scout News, LLC, 2009).

In Developing Countries

Device associated infections in the ICUs of these developing countries pose greater threats to patient's safety than in US ICUs. Hospitals in the developing countries lack in awareness of infection control programme as millions of nosocomial infections occurs around the world and experts suggest that adhering to established infection control programme could prevent these health care centers can establish a system for case finding and initiate the maintenance of baseline infection rates for the entire to control nosocomial infection (WHO (2010).

Justification

This study was conducted to reduce infection in ICU and to improve ICU nurses the level. consequently, the purpose of the present study was to improve the level of knowledge and appropriate use of disinfection procedures of nurse's awareness regarding infection. The reduction of infection in ICU is a key international goal. Evidence health to reduce sepsis deaths need reliable and valid information specially because the majority of causes are preventable (WHO, 2007).

Objectives

1. General Objective

To study knowledge of critical care nurses regarding infection control in ICU in Omdurman military hospital during the period of study.

2. Specific Objectives

1. To assess the level of knowledge of staff nurses regarding infection control measurers
2. To identify infection prevention and control guidelines as necessary measures in reducing infection
3. To provide nurses with an update of evidence-based infection control measure

3. Materials and Methods

3.1 The Study Design

This descriptive study was carried out Omdurman Military Hospital in Khartoum.

3.2 The Study Area

The participants were selected from Omdurman Military Hospital, the medical corps was established as a unit of the Sudanese army in February 1956, that is, immediately after independence. Before that, the medical services in the

armed forces were handled by volunteer doctors. The first military hospital started to provide its services from Al Ashlaq Al Shamali (currently the dormitories of the University of Khartoum) and then moved to the General Command. The study area selected from *all high dependency units at Established in 2010 under the flagship of Sudan ministry of defense, it is now one of the largest hospitals in the Sudan. The hospital has emerged as an important healthcare institution, providing state-of-the-art emergency and critical care services.*

Department of Omdurman Military Hospital

Omdurman Military Hospital contains (trauma room. hot area, cold area. outpatient clinic, dressing room, triage, medicine word, surgical words, VIP wards, intensive care unit, theater, laboratory, blood bank, pharmacy-ray, CT-scan, 3ambulance, engineering, diet therapy, kitchen and management department

Table 1: Distribution of Manpower in Omdurman Military Hospital (Emergency Department)

Position	Number
Consultants	9
Registrars	6
Medical Officers	31
House Officers	76
Nutritionist	6
Registered Nurses	144
Midwives	29
Anesthetist	10
Theatre Attendants	16
Assistants' pharmacists	27
Pharmacist	11
ICU registered Sisters	30
Total	405

Source: Statistical Department of Omdurman Military Hospital 2014

3.3 Study Population

The sample of this study consisted of two categories as follows: All currently working nursing staff at Omdurman Military Hospital including 30 nurses

3.4 Sample Size

Sample size consisted of (30) nurses

3.5 Data Collection tools

Data was collected using a well-structured questionnaire for interviewing the respondents. The questionnaire contained information that covered the variables under study; the questionnaire contains personal data

3.6 Data Processing and Analysis

The data were checked, verified and analyzed using the Statistical Packages for Social Sciences (SPSS)

Ethical Considerations

The researcher took permission from the hospital of the study with an official letter from the Faculty of Nursing Sciences to the director of the hospital with the agreement of the target population, every individual observed once. Verbal consent from the interviewed persons was also taken after explaining the study and its objectives to them. Confidentiality was given consideration and the information is used for the research purpose only.

3.7 Data Analysis

For the purposes of this study, the data were coded, processed and transferred to computer coding. The descriptive analytical method was adopted which includes percentage, means, frequency distribution, tables and figures. SPSS was applied to determine the relationship between the independent variables and dependent variable

Result

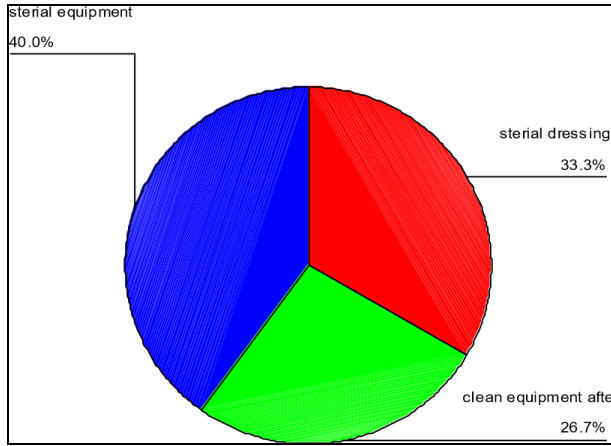


Fig 1: Distribution of the Study Sample According to Knowledge of Keeping Equipment and Supplies Sterile Figure

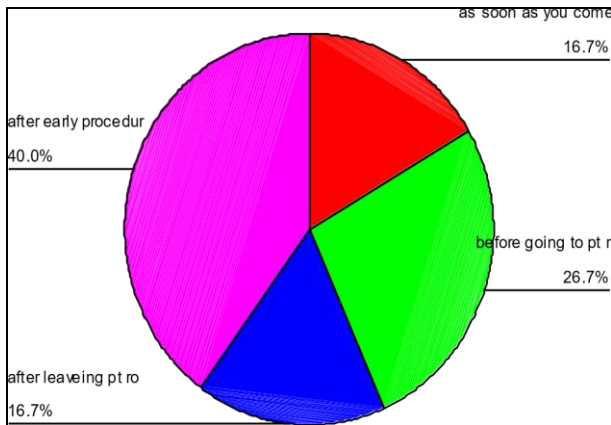


Fig 2: Distribution of the Study Sample According to Hand Washing

Figure 2. illustrates that (40%) of the study sample washed hands after any procedure

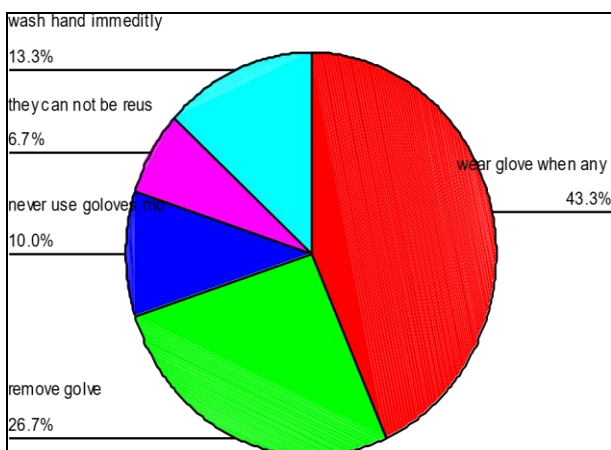


Fig 3: Distribution of the Study Sample According Gloves Wearing

Figure 3. illustrate that (43.3%) of the study sample were gloves when touching body fluid

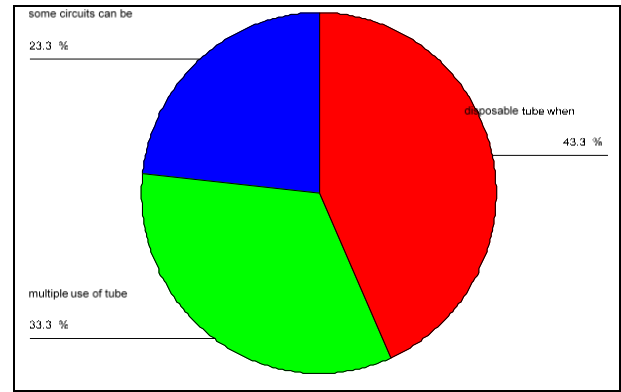


Fig 4: Distribution of the Study Sample According to Knowledge about Ventilator Circuits

Figure 4. illustrate that (43.3%) of the study sample dispose tubes when become contaminated or mal function.

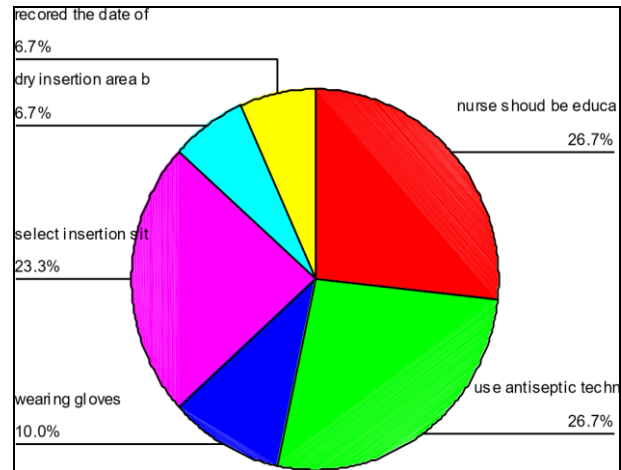


Fig 5: Distribution of the Study Sample According to Knowledge about Insertion of Intravenous Catheter

Figure 5. illustrates that of the study sample only 10% wore gloves, 26% used antiseptic technique and 23% selected insertion site.

Discussion

ICU nurses can impart high quality care for the patients if they have an increased knowledge about infection control. Aseptic techniques performed by the ICU nurses can reduce the mortality rate and increased length of hospital stay. The main findings of this study revealed that most respondent in this study were females (76.3%), (86.7%)were having bachelor degrees, (60%)of respondents attended training programs on infection control in intensive care unit and (40%) did not attend.(63.3%)has 5-10 beds in the intensive care unit, all there's pondentsknew the definition of infection, (83.3%) of the respondents knew the infection control definition, (85%) of the respondents knew how to keep the environment clean by cleaning the rooms, other respondents mentioned that clean the sanitary (6.7%) and clean walls and chaise (13.3%), (40%) of the respondents keep the equipment and supplies sterile, (26%) used them clean, (80%) of respondents used standard precautions, (56%) of respondents protect themselves through sufficient rest, good diet and exercise and vaccination, (40%)of respondents washed their hands after early procedure (6%) washed their hands as soon as they come, (26.7%) washed their hands before going to patients and (6.7%) after leaving patients, (43.3%) of respondents wearing gloves when touching body fluid, (13.3%) of respondents washed their hands

immediately after leaving patients (10%) never used gloves when contacting the patients, (50%) of respondents used personal protective measures, (53.3%) of respondents replaced tubing used in blood, blood product within 24 hours to avoid infection and occlusion the sets of fluids, (60%) of respondents knew that endow tracheal tube recyclable can be reused after sterilization, (80%) of respondents use sterile water in humidifiers and nebulizer and (10%) used sterile water only when they used multi-dose medications, (43.3%) of respondents disposed patient circuits when they were available, (33.3%) dispose multiple-use tube, (90%) of respondents disposed suction catheter within 24 hours, only (23.3%) of respondents replaced water used for suction, (76%) of respondents followed the ideal methods of prevention of urinary tract infection, only (10%) of the respondents wore gloves when inserting intravascular catheters and (26.7%) used aseptic technique.

These results are different from results of a study conducted to assess the knowledge, attitudes, and infection control practices among Nepalese health care workers (HCWs). The study comprised a questionnaire survey of 324 staff from acute care Hospitals in Kathmandu, Nepal. A total of 158 doctors and 166 nurses participated, 27% of whom had received infection control training. Only 16%, 14%, and 0.3% of the respondents achieved maximum scores for knowledge, attitude, and practice items, respectively. Only half of the staff had heard of methicillin-resistant *Staphylococcus aureus*. This study concluded that profession, age, and having studied abroad significantly predicted markers of infection control knowledge,

Conclusion

- Infection prevention and control knowledge of ICU nursing staff could be improved by providing well-organized practical training.
- Sustained application of infection control measures by training nursing staff could be negatively affected by in availability of necessary resources (hand washing facilities, personal protective equipment, antiseptic materials, surgical towels and bed linen).
- Functioning infection control committee and infection control team with clearly specified roles and responsibilities are necessary structures to supervise daily infection control practices of nursing staff and check on the availability of necessary infection control resources.

Recommendations

Based on the results of this study, the following recommendations are proposed:

1. The infection control committee members should be assisted by the hospital administrator undertaken specified roles and responsibilities.
2. Procedures, policies and guidelines concerning the infection, prevention and control measures.
3. Periodic training should be conducted for all health care providers working in Omdurman Military Hospital regarding infection prevention and control, and orientation program should be conducted for new employees.
4. Learning facilities (books and journals and the Internet) should be available.
5. Updating knowledge of critical care nurses through continuing in-service educational programs
6. Providing training programs for newly joined ICU nurses about infection control standard precautions and at regular intervals.

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