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Research Article

A Study on Knowledge, Attitude and Practice of Universal Precautions among Medical and Nursing Students

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Abstract: Healthcare workers (HCWs) are potentially exposed to risk of infection with blood-borne pathogens (BBP). Universal precautions (UPs) are a set of precautions designed to prevent transmission of HIV, HBV and other blood borne pathogens while providing health care. The knowledge and understanding of UPs among HCWs in developing countries is inadequate. Present study was conducted to assess the knowledge on standard Universal precautions among medical and nursing students. The cross sectional study was conducted among 50 nursing and 50 medical students. A questionnaire was prepared based on the WHO and CDC guidelines. In the present study overall correct response from medical students was 75.6% and from nursing students was 85%. Nursing students were better than medical students in almost all aspects of knowledge regarding Universal precautions as well as compliance to Universal precautions. This difference was statistically significant.
Keywords: Universal precautions nursing and medical students.

INTRODUCTION

Healthcare workers (HCWs) are potentially exposed to blood and body fluids (BBF) in the course of their work and therefore are at risk of infection with blood-borne pathogens (BBP). The types of exposure which may place healthcare personnel at risk of blood-borne infection may be a percutaneous injury (e.g., needle-stick or cut with a sharp instrument), contact with the mucous membranes of the eye or mouth, contact with non-intact skin (particularly when the exposed skin is chapped, abraded, or afflicted with dermatitis), or contact with intact skin when the duration of contact is prolonged (e.g., several minutes or more) with blood or other potentially infectious body fluids [1].

Universal precautions as defined by Centre for Disease Control are a set of precautions designed to prevent transmission of Human immunodeficiency virus (HIV), hepatitis B virus (HBV), and other blood borne pathogens while providing health care in any health care setup. Under Universal precautions, blood and certain body fluids of all patients are considered potentially infectious for HIV, HBV and other blood borne pathogens [2].

The recommendations of Universal precautions include; wearing gloves, gowns and aprons when collecting or handling blood and body fluids contaminated with blood; wearing face shields when there is danger of blood splashing on mucous membranes. Others include disposing of all needles and sharp objects in puncture-resistant containers. These recommendations are for doctors, nurses, patients, and health care support workers who are required to come into contact with patients or body fluids. Lastly, it is also recommended that all health care workers take precautions to prevent injuries caused by needles, scalpels and other sharp instruments or devices [3].

Worldwide, three million HCWs experience percutaneous exposure to blood-borne viruses each year (20,000,00 hepatitis B; 9,00,000 hepatitis C and 300,000 human immunodeficiency virus) [4]. Exposure to BBF can occur through a percutaneous injury (needle-stick injury, NSI) or mucocutaneous incident (BBF splash).

Awareness regarding the occupational risk led to the issue of guidelines by CDC as Universal precautions (UPs) in 1987, later updated in 1996 [5]. Despite detailed guidelines, the knowledge and understanding of UPs among HCWs even in developed countries has been found to be inadequate [6]. In developing countries, including India, the situation is worse and

occupational safety of HCWs remains a neglected issue [7, 8].

Medical students and nursing students are prone to accidental exposure to Blood Borne Pathogens and body fluids because of multitude of reasons such as, nature of their work, which invest extensive contact with the sick patients, specimen handling, lack of experience and skill, eagerness to learn new things and material, lack of awareness about policies and procedures to avoid the same. Hence present study was conducted in medical and nursing students of KMCT Medical College, Calicut with the following objectives:

- To assess the knowledge on standard precautions and post-exposure prophylaxis for HIV;
- To identify the gap between knowledge and practice of standard precautions; and
- To determine the perceived barriers against adherence to the standard precautions.

MATERIALS AND METHODS

The cross sectional study was conducted in July-August 2014 among medical and nursing students of tertiary care hospital in Kerala, India. This was a comparative study which used a standardized, structured self administered questionnaire to survey knowledge, attitude and practice of study population.

Expecting the prevalence of correct knowledge regarding UPs to be 50%, alpha 5% and chance error ±10%, the sample size worked out to be 96; therefore, 100 HCWs, comprising of 50 nursing and 50 medical students were studied.

Respondents from complete lists of both categories were selected using simple random sampling. A questionnaire was prepared based on the WHO and CDC guidelines on UPs and was pre-tested before finalization. Data was collected by personal interview after verbal consent. A database was created in MS Excel. Chi square test was used for comparing proportions and statistical significance was taken as $p < 0.05$.

RESULTS

In the present study respondent's answered multiple questions in each broad domain. We clubbed them to represent the knowledge and practice regarding Universal precautions among study subjects.

Table 1 shows the level of knowledge regarding UPs among study subjects. It shows that in spite of high level of awareness programmes for all health professionals knowledge of study subjects regarding UPs is low. In the present study overall correct response from medical students was 75.6% and from nursing students was 85%.

Most of the medical students i.e. 34% were not aware that UPs are required beyond HIV and hepatitis B. 42% of the medical students didn't know that sodium hypochlorite is used to decontaminate soiled articles. Most of the nursing students i.e. 56% had misconception regarding isolation of patients with blood borne pathogens.

Compliance regarding Universal precautions was even poor and majority of medical and nursing students were not using goggles when required. 44% of medical students and 62% of nursing students had habit of recapping needles.

Table 1: Knowledge about Universal precautions

	Doctor	Nurses	Total	p value
UPs categorise all patients as infective	37 (74%)	44 (88%)	81	0.074
UPs required for only HIV and Hepatitis B	33 (66%)	49 (98%)	82	0.000
Isolation of patient with BBP is necessary	48 (96%)	22 (44%)	70	0.000
Articles contaminated with body fluids can be disinfected with sodium hypochlorite	29 (58%)	47 (94%)	76	0.000
Immunization against Hepatitis B is necessary	42 (84%)	49 (98%)	91	0.74

Table 2: Compliance with Universal precautions

	Doctor	Nurse	Total	p value
Always use gloves	39 (78%)	48 (96%)	87	0.007
Always wash hands	33 (66%)	46 (92%)	79	0.001
Always use aprons	30 (60%)	32 (64%)	62	0.680
Always use masks	25 (50%)	49 (98%)	74	0.000
Always cover broken skin	27 (54%)	50 (100%)	77	0.000
Never recap needle	22 (44%)	31 (62%)	53	0.071

DISCUSSION

This study indicates that most of the health care workers in tertiary health care facility in India possessed incomplete knowledge, as shown by numerous other studies conducted in different parts of the country.

Our study findings regarding hand washing, use of gloves, apron and mask are in line with most of studies conducted by different authors for different group of health care workers [9].

Nursing students were better than medical students in almost all aspects of knowledge regarding Universal precautions as well as compliance to Universal precautions. There was significant difference in awareness score in nursing students as against medical students contradictory to findings as shown by other studies [10, 11], but most of these studies compared doctors with nurses. Medical students during MBBS have superiority complex that may be leading them to neglect Universal precautions.

Our study findings of a low level of compliance with Universal precautions among HCWs have also been noted in other studies [6, 7, 9]. It seems probable that an incomplete understanding of the principles underlying Universal precautions among tertiary HCWs affected their practices and led to reduced compliance than expected in this group.

CONCLUSION

To conclude, all were aware of Universal precautions but soundness of their knowledge is very poor. Compliance in Universal precautions is good to average in nursing students but poor to average in medical students. It can be concluded that interventions to improve Universal precautions compliance among HCWs in tertiary HCFs in India are urgently needed. So there is a need for developing strategies to promote the use of Universal precautions which take into account behaviour change and accuracy of knowledge including its integration into practice. Orientation training programme and regular workshops in Universal precautions should be organized for all health care workers including medical and nursing students.

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