

Gaps in Knowledge and Practices About Health Care Associated Infections Among Health Care Workers at a Tertiary Care Hospital

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Abstract

Objectives: To determine the gaps in knowledge and practices of the health care workers (HCW) regarding Health care associated infections (HCAIs).

Materials and Methods: This cross sectional study was conducted at Fauji Foundation Hospital Rawalpindi from 1st January to 30th September 2014. After getting approval from Institutional head, hospital staff was briefed about the study. Informed written consent was taken. A field tested questionnaire was used to assess the knowledge and practices regarding nosocomial infections. A team of trained data collectors interviewed the participants. Responses and observations were recorded, spending 15-25 minutes on each participant. Data was coded and analyzed using Epi info version 7.15.

Results: Total three hundred health care workers were interviewed. Male to female ratio was 1:7. Majority of the respondents [241(80%)] were nurses. Respondents having good knowledge about HCAIs were 281 (94%). Regarding practices, 143 (47%) wore gloves during handling patients and 281 (94%) took preventive measures before performing therapeutic and diagnostic procedures. Personal protective equipment was used by 285(95%) participants. Regarding national guidelines on infection prevention and control 261 (87%) HCW had no knowledge.

Conclusion: Knowledge of the HCWs is adequate, however practices are lacking. This study highlights the need for conducting trainings on infection prevention with strict monitoring and supervision.

Key words: Cross infections, Health Care Workers, Nursing staff, Pakistan.

Introduction

The health-care associated infections (HCAIs) or the infections acquired from the hospital can be defined as the infection which occurs within the 48 hours of hospital admission or 3 days of discharge or 30 days of an operation.¹ The main sources of transmission of these infections are the

use of non-sterilize instruments, untrained health care staff or lack of awareness in the healthcare staff. As the patients in the hospitals already have a weak immune system they get easily infected.² Million of the people die worldwide due to these infections and leads to a significant mortality and financial losses of the health system. The rate of these infections is high in developing countries than the developed countries; also the new borns are more vulnerable to these infections. Out of every 100 hospitalized patients, 07 in developed countries and 10 in the developing countries get infected with nosocomial infections.¹

The role of a health worker is to help a patient in recovery process but sometimes unconsciously they act as a source of transmission of nosocomial infections. Simple preventive policies and techniques can help to reduce the rate of transmission.³ Hand washing can prevent the transmission of infection from one patient to another. Gloves, gowns and masks have a very vital role in the prevention of these infections but are mostly not used properly.³ World health organization (WHO) has stated that following four factors are responsible for HCAIs: crowded hospital conditions, increasing number of people with compromised immune system, new microorganism and increasing bacterial resistance.¹ A study conducted to check the prevalence and risk factor of the HCAIs in the four university hospitals of the Switzerland reported that 176 types of nosocomial infections were found in 156 patients out of 1349 screened patients. Most frequent and common nosocomial infection was surgical site infection (30%) followed by urinary tract infection (22%), lower respiratory tract infection (15%) and blood stream infection (13%). Prevalence of HCAIs was high in critical care units (25%) than in medical (9%) and surgical wards (12%).⁴ In preventing and transmitting the infection, main role can be played by the staff through knowledge, awareness and the precautions they take and follow.

Infectious diseases are one of the major problems in Pakistan and are the basic cause of morbidity and premature death. Data on such problem is very scarce. Pakistan is not prepared for the emergence of new infectious diseases.⁵ Data on the

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HCAIs is also very limited or is outdated and very few recent studies are available. According to the study conducted in Hyderabad Sindh Pakistan, 97(29.13%) out of 333 patients acquired nosocomial infections. Out of which 29 (30.1%) were effected from respiratory tract infection, 38(39.1%) were from urinary tract infection and 23(23.7%) were suffered from bloodstream infections.⁷ Other infections were of skin, soft tissue, wound and gastrointestinal tract. It was suggested that the proper nursing care, sterilization and disinfection of the instruments and equipment used and also careful handling of invasive procedures can help to control these life threatening infections.⁶

Crowded hospitals and prolonged stay are the important reasons for the spread of nosocomial infections. Pakistan lacks in basic health care services. According to a study conducted in the university hospital of the Karachi, 20.8% patients had to wait in the emergency section of the hospital for more than 6 hours. The main factor of the delay was unavailability of beds followed by some other reasons.⁷

In many cases, HCAIs can be minimized by adopting certain practices that can prevent the spread of bacteria from patient to patient. Medical staff should wear gloves and wash hands frequently. It is also important that all instruments should be thoroughly sterilized and otherwise decontaminated, to prevent access of bacteria to patients. In addition, it is important to keep all operating rooms as sterile and germ-free as possible.⁹ Therefore, keeping in view the important role of the health care services provider this study was conducted to evaluate their knowledge and also to identify the gaps.

Materials and Methods

This cross sectional study was conducted in Fauji Foundation Hospital Rawalpindi from January to September 2014. About 300 cases were enrolled by calculating the sample size using WHO sample size calculator for cross sectional survey. Informed consent was taken from the participants after explaining the objectives of the study. Data was collected by using a structured, close ended questionnaire to access the knowledge regarding causes and preventive measures of nosocomial infections. A trained data collector collected the data. The questionnaire was pilot tested. A team of trained data collectors interviewed the participants and recorded the responses and observations, spending 15-25 minutes on each participant. Data was coded and analyzed using Epi info version 7.15.

Results

Out of 300 study participants the majority were female 264 (88%) and 36 (12%) were male. Most of them were nurses 241(80%) as shown in table-1.

Table 1: Socio-demographic characteristics of the Health Care workers (n=300)

Variables	Frequency No (%)
Female	264 (88%)
Male	36 (12%)
Nurse	241 (80%)
Nursing Assistant	42 (14%)
Others	17(06%)

Over all knowledge about nosocomial infections and its causes and transmission was good among HCWs. However correct knowledge regarding hand washing techniques and recommended washing time was lacking. (Table 2).

Table 2: Knowledge of the study participants regarding Health Care Associated Infections (HCAIs)

Variables	Correct answer N	Wrong Answer N
Definition of nosocomial infection	270	30
What are common causes of nosocomial infections	265	35
How nosocomial infections spread	270	30
Can continuous health education of the staff lowers the incidence of nosocomial infections	300	Nil
Can short stay of patient in the hospital prevent such infections	264	36
Can these infections become life threatening if left untreated	291	09
What is hand hygiene	189	111
Recommended hand washing time	163	137
Gloves should be instantly changed after touching patients diaper, Foleys catheter and ventilators tubing	291	09

Regarding source of knowledge, 192(64%) respondents came to know about the nosocomial infections through textbooks (table 3). Practices of the participants were not as good as knowledge. Out of 300 enrolled professionals, only 143 (47%) wore gloves when they attended the patients. While 281 (94%) took preventive measures before performing therapeutic and diagnostic procedures in the hospital. During encountering a patient with any contagious disease 285(95%) participants took specific protective measures. Staff members who were not strictly following aseptic techniques while dealing with post-operative surgical wounds were 133(44%).

Total 173 (58%) of the study participants wore rings during dealing with admitted patients. (Table 4)

Variable	Number	Percentage
Textbooks	192	64
Scientific Literature	28	09
Internet	48	16
Conferences, workshops Symposium	32	11

Variables	Number	Percentage
Do you wear gloves while dealing the admitted patients	143	48
Do you wear rings while dealing with patients	173	58
Do you wash your hands after removing the gloves?	87	29
Do you take preventive measures before any invasive therapeutic /diagnostic procedure	281	94
Do you use strict aseptic technique while attending a surgical patient with post-operative wounds	133	44
Do you take any specific protective measure while encountering a patient with any contagious disease	285	95
Staff members who have been briefed about nosocomial infections in any CME session	139	46

Staff members who denied the presence of national guidelines on infection prevention and control and infection control committee in hospital were 261(87%) and 281 (93.7%) respectively. (Table V).

S.no	Question	Number
1.	Is there national guidelines for infection control	261
2.	Is there any infection control committee in your hospital	281

Discussion

Infection control refers to all the policies and procedures which aim to prevent or minimize the risk of transmission of infectious disease at health care facilities. Emergence of various life threatening infections have highlighted the need for efficient infection control programs in all health care settings and capacity building for HCWs to prevent the transmission of pathogens within these health care setting.¹⁰

In present study, focus was on the knowledge, and practices of the HCWs of a tertiary care hospital regarding nosocomial infections. Nearly 90% of the respondents have heard and knew the definition of nosocomial infection. These findings are in line with another study in which knowledge of HCWs about hospital acquired infection was quite high.¹¹ Among health care workers we had mainly enrolled nurses. Nurses have higher risk for both self-acquiring and transmitting infections to other patients and even in community. Therefore, use of suitable or appropriate control measures by this group of HCWs and their practices evaluation is more important than doctors. About 90% had good knowledge about nosocomial infections and its transmission. It indicates that the awareness about the nosocomial infections was high among the health care staff. Only 10% had no knowledge about these infections and their transmission. These findings are similar to the research conducted in Nigeria.¹²

Another study done in Iran showed that 43% of the participants had poor knowledge, 42% had average practice, and 37% had a moderate attitude about hospital infection. That study indicated a low level of awareness among the personnel about hospital infection. They suggested to provide training sessions on the prevention and control of HAI to increase the awareness of personnel and to conduct hands on workshops for practicing these principles.¹³ In another study conducted in Ethiopia, overall knowledge of respondents was 84.5% and about 55.6% had positive attitude. They observed that though participants had better knowledge and positive attitude their practice of infection prevention was not optimum as per the national guide line. They also reported that working experience greater than 10 years and availability of personal protective equipment had positive association with infection prevention.¹⁴

Regarding practices only 48% of respondents of our study wear gloves during attending the patients. This is very alarming situation. There this could be multiple factors that deter people from wearing gloves and hand washing like skin irritation, dryness of the skin, inopportune place of sinks, absence of institutional guidelines, lack of knowledge or experience, lack of rewards or high work load.¹⁵ Inequity between the resources allocated to the primary and secondary health care by allocating little or nil funds for the management of potentially preventable conditions is another important factor for development of HCAIs. This is mainly important in the context of developing countries where little resources are available for the treatment and management of number of

patients. It is established that one third of nosocomial infections are preventable and that about 90% of deaths from hospital infections could be prevented by strictly following the guidelines.¹⁶

Limitation of the study

Study was conducted in one hospital the results therefore cannot be generalized.

Conclusion

Knowledge of the HCWs is adequate however practices are lacking. It highlights the need for trainings on infection prevention with strict monitoring and supervision. For this purpose, continuing education programs, seminars, symposiums or workshops should be arranged on regular basis.

Conflict of Interest

This study has no conflict of interest as declared by any author.

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