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Knowledge and practice of the universal precaution among nursing students of Eras's Lucknow Medical College and Hospital, Lucknow

Firdous Hussain¹*, Ruby Khatoon¹, Beena Sachan², J. P. Srivastava¹

¹Department of Community Medicine, Era's Medical College and Hospital, Era University, Lucknow, UP, India ²RMLIMS, Lucknow, Uttar Pradesh, India

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*Correspondence: Dr. Firdous Hussain,

E-mail: dr.firdous@gmail.com

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ABSTRACT

Background: Health care workers (HCWs) are at risk of various occupational hazards in the hospital, including exposure to bloodborne infections such as HIV and hepatitis B and C virus (HBV and HCV) infection from sharps injuries and contact with body fluids. All health care workers should routinely use appropriate barrier precautions to prevent skin and mucous membrane exposure during contact with any patient's blood or body fluids that require universal precautions. The objective of the study was to evaluate both the knowledge and the practice of standard precautions by nursing students in the teaching hospital.

Methods: It is a cross sectional study conducted in Era's Lucknow Medical College and Hospital over a period of two months from November 2014 to December 2014 on nursing students. 100 nursing students were included in this study. All the nurses had been professionally active for 1 year or more in direct patient care and hospital hygiene.

Results: Most of the nursing students were aware of the concept of universal precaution. 97% of nursing students used to wash their hands before and after patient care. In reasons for use of universal precaution it was found that 100% of nursing student said use of universal precaution is to protect health care worker. While 100% said it protects HCW while handling infectious waste. Nursing students knowledge regarding indications of hand hygiene was found 97.

Conclusions: The findings of this study highlight the need to implement a programme to improve knowledge on standard precautions.

Keywords: Knowledge, Practice, Universal precaution, Nursing students

INTRODUCTION

Health care workers (HCWs) are at risk of various occupational hazards in the hospital, including exposure to bloodborne infections such as HIV and hepatitis B and C virus (HBV and HCV) infection from sharps injuries and contact with body fluids. Developing countries, which account for the highest prevalence of HIV-infected patients in the world, also record the highest rate of needle-stick injuries. The World Health Organization estimates that about 2.5% of HIV cases and 40% of HBV

and HCV cases among HCWs worldwide are the result of these exposures.⁵ The risk of seroconversion following a needle-stick injury from an HCV-antigen-positive patient is estimated to range from 1.2% to 10% and, as currently no immunization is available for HIV and HCV infection, thus it is important to prevent infection by preventing exposure to infection.⁶

Universal precautions are a set of tools formulated to prevent transmission of bloodborne pathogens while providing health care. Since identification of patients infected with these pathogens cannot be reliably made by medical history and physical examination, the Centers for Disease Control (CDC) has recommended that standard precautions be used on all patients, regardless of knowledge about their infection status.⁷

Compliance on the part of Health care worker (HCWs) including nursing students with standard precautions has been recognized as being an efficient means to prevent and control healthcare-associated infections. Such measures not only protect the patient, but also the HCWs and the environment.^{8,9} Among all the standard precautions, hand hygiene is considered, in itself, the most important one. 10,11 Another important measure is the adequate use of gloves, whose purpose is to protect the HCWs, as well as the patient. However, in spite of the effectiveness of these standard precautions, what reality shows us is very low compliance with these measures, by professionals alike When entering university, a student pursuing a degree in health sciences is not required to have fulfilled any prerequisites in the area, therefore, his or her undergraduate years are the appropriate moment for acquiring the necessary knowledge and skills.¹²

Universal precautions are good hygiene habits, such as hand washing and the use of gloves and other barriers, correct sharps handling, and aseptic techniques Gloves should be changed after every contact with each patient. Additional precautions are used in addition to universal precautions for patients who are known or suspected to have an infectious condition, and vary depending on the infection control needs of that patient. ¹³

All health care workers should routinely use appropriate barrier precautions to prevent skin and mucous membrane exposure during contact with any patient's blood or body fluids that require universal precautions. ¹⁴

However, only very few disciplines approach this area of study and provide knowledge on the standard procedures to students who, after graduation, would be theoretically prepared to enter the job market. For this purpose, the authors developed this study, to evaluate both the knowledge and the practice of standard precautions by nursing students in the teaching hospital.

METHODS

It is a cross sectional study conducted in Era's Lucknow Medical College and Hospital over a period of two months that is from November 2014 to December 2014 on nursing students. 100 nursing students of Era's Lucknow Medical College & Hospital were included in this study. All of the nurses had been professionally active for 1 year or more in direct patient care and hospital hygiene. The hospital has a policy on use of standard precaution when they are hired.

A pretested structured anonymous, self administrated questionnaire was used to assess the nurses awareness of

and knowledge about standard precaution. This was a 16 item questionnaire with both open–ended and closed questions in English; it took 10-15 minutes to complete. The questionnaire was developed after a thorough review of the literature. After revision, the questionnaire was piloted on a group of nurses, who were not included in the main study. Any necessary modifications were made. Questionnaires were distributed to nurses by the nursing superintendent and were made completed during their duty time. Before administration of the questionnaire, the purpose of the study was explained to each respondent and he/she was assured about the confidentiality of the information. Informed consent for participation was obtained from each nurse.

Data was collected, compiled and tabulated using Microsoft Excel and analysed using SPSS 17.0 version for calculation of percentage.

RESULTS

Most of the nursing students were aware of the concept of universal precaution. All of them (100%) agreed that aim of Universal precaution is to protect HCWs, prevent mutual transfer of infection and to protect them while handling sharp waste. 97% of nursing students used to wash their hands before and after patient care. 11% of nursing students got needle prick injury once during the last six months.

Table 1: Socio-demographic characteristics of the nurses (n=100).

Characteristics	No.	Percentage (%)
Age	•	
18-19	37	37
20-21	35	35
22-23	10	10
>23	18	18
Sex		
Male	13	13
Female	87	87

In Table 1 sociodemographic characteristics of nurses, it was found that 37% of nurses belonged to 18 to 19 years of age. It was also found that 87% of nurses were female.

In Table 2 nursing students knowledge about reasons for use of universal precaution. In reasons for use of universal precaution it was found that 100% of nursing student said reason for use of universal precaution is to protect health care worker. 99% said that it protects patients getting infected from HCW. While 100% said it protects HCW while handling infectious waste. On the other hand 99% said it protects HCW while handling sharp waste.

In Table 3, nursing students knowledge regarding indications of hand hygiene it was found 97% nursing

student washed their hand before and after patient care. Only 3% did not wash their hands before and after patient care

Table 2: Nursing students knowledge about reasons for use of universal precaution (n=100).

Reasons for use of universal precaution	No.	Percentage (%)
Protect health care worker	100	100
Protect patients getting infected from HCW	99	99
Prevent mutual transfer of infection	100	100
Protect HCW while handling infectious waste	100	100
Protect HCW while handling sharp waste	99	99

Table 3: Nursing students knowledge regarding indications of hand hygiene.

Indication of hand hygiene	Percentage (%)
Only before patient care	0
Only after patient care	0
Before and after patient care	97
Neither before nor after patient	3
care	J

DISCUSSION

A study conducted in western Algeria observed that lack of adherence to standard precautions was primarily due to lack of knowledge. More than 97% of teaching hospital nurses in the present study had heard about standard/universal precautions. A study which was conducted among nurses in Nigeria observed that only 34.2% had heard about standard/universal precautions. Kermode et al conducted a study among HCWs in rural north India and observed that knowledge of standard precautions was correct among only 56% of respondents. In a study among postgraduate nurses in Spain, a high degree of confusion and a lack of knowledge regarding standard precautions were observed.

Although almost all the nurses had heard of standard precautions, a much lower proportion (61.2%) was able to this fact that the blood and body fluids of all patients were potentially infectious irrespective of their diagnostic status, according to CDC guidelines.⁷ The remainder thought that only diagnosed patients or only suspected cases should be considered potentially infectious.

In the current study, 87% were female nurses. In reasons for use of universal precaution it was found that 100% of nursing student said reason for use of universal precaution is to protect health care worker. 99% said that it protects patients getting infected from HCW. While

100% said it protects HCW while handling infectious waste. On the other hand 99% said it protects HCW while handling sharp waste.

Two studies, one evaluating medical students, residents and attending physicians and the other evaluating second to fourth year nursing students showed that compliance with standard precautions was inversely proportional to years of experience and academic life, and was observed in both professions. ^{19,20}

These results reinforce the importance of an educational foundation in the first years of undergraduate work, and must be followed throughout the students' academic life, to ensure that the professional does not enter the job market unprepared with respect to standard precaution measures. This academic preparation process must continue through permanent education programs.

CONCLUSION

Although over 100% of nurses in this hospital were aware of standard precaution guidelines and their implementation was not up to standard. The findings of this study highlight the need to implement a programme to improve knowledge on standard precautions.

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