

A Study of Awareness among BSc Nursing Students on Hospital Acquired Infections in a Tertiary Care Hospital.

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Abstract: Nosocomial infections occur worldwide and affect both developed and resource-poor countries. Infections acquired in health care settings are among the major causes of death and increased morbidity among hospitalized patients. They are a significant burden both for the patient and for public health. These infections are caused by any microorganisms (bacteria, viruses or parasites) that originate from the hospital environment, contaminated equipment, staff, or other patients. The WHO study, and others, have also shown that the highest prevalence of nosocomial infections occurs in intensive care units and in acute surgical and orthopedic wards. Infection rates are higher among patients with increased susceptibility because of old age, underlying disease, or chemotherapy. Among all the associative health care providers, nurses are the ones who constantly present at bedside to take care of patients and are in close contact with patients. Nurses should be familiar with practices to prevent the occurrence and spread of infection, and maintain appropriate practices for all patients throughout the duration of their hospital stay. Therefore, by educating properly nursing students about promotion of hand hygiene, make best use of aseptic techniques, universal precautionary practices, patient's education and cleaning and disinfection practices during their training period can reduce Hospital Acquired Infections (HAI) majorly. Inference of our study is implementing about HAI in nursing curriculum, conducting training programs and seminars about HAI will play major role on improving knowledge of nursing students.

Key words: -Hospital Acquired Infections (HAI), nursing students

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I. Introduction

Nosocomial or Hospital Acquired Infections (HAI) are acquired in hospitals and other healthcare facilities. Nosocomial infections occur worldwide and affect both developed and developing countries. Hospital Acquired Infections are among the major causes of death and increased morbidity among hospitalized patients. The treatment of Nosocomial infections is a challenging problem to the healthcare professionals. The most frequent nosocomial infections are infections of surgical wounds, urinary tract infections and lower respiratory tract infections. The highest prevalence of nosocomial infections occurs in intensive care units^{1,2} and in acute surgical and orthopedic wards. Many factors which promote infections among hospitalized patients are decreased immunity among patients, the increasing variety of medical procedures and invasive techniques creating potential routes for transmission of infections³ and irrational use of antibiotics in crowded hospital populations where poor maintenance of environmental hygiene also plays a major role. Worldwide average of 8.7% of hospital patients had nosocomial infections. At any time, over 1.4 million people suffer from infectious complications acquired in hospitals⁴. To overcome these nosocomial infections health care professionals are taking so many precautions but awareness of nursing students also plays a major role to control these nosocomial infections. By educating nursing students about hospital acquired infections can reduce mortality, morbidity and health care cost⁵.

Objectives

The main objective of this study is

1. Educating nursing students about factors responsible for hospital acquired infections.
2. Educating nursing students about precautions to be taken to prevent the hospital acquired infections.

II. Methodology

The study was conducted in first, second and third year BSC nursing students in Sri Padmavathi Nursing College, Tirupati who posted in various surgical and nonsurgical wards in Sri Venkateswara Ruya Hospital. The questionnaire was given to 279 nursing students which consists of 25 questions. In this 94 were first year students, 95 were second year and 90 were from third year students. The informed consent was obtained from students after explaining the aim and objectives of the study.

The Infection Control Standardized Questionnaire, With Correct Answers⁶

1. Mode of transmission of Nosocomial infection

- A. The environment (air, water, inert surfaces) is the major source of bacteria responsible for nosocomial infection. No
- B. Advanced age or very young age increases the risk of nosocomial infection. Yes
- C. Invasive procedures increase the risk of nosocomial infection. Yes
- D. The most frequent nosocomial infections are urinary, respiratory, and surgical site. Yes
- E. Antibiotic use and resistance in India, states that a large proportion of these hospital-acquired infections. Yes

2. Precaution standards

- A. Include the recommendations to protect only the patients. No
- B. Include the recommendations to protect the patients and the healthcare workers. Yes
- C. Apply for all the patients. Yes
- D. Apply for only healthcare workers who have contact with body fluid. No

3. When is hand hygiene recommended?

- A. Before or after a contact with (or care of) a patient. No
- B. Before and after a contact with (or care of) a patient. Yes
- C. Between patient contacts. Yes
- D. After the removal of gloves. Yes

4. The standard precautions recommend use of gloves

- A. For each procedure. No
- B. When there is a risk of contact with the blood or body fluid. Yes
- C. When there is a risk of a cut. Yes
- D. When healthcare workers have a cutaneous lesion. Yes

5. When there is a risk of splashes or spray of blood and body fluids, the healthcare workers must wear

- A. Only mask. No
- B. Only eye protection. No
- C. Only a gown. No
- D. Mask, goggles, and gown. Yes

6. What are the indications for the use of alcohol-based hand rub (on unsoiled hands)?

- A. Instead of a traditional handwashing (30 s). Yes
- B. Instead of an antiseptic handwashing (30 s). Yes
- C. Instead of surgical handwashing (3 min). Yes
- D. A traditional handwashing must be done before handwashing with alcohol-based hand rub. No

III. Statistical Analysis

The data was collected as questionnaire which contains 25 questions of yes or no. Statistical analysis was performed comparing variables using a χ^2 test in SPSS software.

IV. Results

Table 1 showing that percentage of students who gave correct answer

Question topics	1 st years Nursing students	2 nd years Nursing students	3 rd years Nursing students
Mode of transmission of Nosocomial infection			
A	10	12	13
B	45	52	69
C	50	72	81
D	66	81	85
E	35	44	63
Precaution standards			
A	10	22	38
B	70	84	86
C	68	78	79
D	14	40	42
When is hand hygiene recommended			

A	10	44	50
B	89	91	80
C	20	58	68
D	15	52	57
The standard precautions recommend use of gloves			
A	31	89	90
B	56	64	70
C	69	80	85
D	79	82	80
When there is a risk of splashes or spray of blood and body fluids, the healthcare workers must wear			
A	41	56	67
B	13	18	21
C	15	59	68
D	80	84	92
What are the indications for the use of alcohol-based hand rub (on unsoiled hands)			
A	47	52	54
B	42	49	56
C	45	42	65
D	30	52	42

V. Discussion

Study was conducted using questionnaire which contains six major headings which follows: Mode of transmission of Nosocomial infection, Standard Precautions, Hand hygiene, Use of gloves, Staff Precautions and indications for the use of alcohol-based hand rub. Nursing students also play an important role in treating and caring of patients in hospitals so it's an essential to know in detail about Nosocomial infections. Over all these students are having average knowledge on nosocomial infections. Among first, second and third years only few of students have given correct answer regarding transmission of HAI which is very basic and they must know about transmission of HAI then only they can take care of precautions and prevention of HAI. These students have very minimal knowledge on self and cross transmission of HAI. Comparatively third year students have better knowledge on age related increase in HAI and invasive procedures increases risk of HAI. Over all majority of students have given correct answer regarding antibiotic use and resistance in India, states that a large proportion of these hospital-acquired infections. Knowledge of standard precautions was better among third year nursing students than among second and first year nursing students. Most of the students thought that precaution standards for only patients and health care workers who were in close contact with body fluids which was wrong. Hand hygiene which is very important to control HAI. Regarding this hand hygiene nursing students showed their knowledge differently. Comparatively first year students exhibited very poor knowledge. Surprisingly second year students showed better knowledge than third year students. Majority of students got confuse with before or after a contact with (or care of) a patient and thought that hand hygiene was not important between patient contact. Regarding the standard precautions recommend use of gloves undoubtedly third year students showed better knowledge. Majority of students had better knowledge about use of gloves. Most of the students showed similar knowledge regarding use of mask, goggles, and gown in risk of splashes or spray of blood and body fluids. Finally regarding indications for the use of alcoholic based hand rub students showed their knowledge differently. Almost half of the first, second and third year students had no idea about indications for the use of alcohol-based hand rub. Over all nursing students showed minimal knowledge about HAI. Comparatively third year students showed better knowledge than first and second year students.

By conducting this study we came to know that awareness about HAI should be included in curriculum from first year is very important. We can improve their knowledge by bed side teaching, conducting seminars, small group discussions and tutorials on HAI. Some students had enough knowledge about hand hygiene wearing gloves but practical implementation is very poor. HAI should be include in orientation program. Only limited information is given to students about nosocomial infection during bedside training or formal training in the ward. However, this questionnaire recorded only student responses, and bias could have occurred. Learning practices are indispensable students can learn by self-learning and computer assisted learning which is very easiest way of learning now a days.

VI. Conclusion

Nursing students are upgrading their knowledge regarding HAI by year wise. Third year students are having relatively better comprehension than first and second year students. Still practical implementation of hand hygiene, nursing technics and at most educating of patients about HAI is lacking. By conducting practical

cessations, seminars, tutorials and implementing in curriculum about HAI can enhance knowledge of nursing students.

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