

Knowledge, Attitude and Practices among nursing students on needle-stick injuries

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ABSTRACT

Aim: To assess the knowledge attitude and practice among nursing students on needle stick injury.

Methods: This Cross-sectional study was conducted in Nursing School, Sheikh Zayed Medical College/Hospital, Rahim Yar Khan, during September 2012. We conducted this cross-sectional questionnaire based study on 100 nursing students of four classes of nursing. All were involved in the direct day-to-day management of patients, answered a questionnaire inquiring about occurrence of needle stick injuries, how to open the needle, how to recap the needle, pre-cautionary measures against NSI, immediate response after NSI, report of incidence of NSI, follow-up after NSI, vaccination status of HBV virus, disinfection measures against Blood Borne Pathogens, potential predictors including work experience, work load, working habits, training and risk behavior.

Results: Out of total 100 students 44 nursing students reported needles stick injury during the previous 12 months. By causative item all students had been injured by a normal hollow-bore syringe needle. 14(32%) out of 44 students got NSI by unused syringes while 30(68%) out of 44 students got NSI by used syringes. 60% students had been vaccinated against hepatitis B, while 40% students had never been vaccinated. Recapping the needle was the most common causative event in 68% students of all cases. Analysis showed that in 90% student's risk factor for needle stick injuries was lack of training on such injuries. Poor recapping the needles and not using gloves when handling needles was found risk factor in 100% nursing students.

Conclusion: Hepatitis B vaccination coverage among the students is poor; therefore Hepatitis-B vaccination should be given to all students at admission. The principles of infection-control training and reporting of all needle stick injury continue to be emphasized throughout undergraduate nursing education. Training in the techniques could play a role in reducing the risk for occupational exposure to Blood Borne Pathogens among nurses. In view of the accelerating HCV epidemic, implementation and evaluation of such training programs are urgently needed.

Keywords: Needle sticks injuries, Blood-Borne Pathogens, Nursing Students.

INTRODUCTION

Nursing Students who have occupational exposure to blood are at increased risk for acquiring blood-borne infections. The level of risk depends on the precautions observed by nursing students while dealing these patients¹. There are more than 20 blood-borne diseases, but those of primary significance to nursing students are hepatitis due to either HBV or HCV and AIDS due to HIV². A sizable number of individuals are at potential risk for transmission of blood-borne diseases to doctors, laboratory technicians, blood bank workers, nurses, persons working in renal dialysis and transplant units, and other health care workers^{3,4}. Despite a heavy burden of HCV & HBV and other blood borne infections, few studies have investigated needle stick injuries in Pakistan^{5,6}. A little research has been conducted to determine what factors produce

variations in needle stick injury rates across hospitals or hospital units and nursing staff working climate are important determinants^{2,7}. Chances for transmission of HCV from needle prick is 3% and HBV is 10%. This transmission depends on depth of NSI, blood sample and visible blood on needle. Chances of transmission are less if sterile syringe has been used for injection⁸.

METHODOLOGY

We conducted this cross-sectional questionnaire based study, in nursing school Sheikh Zayed Hospital, Rahim Yar Khan. Study population consisted of 100 nursing students of four classes of nursing. All were involved in the direct day-to-day management of patients, answered a questionnaire inquiring about occurrence of needle stick injuries, how to open the needle, how to recap the needle, pre-cautionary measures against NSI, immediate response after NSI, report of incidence of NSI, follow-up after NSI, vaccination status of HBV virus,

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disinfection measures against BBP, potential predictors including work experience, work load, working habits, training and risk behavior.

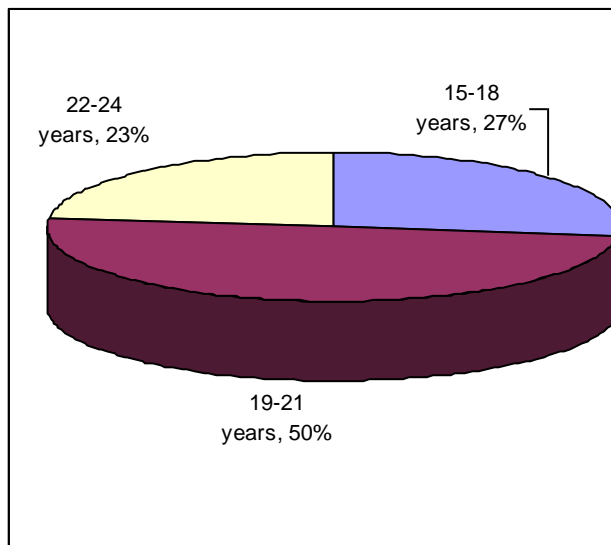
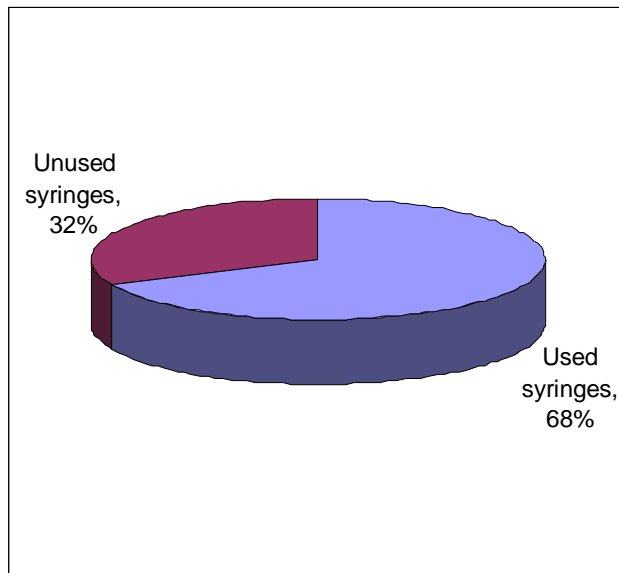
Data collection was carried out using a standardized questionnaire. The respondents were given a briefing on the aim of the study and were asked not to disclose their identity and this survey is only for research purposes. A researcher was present during the survey administration to answer queries raised by respondents. The survey was conducted in September, 2012. The first part of the questionnaire contained information about HBsAg and anti HCV status and second part was on the knowledge and use of preventive measures regarding needle-stick injuries. Data was entered and analyzed using the SPSS-16.

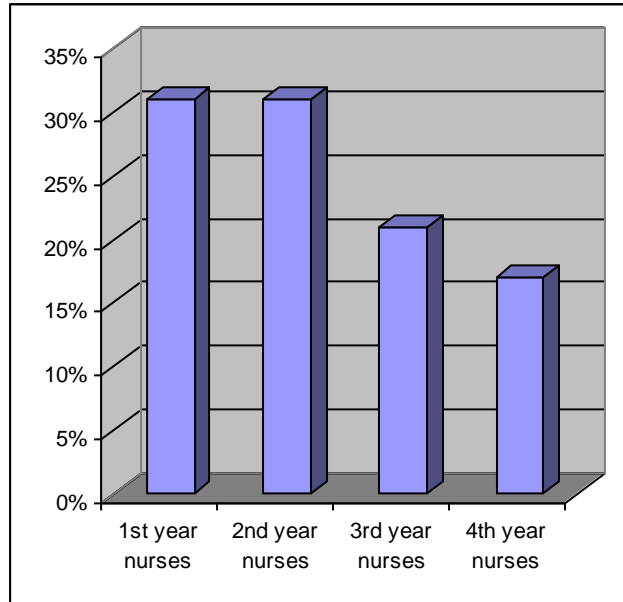
RESULTS

From a group of 100 nursing students, all successfully completed questionnaires used for analyses. Out of total 100 students 44% nursing students reported needles stick injury during the previous 12 months. By causative item all students had been injured by a normal hollow-bore syringe needle. 14(32%) out of 44 students got NSI by unused syringes while 30(68%) out of 44 students got NSI by used syringes. Most needle stick injuries occurred in the teaching hospital, Sheikh Zayed Medical College/Hospital, RY Khan. Recapping the needle was the most common causative event in 30 out of 44 students. A total of 14(32%) out of 44 of needle stick injuries were not reported. The main reason for non-reporting was that the item was unused. Analysis revealed that 12(70.58%) out of 44 students of the 4th year have experienced a needle stick injury. These injury rates were higher among 4th year students due to more exposure to patients. Analysis showed that the most important risk factor for needle stick injuries was lack of training on such injuries and other important risk factors included recapping needles most of the time and not using gloves when handling needles. All the subjects were negative for Hepatitis B and Hepatitis C. This was confirmed from their medical record. Also, 60% students had been vaccinated against hepatitis B, while 40% students had never been vaccinated. Out of 60 students, only 06 had been tested for anti-HBs antibodies after hepatitis B vaccination to check their response. Analysis shows that level of knowledge and preventive measures taken by health care workers regarding needle stick injuries was poor. Our study showed that all students were aware of the

fact that AIDS and hepatitis C and hepatitis B can be transmitted by needle stick injury. Only 4 students (4 out of 60) reported doctors to get post-exposure treatment, and only 10 students out of 100 were in the habit of using gloves regularly. Twenty students were of the impression that needles should be recapped after use, and only 44 students were aware of universal precaution guidelines, while only 50% of subjects had adequate knowledge of new needle devices and the safety features.

NSI Injuries





DISCUSSION

A little research has been conducted to determine what factors produce variations in needle stick injury rates across hospitals or hospital units and nursing staff working climate are important determinants^{2,7}. Needle stick and sharps injuries are the most efficient method of transmitting blood-borne pathogens between patients and healthcare staff. Although nurses are known to be a high-risk subgroup for these events, nursing students may be at even greater risk due to their limited clinical experience. Despite this fact the epidemiology of needle stick and sharps injuries among nursing students has not been clearly evaluated. To examine the impact of structured training on prevention of occupational exposure to blood borne pathogens (BBP) on knowledge, behavior, and incidence of medical sharp injuries among student nurses^{9,10,11}.

This paper reports the first investigation of the prevalence and nature of needle stick injuries among nursing students in SZH Rahim Yar Khan. These nursing students are normally directly exposed to blood products and needle-stick injuries while dealing with patients. In this study, 100% nurses participated were aware of the fact that hepatitis B and C can be transmitted by needle-stick injury, but over 20% not aware about other infections other than hepatitis B & C, can also be transmitted by needle-stick injuries⁸. Some students had been tested for anti-HBs antibodies after hepatitis B vaccination to check their response¹¹. Analysis shows the poor level of knowledge and preventive measures taken by

nursing students regarding needle stick injuries¹². Our study showed that 20% of student nurses were unaware of the fact that other infections can be transmitted by NSI. The study showed a high rate of needle stick injuries among nurses working in hospital. The strongest predictor for needle stick injuries was lack of training. Other important risk factors were related to long working hours, working habits, and experience. Despite a heavy burden of HCV and HBV and other blood borne infections, few studies have investigated needle stick injuries in Pakistan^{5,6}. We estimated the frequency of needle stick injuries to hospital nurses based on data from various sources¹³. We also found that nurses who were poor in recapping needles were at heightened risk for injury. Positive working climate for nurses significantly reduced risk for injury¹. The results reported in this article extend the work of that study by exploring how risk factors associated with needle stick injuries and the relative frequency of needle stick injuries among hospital nurses^{13,14}. The risk of occupational exposure to blood borne pathogens (including hepatitis B, hepatitis C and HIV) via sharp injuries such as needle stick injuries (NSIs) among health care workers, especially dental, nursing and midwifery students is a challenging issue. Inadequate staff, lack of experience, insufficient training, duty overload and fatigue may lead to occupational sharp injuries. The aim of this prospective cross-sectional study was to evaluate the frequency of NSIs in Iranian dental, nursing, and midwifery students and their knowledge, attitude and practices regarding prevention of NSIs. Similar Study of Prevalence and Response to Needle Stick Injuries among Health Care Workers in a Tertiary Care Hospital in Delhi, India was carried out in a large tertiary care hospital in Delhi in the month of March 2008. The respondents included 322 health care workers of the hospital, consisting of 64 senior residents, 47 junior residents, 74 interns, 52 nursing staff, 42 nursing students, and 43 laboratory technicians. A large percentage (256 or 79.5%) of HCWs reported having had one or more NSIs in their career, maximum among the nursing students (94.2%). The average number of NSIs ever was found to be 3.85 per HCW (± 3.29 SD). Among the HCWs who had been working for at least 1 year, the mean number of NSIs was as high as 4.5 (± 3.4 SD). A specific question was asked about NSI injuries during the last month of work. Seventy-two (22.4%) of the respondents reported having received a NSI within the last month. The maximum NSI within last 1 month was reported among three groups-senior residents (26.6%), lab technicians (25.6%), and nursing students (25.0%)¹⁵.

CONCLUSIONS

Hepatitis B vaccination coverage among the students was poor and it is important to vaccinate for Hepatitis-B to all nursing students at the time of admission. The principles of infection control training and reporting of all needle stick injury continue to be emphasized throughout undergraduate nursing education. Structured training in prevention of occupational exposure to BBP will improve knowledge, behavior and reduced the number of needle stick. In view of the accelerating HCV epidemic, implementation and evaluation of such training programs are urgently needed. The occurrence of NSI was found to be quite common. Avoidable practices like recapping of needles were contributing to the injuries. Prevention of NSI is an integral part of prevention programs in the work place, and training of HCWs regarding safety practices Education about transmission of blood borne infections, standard precaution and increasing availability of protective strategies must be enforced.

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