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Original Research Article

Knowledge and practices of health care workers regarding needle - stick injury in a tribal setting of Rajnandgaon, Chhattisgarh, India

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ABSTRACT

Background: Needle Stick Injuries (NSIs) in healthcare settings are a global issue. Percutaneous injuries, caused by needle sticks and other sharps, are a serious concern for all Health Care Workers and pose a significant risk of occupational transmission of blood borne pathogens. The incidence of NSI is considerably higher than current estimates, because of gross under reporting and hence a low injury rate should not be interpreted as a nonexistent problem. The present study was carried out to determine the occurrence of NSI among various categories of HCWs.
Methods: The present prospective cross sectional study was carried out at the 400 bedded Government Medical College Hospital, Rajnandgaon, Chhattisgarh, India during period from November 2015 to August 2016. Out of total (180) study participants, 18 were doctors, 142 nurses and 20 lab technicians from different clinical departments/wards of the hospital. Data was collected by using a predesigned pretested questionnaire. The first part of the questionnaire contained information on background characteristics and second part contained the questions regarding knowledge and practices about NSI.
Results: Out of 180 HCW, 149 (82.78%) were females and, 31 (17.22%) were males. Majority of the subjects were nurses (78.89%). 92.2% subjects were aware of the Needle Stick Injury (NSI). 85% of the subjects knew that certain diseases can be spread through NSI. Almost all of them were using disposable/auto disabled syringes and needles at the hospital. Re-capping of used needle was practiced by 35.5% subjects. 63.8% subjects gave history of NSI in the last one year. Most chances of getting NSI were found to be while working in the Obstetrics and Gynecology Department (29.4%). 68.9% of the study subjects were immunized completely against Hepatitis B.
Conclusions: There was gap between the knowledge and use of preventive measures. There is a need to address this gap by organizing on job training, retraining at regular intervals, workshops for HCWs regarding hazards, preventive measures and post-exposure prophylaxis for NSIs. Preventing NSI should be an essential part of any blood borne pathogen prevention strategy in the work place.

Keywords: Disposal practices, Health care workers, Needle-stick Injury, Recapping practices

INTRODUCTION

NSIs are wounds caused by sharps such as hypodermic needles, blood collection needles, IV cannulas or needles used to connect parts of IV delivery systems. Needle Stick Injuries (NSIs) in healthcare settings are a global issue. NSIs are the second most commonly reported adverse incident within the National Health Services UK

(17%), and constitute a major hazard for the transmission of viral diseases, prion disease, HIV and other infections. Percutaneous injuries, caused by needle sticks and other sharps, are a serious concern for all Health Care Workers (HCWs) and pose a significant risk of occupational transmission of blood borne pathogens.[1-3]

Because of the environment in which they work, many HCWs from physicians, surgeons, and nurses to housekeeping personnel, technicians and waste handlers are at an increased risk of accidental needle stick and sharps injuries. As a result, these workers are prone to occupational acquisition of various blood borne pathogens, including the microorganisms causing HIV/AIDS, hepatitis B and C, malaria, infectious mononucleosis, diphtheria, herpes, tuberculosis, brucellosis, spotted fever and syphilis.[2]

The meta-analysis of worldwide studies suggests that risk rate for HCWs exposed to HIV infected blood through percutaneous injuries is 0.3-0.4% per injury. This information suggests that a sizeable number of HCWs are at potential risk of infections with blood borne pathogens after a needle stick injury. In India, authentic data on NSI are scarce. The incidence of NSI is considerably higher than current estimates, because of gross under reporting and hence a low injury rate should not be interpreted as a nonexistent problem.[4-9]

The present study was carried out to determine the occurrence of NSI among various categories of HCWs, and the causal factors, the circumstances under which these occur and to, explore the possibilities of measures to prevent NSIs.

METHODS

The present prospective cross sectional study was carried out at the 400 bedded Govt. Medical College Hospital, Rajnandgaon, Chhattisgarh, India during period from November 2015 to August 2016. Prior approval was taken from Institutional Ethical Committee of the college for conduct of the study.

Universal sample consisting of HCWs was considered and of them 180 HCWs were ready to participate in the study after they were explained the purpose of the study (Informed consent). Out of total study participants, 18 were doctors, 142 nurses and 20 lab technicians from different clinical departments/wards of the hospital. These HCWs carry the risk of getting directly exposed to blood products and NSI while dealing with patients.

Data was collected by using a predesigned pretested questionnaire based on the available evidence based literature.[4,7,10] The first part of the questionnaire contained information on background characteristics of the HCWs. The second part contained the questions regarding knowledge and practices about NSI. Data was compiled in MS excel and checked for its completeness and correctness. Then it was analyzed by using suitable statistical software package.

RESULTS

Out of 180 HCW, 149 (82.78%) were females and 31 (17.22%) were males. Majority of the subjects were Nurses followed by Lab technicians and doctors. Out of 180 subjects, 71.66% were having experience less than 5 years. 82.2% subjects were trained about NSI during their professional course training. Only 17.8% subjects were subjected to workshop / hands on training on Safe Injection Practices (SIP) while on previous or present job (Table 1).

Table 1: Background characteristics of study subjects.

Background characteristics	No.	%
Sex		
Male	31	17.22
Female	149	82.78
Job category		
Doctor	18	10
Lab. Technician	20	11.11
Nurse	142	78.89
Years of experience		
<5 year	129	71.66
>5 year	51	28.44
Educated during professional training about NSI		
No	32	17.8
Yes	148	82.2
Workshop or hands on training conducted for Safe Injection practices		
No	148	82.2
Yes	32	17.8

In the current study, 92.2% subjects were aware of the Needle Stick Injury (NSI). About 85% of the subjects knew that certain diseases can be spread through NSI, out of which 37.8% of the subjects were aware that Hep B can be spread through NSI. 93.3% subjects had knowledge about the precautionary measures to be taken while taking the blood sample or treating patients with injections or IV cannulas.

57.8% subjects responded that the site of NSI should be washed with soap and water immediately. Almost all of them were using disposable/auto disabled syringes and needles at the hospital. Re-usable glass syringes and needles were not used at all.

Re-capping of used needle was practiced by 35.5 % subjects. 68.9% subjects were completely immunized against Hep B until then. Around 90% of the subjects responded that the needle destroyer / sterilizer were available at their workplace. 90% subjects agreed that the disposal of the used syringes and needles was done along with the general waste of the hospital, and remaining 10% said that it was segregated from the general waste.

Majority of 63.8% subjects gave history of NSI in the last one year; 20.6% of subjects have history of NSI 1- 2 times in the last one year; 15.6% having history of NSI 3-4 times in the last one year.

Table 2: Knowledge and practices related to needle stick injuries (NSIs).

Knowledge and practices	Frequency	Percentage (%)
Whether knew about NSI		
No	14	7.8
Yes	166	92.2
Knowledge about diseases that can be spread due to NSI		
Hep. B	68	37.8
Hep. B, Hep. C	18	10.0
Hep. B, Hep. C, Malaria, HIV	18	10.0
Hep. B, HIV	4	2.2
Malaria	18	10.0
HIV	27	15.0
Don't know	27	15.0
Knowledge about precautions to be taken while taking blood sample & giving injections		
No	12	6.17
Yes	168	93.3
Knowledge about measures to be taken after NSI		
Let the blood flow	6	3.3
Wash injured site with soap & water	104	57.8
Didn't do anything	20	11.1
Type of syringes & Needles used in hospital		
Disposable/ Auto disabled	180	100.0
Glass syringe & needle	0	0
Practice of recapping the needle after use		
No	64	35.6
Yes	116	64.4
Availability of Needle Destroyer/ Sterilizer at workplace		
No	18	10.0
Yes	162	90.0
Disposal of used Syringes and Needles		
With general waste	162	90.0
Segregating hazards waste from general waste	18	10.0
History of NSI episodes during last one year		
0	115	63.8
1 – 2	37	20.6
≥ 3	28	15.6
History of NSI episodes till date		
0	108	60
1 – 2	48	26.7
≥ 3	24	13.3
In Which Department You Were Servicing While NSI Happened		
Obstetrics & Gynecology	53	29.4
Medicine	23	12.8
Surgery	40	22.2
Pediatrics	10	5.6
Orthopedics	6	3.3
Others	48	26.7
Total	180	100.0
Immunized completely against Hepatitis B		
No	56	31.1
Yes	124	68.9

60% subjects gave no history of NSI till then; 26.7% subjects gave history of NSI 1-2 times till then; 13.3% subjects gave history of NSI 3 and more times till then. Most chances of getting NSI was found to be while working in the Obstetrics and Gynecology Department (29.4%) followed by the Surgery department (22.2%) and others like Internal Medicine. 68.9% of the study subjects were immunized completely against Hepatitis B (Table 2).

DISCUSSION

There are many national and international studies which cover different aspects of knowledge and practices associated with NSI, among the various categories of health care workers.[11-13] In present study, the number of study subjects were 180, whereas in other studies were 80, 70 and 104 respectively.[1,14,15] In this study, out of total participants, 82.78 % were females. In a study by Alam M, also majority of subjects were females (66%).

92% subjects were aware of the needle stick injury (NSI) in the present study. A study by Gurubacharya DL, et al among HCWs on NSI showed that 96% and 39% of the health care workers respectively were aware of the fact that Hep B and C infection can be transmitted by NSI. The risk of getting Hep B, Hep C and HIV from NSI was well known amongst doctors and nurses in the study by Zafar, A, et al, while in present study about 37.8% of the subjects were aware Hep B can be spread through NSI.

Around 90% of the subjects responded that the needle destroyer / sterilizer were available at their workplace. 60 % subjects had no history of NSI in their professional life but 26.7 % subjects had 1-2 episodes of NSIs. In the study done by Gurubacharya DL et al and Muralidhar S et al shows that 74% and 79.5% subjects had history of NSI respectively which is higher as compared to the present study.[2,14]

The study done by Jahan S in Soudi Arabia, showed that incidence/ prevalence of NSI among health workers was 22.6% which is lower as compared to the present study.[16] Almost all of the HCWs engaged in treatment of patients were using disposable syringes and needles at the hospital. Re-usable glass syringes and needles were not used at all. In reply to the question should needle be recapped after use in study by Alam M et al 29% subjects had replied as "yes". In the current study the recapping of used needle was practiced by 35.5% subjects which reflect the poor practices among health care workers. 68.9% subjects were completely immunized against Hep B in this study while in study by Alam M it was found to be 84%, and in another study it was 60%, which is higher than the current study.[14,15]

57.8% subjects responded that the site of NSI should be washed with soap and water immediately. Most chances of getting NSI was found to be while working in the Obstetrics and Gynecology department (29.4%) followed by the Surgery (22.2%) and others like Internal Medicine. Given the serious, and even fatal, consequences of sharps injuries and the limited effectiveness of post exposure therapies, it is crucial that measures to prevent sharps injuries from occurring be adopted. Therefore, it is high time to introduce syringes and other engineered equipments with safety devices as their use in the developed world has reduced the number of NSIs significantly.[17,18]

CONCLUSION

The present study reveals that knowledge of HCWs about the risk associated with needle-stick injuries was adequate, but when it comes to practice there was yawning gap between the knowledge and use of preventive measures. There is a need to address this gap by organizing on job training, retraining at regular intervals, workshops for HCWs regarding hazards, preventive measures and post-exposure prophylaxis for NSIs.

Recommendation

Preventing NSI should be an essential part of any blood borne pathogen prevention strategy in the work place. Every healthcare facility must have an Infection Control Protocol in place through a working hospital Infection Control Committee.

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