

Knowledge about hospital-acquired infections amongst nursing staff of tertiary care teaching hospital in rural western Maharashtra, India

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Abstract

Background: Hospital-acquired infections (HAIs) are a worldwide problem today. They are among the leading causes of death and cause significant morbidity among patients who receive health care. Prevention of nosocomial infections is the responsibility of all individuals and services providing health care.

Objective: To assess the current knowledge regarding HAIs among nursing staff of Pravara Rural Hospital, Loni, Maharashtra, India.

Materials and Methods: A cross-sectional study was conducted from February to April 2012 among 100 nursing staff of Pravara Rural Hospital, Loni, Maharashtra. A predesigned questionnaire that assessed knowledge about HAIs was the tool of data collection. Results were analyzed in the form of percentage and proportions whenever appropriate.

Result: In this study, all 100 nurses had heard about HAIs. Majority (73%) of nurses knew that respiratory and urinary tract infections were the two most common HAIs. Nearly 38% nurses did not know about the barrier nursing plays a role in preventing HAIs or not.


Conclusion: In this study, the level of knowledge regarding HAIs among nursing staff was inadequate. Considering the important role of nurses in HAIs, there is an imperative need for health education to improve the knowledge of the nurses toward HAIs.

KEY WORDS: Knowledge, hospital acquired infections, nursing staff, rural India

Introduction

Hospital-acquired infection (HAI) or nosocomial infection is an infection occurring in a patient in a hospital or other health-care facility in whom the infection was not present or

incubating at the time of admission. This includes infections acquired in the hospital but appearing after discharge, and also occupational infections among staff of the facility.^[1] HAIs not only affect patient's health and safety, but also the health-care system as a whole. These nosocomial infections occur among 7–12% of the hospitalized patients globally with more than 1.4 million people suffering from the infectious complications acquired in the hospital.^[2] The risk for infection escalates to 15–20% for those patients in intensive care units.^[3] Regardless of where the infection originates, it is surely the first duty of every member of the staff in a hospital to do everything he/she can make sure that patients are cared for, and returned to health, as quickly as possible and as free from HAIs as possible.^[4] Nurses are the principal group of health-care

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personnel in all health-care settings. Nurse's lack of knowledge may be a barrier in prevention of infections. Hence, this study was carried out to assess the current knowledge regarding HAIs among nursing staff of Pravara Rural Hospital, Loni, Maharashtra, India.

Material and Methods

A cross-sectional study was carried out among the nursing staff of Pravara Rural Hospital, Loni, Maharashtra, India, during February to April 2013. Pravara Rural Hospital is a tertiary level health-care teaching center located in rural part of western Maharashtra, India, and provides specialist's tertiary care services to patients largely belonging to lower/middle socioeconomic strata of the society with rural background. A convenient sampling method was used to recruit 100 nurses at the time of data collection of either sex during study period.

All 100 nurses were fully informed about purpose of the study. Not a single nurse had denied participating in the study. Hence, all 100 nurses were included in the study. The informed consent was obtained from each participant, and anonymity of the participants was maintained throughout the study. Ethical approval was obtained from the institutional ethics committee. The data were collected on a predesigned, prestructured questionnaire distributed among these nurses, and they were asked to fill the questionnaire. The questionnaire was pretested on a subsample of 20 nurses and modified, and necessary changes were made accordingly. The questionnaire comprised questions on knowledge related to HAIs. The language of the questionnaire was English and contained 10 questions. All the questions were objective in nature with "Yes" or "No" as the options, although a few questions were of multiple-choice type. Demographic details such as age, sex, duration of service, and marital status of the respondents were also recorded. Results were analyzed in the form of percentage and proportions whenever appropriate.

Result

The demographic characteristic of the study population is shown in Table 1. Of 100 participants, 16% were men and 84% were women and majority (72%) was married. There were 35% and 49% participants in the age groups 26–30 and 31–35 years, respectively. There were 60% participants who had 5–10 years of service.

The responses of the nursing staff regarding their knowledge toward nosocomial infections are tabulated in Table 2. The majority (65%) of nurses had correct knowledge regarding definition of HAIs. When asked the question like "Which are the common diseases transmitted due to HAIs?", near about 27% nurses could not give the correct answer. It was surprising that 37% nurses had incorrect knowledge regarding the infections are considered HAIs if they first appear 48 h or more after admission or within 30 days after discharge and even 38% nurses did not know about the barrier nursing plays a role in preventing HAIs or not.

Table 1: Demographic characteristics of the study population

Particulars	Number
Age (years)	
21–25	05
26–30	35
31–35	49
Above 35	11
Gender	
Male	16
Female	84
Duration of service (years)	
Less than 5	16
5–10	60
More than 10	24
Received previous training about HAIs	
Yes	42
No	58
Marital status	
Married	72
Unmarried	28

Data indicate both number and percentage.

Discussion

People receiving health and medical care, whether in a hospital or in a clinic, are at risk of becoming infected unless precautions are taken to prevent infection. Nosocomial infections (HAIs) are a significant problem throughout the world and are increasing.^[5] Prevention is ultimately the most efficient and humane means toward improved health.

This study revealed majority (72%) of nurses had correct knowledge regarding mode of transmission of HAIs. Similar findings were found in the studies conducted by Gupta *et al.*^[6] and Taneja *et al.*^[7]

More than half (55%) of nurses had correct knowledge regarding the sterile technique is not required for nasogastric feeding in this study. Similar findings by Gupta *et al.*^[6] and Taneja *et al.*^[7] among nurses revealed that 82% and 48% nurses had correct knowledge regarding the sterile technique is not required for nasogastric feeding, respectively.

Studies indicate that health-care workers' hands are the main source of HAI transmission, and, therefore, hand washing by caregivers is the most important procedure in preventing HAIs.^[8] Although standard precautions and guidelines have been established to decrease the transmission of HAIs, adherence to such policies is uncommon.^[9] In our study, when asked the question like "The single most important measure for preventing HAIs is hand washing," majority (68%) of nurses gave the correct answers. Similar studies carried out by Gupta *et al.*^[6] and Taneja *et al.*^[7] among nurses also revealed that 86% and 84% nurses, respectively, had correct knowledge regarding hand washing.

In this study, 65% nurses had the correct knowledge regarding definition of HAIs. Similarly a study conducted by

Table 2: Participant's knowledge regarding HAIs (n = 100)

Questions regarding knowledge	Correct answer	Incorrect answer
1. HAIs are the result of self-infection, cross-infection, and environmental infection. (Yes)*	65	35
2. Instruments that can transmit infection in hospital. (Yes)*	80	20
3. The single most important measure for preventing HAIs is hand washing. (Yes)*	68	32
4. Which are the common routes of transmission of HAIs? (air borne, droplets, unclean hands and fingers, direct contact)*	72	28
5. Patients receiving immunosuppressive therapy are more susceptible to HAIs. (Yes)*	83	17
6. Sterile technique is necessary for nasogastric feeding (No)*	55	45
7. Infections are considered HAIs if they first appear 48 h or more after admission or within 30 days after discharge. (*Yes)	63	37
8. Which are the common diseases transmitted due to HAIs? (respiratory tract infection, urinary tract infection, skin infection)*	73	27
9. Barrier nursing plays a role in preventing HAIs or not. (Yes)*	62	38
10. Personal protective measures are useful to prevent HAIs. (Yes)*	95	05

Data indicates both number and percentage. (*Correct answers)

Taneja et al.^[7] found that 88% nurses had correct knowledge regarding definition of HAIs. However, in contrast, a study carried out by Gupta et al.^[6] revealed that 60% nurses did not have the knowledge regarding definition of HAIs.

However, HAIs cannot be eradicated entirely because of the fact that whenever more than one patient is taken care of in one place, they are vulnerable to catch infections from each other. Continuous surveillance of HAIs in vulnerable high-risk areas is essential. Formulation of regulations should be effectively performed to take appropriate measures.

Limitations

One of the limitations of this cross-sectional study was based on the convenience sampling method, including only 100 nurses; therefore, one could argue that the findings are not necessarily a generalization of all the nurses' knowledge about the same. Second, we could not include questions on practice component regarding HAIs in this study.

Conclusion

Majority of the participants had adequate knowledge regarding HAIs. There is an essential need for further education and training courses on HAIs for such personnel would be required.

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