

APPLICATIONS OF INFECTION CONTROL POLICY IN TRAGHEN TEACHING HOSPITAL THEATER, LIBYA 2024

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Abstract

Background: - The operating room (OR) also known as operating room complex or surgical theatre; it is considered as one of the most complex departments in the hospital. **Aim:** - To evaluate the medical staff about application of infection control in operating room. **Method:** - The research done in south west of Libya at Traghan teaching hospital, a questioner and observational chick list was used. Total sample of (25) medical staff in operating room were participated, the data was analyzed by software program (SPSS) and presented in tables and figures. **Result:** - The study showed that, most of the workers in the operating room were female (80%), and the percentage of specialist nurses was less than two third of them (64%). also, it was found that most of them (88%) received training on infection control, in addition to that, always apply infection control guidelines, and (44%) had knowledge and experience about application of infection control protocol. **Conclusion:** - This study concluded that, medical staff in the operation room had experience in application of infection control and they practice it correctly, the most important of which is personal protective equipment.

Keywords: Infection Control, Prevention, Operation Theatre, Practice, Knowledge.

INTRODUCTION

The operating room (OR) also known as operating room complex or surgical theatre, is unit within a hospital which is designed and equipped to provide care to patient with rang of conditions. It is a sterile environment where surgical procedure is carried out. The operating room is considered as one of the most complex departments in the hospital. In the nursing profession, competency is described as the ability to successfully apply professional knowledge, skills and attitude of infection control to new situation as well as unfamiliar ones^[1].

Infection control interventions are important for containing surgery related infection. For this reason, the modern operating room (OR) should have well developed infection control policies^[2]. Infection Control as a formal entity was established in the early 1950s in the United States, by the late 1950s and 1960, a small number of hospitals began to recognize health care associated infections (HCAIs) and implemental some of the infection control concepts.

The primary purpose of infection control programs was to focus on the surveillance for (HCAIs) ^[3]. The main problem encountered in the practice of surgical safety is that existing safety practices are not adequate in some countries. Lack of resources in developing countries. Good infection prevention and control is essential to ensure the safety of the patient undergoing any surgical procedure in the operating theatre.

The surgical site Infections (SSIs) constitute 20% of the total hospital acquired infections. These infections cause substantial patient mortality and morbidity and burden healthcare systems with acquired during the operative procedure when the wound is still open; stringent protocols need to be followed at this point to reduce their appearance [4].

The role of surface contamination in the transmission of pathogens, especially in the operating room, have been increasingly recognized for more than 100 years.

The inanimate environment in the operating room, such as walls, tables, and floors, has been considered a potential source of pathogens that may cause surgical site infection [5]. Policies are developed by the hospital infection control committee for the purpose of procedures that can be generalized to the hospital or specific departments and are developed based on the needs of the hospital and its existing practices [6].

Operating Rooms are vital patient care areas where absolute care must be taken to prevent transmission of infection. Most surgical site infections are due to exposure to pathogens in the preoperative period, because skin integrity is compromised by surgical procedures. It is also important to follow key best practices in operating rooms to reduce the load of pathogens in the air [7].

Progress in the prevention of nosocomial infections in the health care sector is of critical importance and represents an essential goal, especially in the operating room where patients are particularly vulnerable to any form of infection due to surgery and associated risks. Particular attention must be paid to the implementation of hygiene measures. For this reason, it is necessary to have frequent discussions as well as to establish homeopathic treatment concepts to reduce SST.

Among the strategic concepts that should be applied are optimal patient preparation, education, disinfection, reprocessing and sterilization of materials, including perioperative antibiotic prophylaxis. Epidemiological studies indicate that improving hand disinfection during surgery is an essential part of infection prevention and control [8].

MATERIALS AND METHOD

Analytic cross-sectional hospital-based study was carried out at Traghan teaching hospital. The study involves the medical staff in the operating room in Traghan teaching hospital. Total coverage of sample $n = 25$. By self-administered Questionnaire distributed for participants. The data was analysed by statistical package for social sciences (SPSS).

The Study was approved by administration Fezzan University then we were confirming from the Traghan teaching hospital's administration, also was approved by head nurse and all participants in the hospital. Finally, we were explaining the importance of the study and verbally, for the participants.

RESULTS

Table (1): Demographic Data of the Study Group

n= 25

Item	Frequency	Percentage
Age	25-40 years	56.0
	41-60	44.0
Gender	Male	5
	Female	20
Speciality	Doctor	5
	Nurse	16
	Others	4
Experience in operation theatre	< one year	1
	1- 4years	4
	5-10years	9
	> 10 years	11
Work in infectious area	yes, i work	8
	No	17
Training about infection control	Yes	22
	No	3

Table showed the age and gender of the operator which was more than half of them there aged between 25-40 of males and females, and showed the longer experience about infection prevention and control inside the operating room and training of the procedure and protocol about infection control.

Table (2): Evaluation of Clinical Practice of The Study Group

Item	Always	Usually	Often	No answer
Wash your hand after contact with body fluids	22(88%)	3 (12%)	0(0.00%)	0(0.00%)
Wear gloves when touching body fluids	17(68%)	6(24%)	2(8%)	0(0.00%)
Wear gloves when touching mucous membrane or intact skin	23(92%)	1(4%)	1(4%)	0(0.00%)
Wear a face mask to cover your mouth and nose	16(64%)	7(28%)	2 (8%)	0(0.00%)
Wear eye protection during procedures and patient care activities that may generate or splashes or sprays of body fluids	2 (8%)	1(4%)	11(44%)	11(44%)
Wear a gown during procedures and patient care activities that may generate splashes or sprays of body fluids	16(64%)	5(20%)	3 (12%)	1(4%)
Chang into outer clothes when laving the operating room and put on a new set of theatre attire upon your return	21 (84%)	2 (8%)	1(4%)	1(4%)
Recap needle after use	24 (96%)	1(4%)	0(0.00%)	0(0.00%)

Table showed the application of the operator to PPE which there most of them (88%) wash their hands after contact with body fluids, and most of them (92%) wear mask to protect them from any fluids from the body.

Table (3): Participant Opportunities Among ICS &OT Design

Item		Frequency	Percentage
Method that used in the operating room is effective to prevent or control infection	yes, I believe	21	84.0
	Not exactly	4	16.0
Design system of operating room walls, surfaces is appropriate to limit the spread of infection inside the operating room	yes, I think	15	60.0
	No, I do not	1	4.0
	Not exactly	9	36.0

Table (4): Dispose Management of The Study Group

Item	Frequency	Percentage
Sorting sharps waste separately	10	40%
Sort the infections waste and satisfactory	5	20%
Separating cytotoxic waste from chemical waste	0	0.00%
Used all methods of sorting	11	44%
Used part of sorting	3	12%

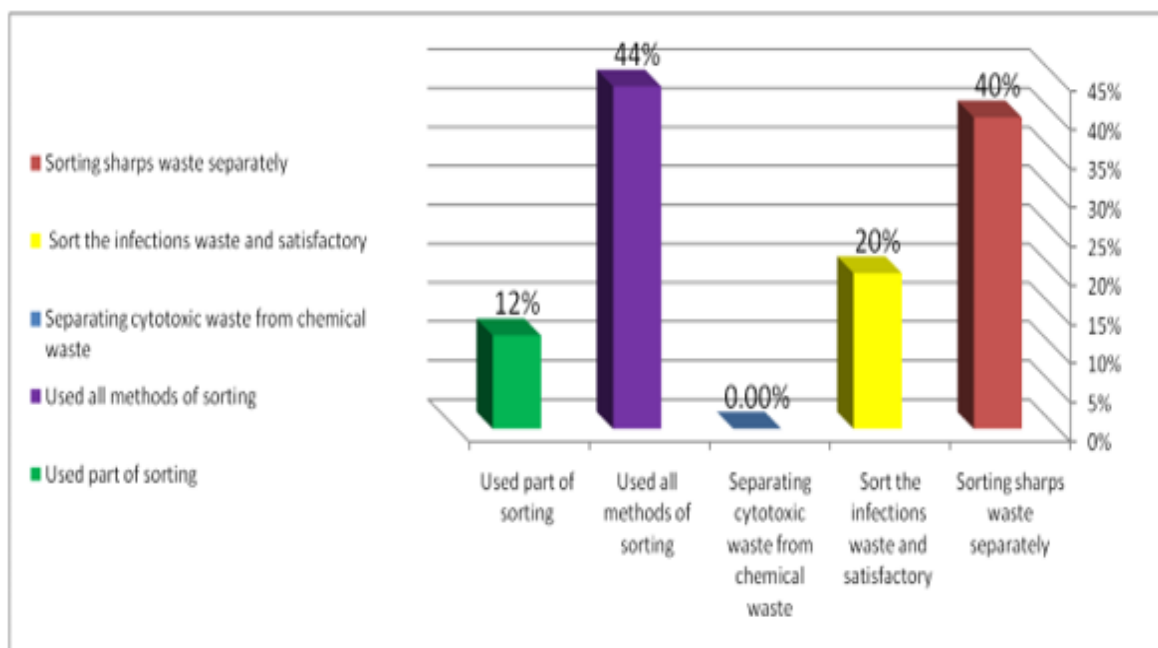


Figure (1): Show methods of sorting of waste products in the theater Show that less than half of them using all methods of disposable west which they sorting a sharp west separately and was Sorting the infections waste.

DISCUSSION

In present study show that the knowing the application of medical staff to infection control procedure inside the operating room, the sample included 25 of the total number of medical staff working in the operating room where more than half of them(56%) their aged between 25-40 years and less than half of them (44%) their aged between 41-60 , and this indicates their increased awareness and competence in operating room, and this study showed that most of them (80%) were female ,this study is was agree with previous study(18) showed that the number of females is higher than males in nursing special. Study showed that the percentage of specialist nurses was less than two-third of them (64%) and doctors was less than quarter (20%) and health care workers were less than quarter (16%), this indicates efficiency in maintaining a sterile environment inside the operating room and the lack of doctors, including anesthesiologist as there were only one anesthesiologist in the operating room, this why we need anesthesiologist at Traghan teaching hospital. This study agrees with a study conducted in Sweden⁽¹⁹⁾ that showed the operating room nurse is the only specialist who has the necessary competence to assume responsibility for sterilization, use of machines, and control of infection and complications during surgical operation. This is very important to provide good and safe care for the patient in the operating room. Also, in this study found the lack of medical staff including scrub nurse, health care workers which leads to an increasing workload in the operating room, this result is agree with a study (20) that show that there was a relationship between the duration of surgery and mental and physical requirements of the medical staff and in contrast to previous studies which show that mental requirements are the main source of workload because working in the operating room in not easy and requires great concentration from its workers. Also this study show that the operating room workers have sufficient experience which enable them to implement infection control protocol because less than half of them (44%) have knowledge and experience for more than ten years, while more than one third of them have experience ranging between 5-10 years, this good indicator that indicates sufficient knowledge and experience of the medical staff about infection control practices, and this study was consistent with other studies conducted in Kenya(21) which show that there were a strong relationship between the years of experience of the medical staff and their knowledge about infection control, another study show that most of workers whose experience from 10-19 years is very high indicates sufficient and advanced experience in infection control in the operating room, and this study against with study in Jamaica⁽²²⁾ that show less than a quarter of the medical staff feel that their knowledge about the practices of applying infection control not adequate due to lack of education about infection control practices and lack in capabilities and medical supplies but they provide medical care to the patient with minimal supplies

While study done in Iran⁽²³⁾ was disagree showed that the nurse's knowledge about infection control was less than a third as a result of their limited years of experience and lack of educational programs on infection control. Among them, more than a quarter (32%) worked in an infectious area. Also the study showed that most of the medical staff in the operating room had received training about infection control applications about (88%), while a few of them didn't trained due to lack of communication capability and the distance of the area, the training

gave the medical staff adequate knowledge if the practices of applying infection control inside the operating room and another study ⁽²⁴⁾ showed that less than two-third of participant completed based medical training within the last 10 years, this additions enhancing the positive findings relate to the medical staff's application of infection control procedures and practices in the operating room, and study against with our study in Jamaica ⁽²⁴⁾ showed that the complete absence of education is inappropriate. Only by the knowing infection control best practices can employees begin to change the culture of healthcare in this context, and Most of them (84%) of the believe that the methods used to control and prevent infection are effective in the operating room. In this study also found that less than two-thirds of them(60%) believe that the walls, surface of operating room are appropriate to limit the spread of infection while more than one-third of them don't completely believe that the design is appropriate due to its small area and the limited movement in the operating room, it is better to have a large operating room with spacious area like other hospitals but there is a lack of financial capability hander .this study showed that most medical staff (88%) wash their hands regularly after contact with body fluids while less than a quarter of them (12%) usually wash their hands after contact with body fluids, and this study was agree with a previous study conducted ⁽²⁵⁾ Moreover show that (48%) of medical staff wash their hands. The world health organization stressed how the use of hand hygiene is the best most Important and most effective way to prevent the spread of infection. In another study ⁽²⁶⁾ that showed there were a good level of medical staff in washing surgical hands and the staff whose protocol stipulated hand washing were more compliant with recommended practices and were better among nurses than among surgeons. Our study showed that more than two-thirds of them (68%) always wear gloves when in contact with body fluids and those who wear gloves permanently when in contact with mucous membranes or unhealthy skin were mostly (92%) and this study is consistent with a previous study conducted in pollan⁽²⁷⁾ protective gloves were used more frequently by doctors due to the smaller number of observed cases in which doctors were required to wear protective gloves compared to nurses it showed that medical personnel are moderately trained to follow correct habits regarding safe removal of gloves. Among nurses' appropriate procedures were applied in (28.5%) of cases, and better results were observed in the group of doctors (average 77.6%).and less than two-thirds (64%) of the medical staff wear a mask to permanently cover the nose and mouth to protect them from any secretions from the body or infection, while more than a quarter of them (28%) usually wear mask. this study disagrees with a study conducted in Pakistan ⁽²⁸⁾, which she explained that the operations performed in the operating room in which hospital employees did not wear masks did not showed any increase in infection rates after surgery for patients from the operating room in which masks were worn and a study agree conducted by researcher tune all and others analyzed the relationship between wearing surgical masks and infection after surgery. This study found that the infection rate was (4.7%) and (3.5%) without masks, and there was no increase in surgical site infections when not wearing masks .We found that less than half of them (44%)often wear eye protection glasses during procedures and patient care because the eye protection not from PPE in the operating room protocol and not available , and that less than two-thirds 64% of the medical staff wear caps during procedures and practices inside the operating room, this study was agree with study conducted in new Zealand ⁽²⁹⁾ occupational legislation places a legal imperative upon employers (medical or otherwise)

to provide eye protection to at risk workers and reciprocally employees must use it when provided. Yet only 46.5% of surgeons were aware of this and 80.3% were satisfied with the availability of eye protection in their operating environments. This study show that the most of them 84% always change their outer clothing and wear a clean clothing before interring the operation theatre .Also our present study the most of them 96% dispose of the needles permanently and correctly after use, this study is agree with a previous study⁽³⁰⁾ needle stick and sharps injuries of HCWs are important occupational hazards leading to most nurses and technicians (74.9) in this study reported that they had experienced sharps injuries more than once , this can be explained by the fact that nurses technicians administer most of the infusions and are responsible for vein palpation pricks, administration of intravenous that require the use of needles. Another reason that may explain the increased vulnerability among nurses in the greater amount of time nurses spend on the patient.

CONCLUSION

finding of present study indicated that the operators apply infection control procedures correctly, the most important of which was personal protective equipment, and this indicates their knowledge and ability to avoid any form of infection and thus maintain the safety of patients inside the operating room. With long experience in the operating room and the quality of their application of infection control practices within the operating room, and the nurses had the highest level of experience and knowledge than doctors.the study showed that most medical staff wash their hands in an appropriate manner before and after the surgical operation, and also wear gloves when touching mucous membranes and unhealthy skin. a mask be worn during the surgical operation to protect them and prevent the transmission of infection after the surgical operation and eye protection glasses not used among practitioners. Eye protection glasses in the operating room is necessary to protect surgeons from exposure to blood borne pathogens.

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