

Knowledge Of Undergraduate Medical Students On Hospital Acquired Infections- An Original Research

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ABSTRACT

Aim

The purpose of the present research was to assess the knowledge of undergraduate medical students based on hospital acquired infections.

Methodology

A cross sectional study was conducted MBBS students through an online pre-coded, pre-designed, close end questionnaire which will mainly focus on the information about awareness of acquiring hospital based infections.

Results

A total of 205 students (82%) were aware about hospital acquired infections while the rest were either uncertain or unaware. 235 students (94%) strongly believe that health care workers are at risk of acquiring nosocomial infections though only (68%) had formal training in Hand Hygiene & Control against infections.

Conclusion

The study gave an idea of prevailing infections amongst medical students and common routes of entry helping in further planning of proper control measures to curb the same.

Keywords Awareness; Infection prevention; Medical students.

INTRODUCTION

Healthcare-associated infections (HCAIs) are infections caused by a wide variety of common and unusual bacteria, fungi, and viruses during the course of receiving medical care. Hospital employees can transfer infections to patients and other office workers. The estimated HCAI incidence rate in the USA was 4.5% in 2002, corresponding to 9.3 infections/1000 patient-days and 17 million affected patients. The burden of HCAIs is even higher in developing countries such as India, where the hospital-wide prevalence of HCAIs varies from 5.7% to 19.1%, with a pooled prevalence of 10.1%.¹ Simple measures such as hand hygiene (HH) can lead to effective control of these infections in varied healthcare settings. Healthcare workers, particularly medical students, are at risk of acquiring infection through occupational exposure, including needle-stick injuries (NSIs) and other invasive procedures that carry a risk of acquiring human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS), hepatitis B virus (HBV) and hepatitis C virus (HCV). Exposure to infectious diseases is one of the most frequently identified occupational hazards facing healthcare workers. According to WHO estimates, among the 35 million healthcare workers worldwide, nearly 3 million experience percutaneous exposure to blood-borne pathogens each year, 2 million of those to HBV, 0.9 million to HCV and 170,000 to HIV. These injuries may result in 15,000 HCV, 70,000 HBV and 1000 HIV infections. It is also important to note that >90% of these infections occur in developing countries such as India.² Risk reduction must be undertaken for all blood-borne pathogens through adherence to standard precautions, using personal protective equipment (PPE), appropriate use of safety devices and providing a needle disposal system in the work place.

Due to lack of training and experience in performing invasive procedures, medical students are at increased risk of exposure to blood-borne pathogens. Standard precautions are designed to prevent healthcare staff from being exposed to blood and body fluids by applying the basic principles of infection control through hand washing; utilization of appropriate protective barriers, such as gloves, masks, gowns, and eyewear; and safe handling of needles.³ Surveys have shown that the use of these standard precautions significantly decreases the number of incidents of occupational exposure to blood and decreases the incidence of nosocomial infection.^{4,5} Despite detailed guidelines, the knowledge and understanding of standard precautions and compliance to these precautions among physicians has been found to be inadequate, even in developed countries.⁶ In developing countries, including India, the situation is worse, and the occupational safety of healthcare workers remains a neglected issue.⁷ The weakest aspects reported include not practicing hand decontamination⁸, not using barrier protection, and the practice of recapping needles.⁹ To improve compliance, it is important to understand how medical students think about infection control, and the first step is to identify the strengths and weaknesses of their education. Further research is required to determine the knowledge levels among medical students because many studies have been performed on professional healthcare workers, and few studies have involved undergraduate medical students. This study was conducted to determine the awareness of medical students in relation to hospital infection prevention measures.

AIM OF THE PRESENT STUDY

The purpose of the present research was to assess the knowledge of undergraduate medical students based on hospital acquired infections.

METHODOLOGY

A cross-sectional study was conducted amongst 320 students. Approval was taken from the Institutional Ethics Committee (IEC). Informed consent was obtained prior to the study participation. The population of the study comprised of undergraduate medical students. The study was done using pre-coded, predesigned, closed end online questionnaire which covered the following- Knowledge of common infections acquired in the hospital, common route of acquiring these infections, common causative factors leading to infections, knowledge of preventive measures and associated control policy. Attitude of medical students towards common acquired hospital infections. The sampling was done using convenient sampling. The identity of the study participants were kept confidential and anonymous. Questionnaire data was collected online via Google forms. Data analysis was done by using Ms excel and SPSS 25.0.

RESULTS

A total of three hundred twenty students were invited to fill the questionnaire. (Table 1) Out of these, 250 medical students responded to the survey. Most students were in the age group of 21-25yrs -(66.8%), followed by 15-20yrs (28%). A total of 205 students (82%) were aware about hospital acquired infections while the rest were either uncertain or unaware. 235 students (94%) strongly believe that health care workers are at risk of acquiring nosocomial infections though only (68%) had formal training in Hand Hygiene & Control against infections. Hand hygiene is an important health care measure to reduce hospital acquired infections & most hospitals have Infection Control policy as standard protocol for implementation. There were mixed responses on various hand hygiene measures. 90.8% agreed that they use disinfectants when with patients, while only (51.2%) used gloves. Alcohol hand rub was more commonly used (72.8%). Approximately (10.4%-18.4%) students were found to be not following the various dress codes protocols for prevention. (Table 2)

Table 1- Questionnaire utilized in the present study

S.No.	Questions
1	Do you think it is necessary for medical students to be trained in hand hygiene?
2	Do you wear gloves regularly while treating patients?
3	Do you think hands are the most important source/reservoir of health care associated infections (HCAI)?
4	Do you think there is a certain group of population which is most susceptible to health care associated infections (HCAI)?
5	Do you know the minimum time needed for use of hand rubs?
6	Do you know correct hand hygiene practice?
7	Do you regularly wear masks while attending to a patient?
8	Do you think having an open wound is a reservoir of hospital acquired infection?
9	Are you aware of nosocomial infections?

10	Are you aware of proper dress code for prevention of infection?
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Table 2- Statistical measurements noted in the present study

Q. No.	% Observed in the participants	Mean± SD
1	93.7%	1.09±0.99
2	51.2%	2.03±1.67
3	45.8%	3.05±2.95
4	94%	0.77±0.12
5	72.8%	1.99±1.43
6	68%	2.02±1.56
7	55.9%	2.13±2.01
8	49%	2.88±2.321
9	82%	1.67±1.58
10	82.6%	1.5±1.03

DISCUSSION

Nosocomial infections are an important health issue globally and exposure to infectious diseases is a frequently identified occupational hazard faced by medical students. Preventive measures for such infections through adequate knowledge and awareness are important requirements for all medical students. The response rate of the students was 78% as not all of them responded to questionnaire. There were some wrong answers for some of the questions showing presence of defects in their knowledge. Our results showed that 82% of students are aware of hospital acquired infections and their preventive measures, which include proper hand hygiene, safety during contact with patients and safe use and disposal of sharps. Other study by Ibrahim AA. et al. showed a low awareness (48.44%), while study by Kadi AA. et al. showed 57.1% average awareness. An increased rate in our country might be due to various awareness programs and advertisements through government policies. Hand hygiene forms a major preventive measure in control of nosocomial infections. Our medical students were aware of washing hands before and after contact with patients (90.8%) and used gloves every time (51.2%). Less number of students may be using gloves because of financial constraints. Kadi AA et al. in their study also showed (36- 41.5%) of students using gloves. We observed that amongst common causes, patients with open wound are a frequent source of infection to medical students followed by unsterile surgical equipment's and dirty hospital floors. A large percentage (68%) of our medical students had a desire for formal training for prevention of nosocomial infections. This was also observed by Zahrani SA et al in their study (78.5%) this indicates importance of implementation of continuous training through infection control policy for all medical students in health care workers. Better strategies should be planned and implemented against nosocomial infections. Though a good number of students were aware of about existing infection control policy in the hospital (75.6%) but lack of invasive training (32.8%) in adequate supply of consumables (12%), poor supervision and monitoring by Control Committee (18.4%), or all these factors combined (36.8%) were all - together causing high prevalence of hospital acquired infections. Many studies have analysed health care workers at risk to these infections our observations show that doctors including medical students and interns (36.8%) are at maximum risk, (17.2%), and visitors & patient attendants (14%). Hospital cleaning staff are also at risk of acquiring various infections.

CONCLUSION

Hence, medical university should take necessary action to inform, educate and vaccinate the health care workers who may be at risk. Vaccination against various infections should be made mandatory for all health professionals.

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