

KNOWLEDGE, ATTITUDE AND PRACTICE TOWARDS NEEDLE STICK INJURY AMONG HEALTH CARE WORKERS IN A TERTIARY CARE HOSPITAL OF PESHAWAR

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ABSTRACT

BACKGROUND: Accidental needle stick injuries (NSI) are an occupational hazard for health care workers which prone them to transmission of various blood borne infections. The aim of our study was to assess the knowledge, attitude and practices of health care workers regarding needlestick injuries in our hospital.

METHODS: This descriptive cross sectional survey was conducted in Medical Teaching Institution, Lady Reading Hospital Peshawar and 285 health care workers participated in the study. Data was analyzed using SPSS version 17.

RESULTS: In this study 285 HCWs participated. 64.9% (n=185) of the participants had exposure to NSI. A common practice after the needle injury was to press and allow the site to bleed (67.6%), whereas 62.7% of the participants preferred to wash the injured site with tap water and soap and 52.4% with antiseptic solution. Only one third of the participants had received sharp related training. Half of the (54.11%) doctors had sufficient knowledge about the post exposure prophylaxis of the hepatitis B, C and HIV. 61.1% of the workers used tray to keep syringes, and only 49.1% wore gloves while working, 22.5% bend/broke needles by hand, 14.4% experienced a danger practice of moving with uncapped needles, 73% used sharp disposal container and needle destroyer was used in 49.4% of the cases. Approximately half (54.4%) of the HCWs were not vaccinated against hepatitis B.

CONCLUSION: Occupational exposure to blood borne pathogens via NSI was quite high in our study. Lack of awareness of these hazards, under-reporting, and low knowledge about post exposure prophylaxis makes it imperative to address this issue and train the HCWs by organizing regular training sessions for them.

KEY WORDS: Needlestick Injury (Nsi), Health Care Worker (Hcw), Tertiary Care Hospital.

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INTRODUCTION

Accidental needle stick injuries (NSI) are an occupational hazard for health care workers. As a result of contaminated needle injuries these

workers are more prone to transmission of various blood borne infections most commonly hepatitis B, hepatitis C and HIV¹. According WHO World Health Report 2002, 2 million HCWs around the globe incur needle stick

injuries each year^{2,3}. In Pakistan annual incidence rate of NSI is approximately 12-27 NSI per year per 100,000 doctors⁴. These figures suggest that a sizable number of HCWs are at a potential risk for transmission of blood-borne diseases. Numerous factors such as two-handed recapping, unsafe collection and disposal of sharps waste, work overload and fatigue are associated with the NSIs. Many of these injuries and blood borne infections can be prevented by applying simple strategies such as immunization of the HCWs, replacement of traditional devices with newer safety devices, discouraging unsafe and unhygienic injection practices, improving working environments and educating HCWs through safety programmes regarding hazards of needle stick injuries⁵.

The aim of our study was to assess the knowledge, attitude and practices of health care workers regarding needlestick injuries in our hospital.

MATERIAL & METHODS

This descriptive cross sectional survey was conducted in Medical Teaching Institution, Lady Reading Hospital Peshawar. Participants were randomly selected. Verbal consent was taken from participants prior to administration of the questionnaire.

Health care workers involved in clinical work irrespective of age and sex during study period were included in the study. Amongst sharps, only needle stick injuries i.e. injuries with syringes/needles for IM or IV use or blood sample collection, or by phlebotomist for various purposes, needles for subcutaneous/subdermal injections or needles used for suturing etc were included. Health care workers exposed to blood or body fluid through all other means e.g., splash and those HCWs who were unwilling to be interviewed, were excluded.

A pre-designed questionnaire was used as a source of data collection. The questionnaire consisted of a simple tick box format. The data was analyzed using SPSS version 17. Frequencies were calculated for all variables, which gave the numbers and percentages of responses.

RESULTS

In this study ,285 HCW participated. 59.3% of the participants belonged to medicine & allied department. Majority (64.9%) of participants had experience of less than 5 years and 64.9% of the participants had exposure to NSI (table 1).A common practice after the needle injury was to press and allow the site to bleed (67.6%), only 10.8% of the workers consulted relevant doctor. In 18.4% of the cases serostatus of the source was known at the time exposure (figure 1).

Only 33% of the participants had received sharp related training. 54.11% (n=92/170) of the doctors had sufficient knowledge about the post exposure prophylaxis of the hepatitis B, C and HIV whereas none of the nurses or other paramedical staff had sufficient knowledge about the post exposure prophylaxis (figure 2).10.53%and 8.07% of the HCWs were not sure about the transmission of HIV and HBV/HCV via NSI respectively. Similarly 16.14% of the HCWs were not sure about the role of gloves in the prevention of pathogens transmission via needle stick injury (table 2).

A worrisome factor was that 54.4% (n=155)of the HCWs were not vaccinated against hepatitis and none of the workers have checked their Anti HBs antibody titers or taken booster doses (table 3).During routine practices in ward only 49.1% wore gloves while working. Similarly14.4% experienced a danger practice of moving with uncapped needles (figure 3).

DISCUSSION

NSIs are a potentially serious threat to health care workers. Its high prevalence exposes them to the risk of acquiring life threatening blood borne pathogens. 64.9% of the participants in our study experienced needle stick injury which is in comparison with findings in other studies around the world. Study by Devaki T et al., in India and Habib F et al., in Karachi showed almost similar findings (62.42% & 66% respectively)^{6,7}. Similarly a study in Korea by Cho E et al showed 70.4% of the nurses had experienced NSIs in one year.⁸A study conducted on nurs-

es in Iran also showed almost similar pattern(76%)whereas in Nigeria 51% prevalence has been reported^{9,3}. High prevalence of NSI in these studies shows that inspite of improving quality it is still a common problem in all parts of the world.

Participants were questioned about their post injury immediate practices.Most of the participants (67.6%) pressed and allowed the injury site to bleed followed by washing the injured site with soap and tap water (62.7%) or antiseptic solution (52.4%). Salelkar S et al in India also showed similar findings. Around 52% of the health care workers washed the site with soap and water, 71.5% applied an antiseptic and 3.5% washed injured site with water only¹⁰. Newsom DH et al. reported that the most common action was to squeeze the puncture site and then to wash it with bleach¹¹. Study by Devaki T et al showed that almost 37% used soap & water, 41.5% used antiseptic solution, and approximately 11% allowed the injury site to bleed⁶. The ratio was 87.9%, 89.4% and 76.6% respectively in a study conducted in Rawalpindi by Siddique K et al¹². Study by Guruprasad Y et al showed 26% participant allowed injured site to bleed, 12% used water and soap and 26% used antiseptic solution¹³. These studies show that there is lack of standardized practice after injury and it is in part of lack of education and training of the HCWs.

Early reporting and positive responses to reports of the needle stick

injuries enhance safety. Only 10.8% of the NSIs are reported in our study and that's why a small number of the participants got proper treatment. Similar findings were also observed around the globe. Study by Salelkar S et al in India,Gurubacharya DL et al in Kathmandu, and Bhardwaj A et al in Malaysia showed reporting

TABLE 1: CHARACTERISTICS OF THE PARTICIPANTS

Characteristics of the participants	No. (%)
Total no. of participants	N=285
Gender	
Male	151(53%)
Female	134(47%)
Unit	
Medical & Allied	169(59.3%)
Surgical & Allied	116(40.7%)
Designation	
Doctors	170(59.6%)
Nurses & Paramedicalstaff	115(40.4%)
Experience	
<5yrs	185(64.9%)
5-10yrs	60(21.1%)
11-15yrs	16(5.6%)
>15yrs	24(8.4%)
History of NSI	
Yes	185(64.9%)
No	100(35.1%)

TABLE 2:

	Yes	No	Not Sure
Can NSI transmit Hep B & C?	90.88%	1.05%	8.07%
Can NSI transmit HIV?	87.01%	2.45%	10.53%
Can use of gloves prevent transmission of Hep B, C and HIV via NSI?	74.38%	9.4%	16.14%

TABLE 3: VACCINATION STATUS OF HCWS

Immunization against hep B	No. (%)
Yes	130(45.6%)
No	155(54.4)
Post vaccination anti HB IGM levels measured and booster doses of hep B vaccine used when indicated	Nil

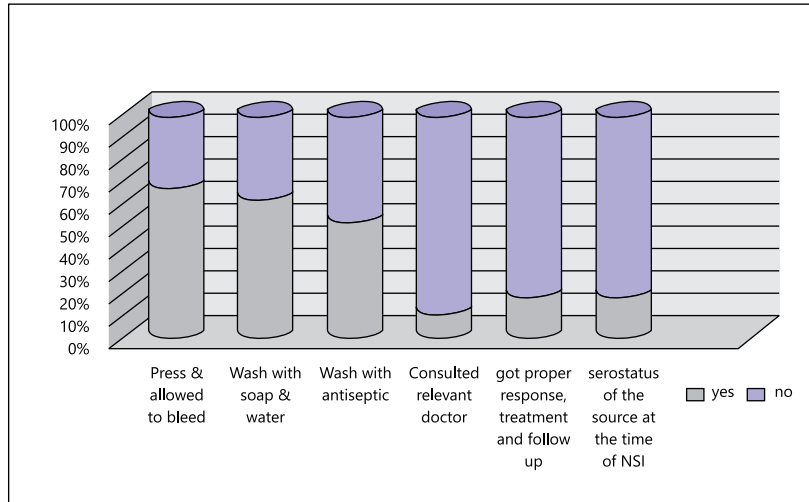


Figure 1: Practices following NSI

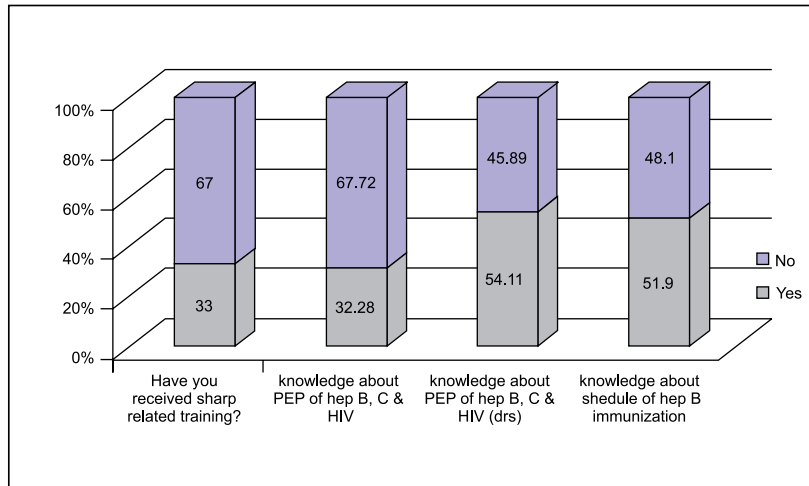


Figure 2:

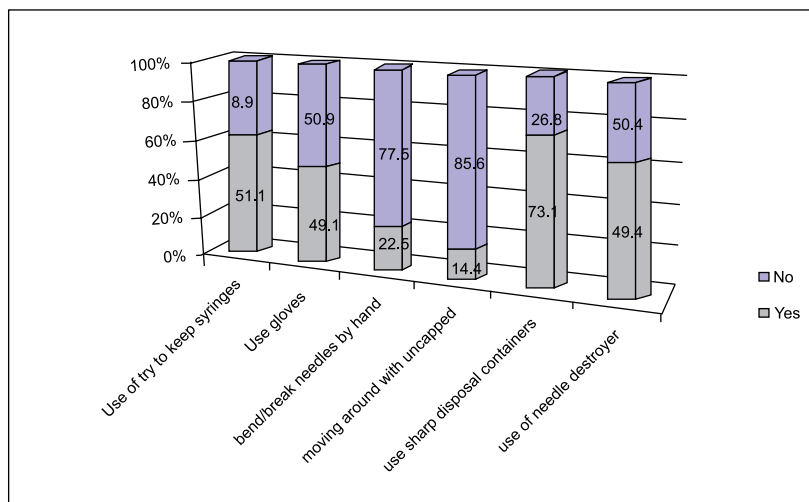


Figure 3:

of 21%, 32% and 20.9% of the cases respectively^{10,14,15}. Another study from Pakistan in Karachi showed report-

ing rate of 29.8%¹⁶. Study by Hanafi MI et al and Habib F et al., showed nonreporting of 74.7% and 80% of

the cases respectively^{17,7}. Our study also showed very low follow up and testing for exposed HCW (18.44%). Causes of low reporting rate in most studies include perceived low risk of infection with NSI, lack of knowledge of how and to whom to report, non-existing infection control office which usually facilitate these activities and fear of blame or unemployment.

There is no proper training programme of the HCWs regarding NSIs. Only 33% of the participants had received sharp related training in our study. Study by Devaki et al showed similar findings (37.65%)⁶.

10.53% and 8.07% of the HCWs were not sure about the transmission of HIV and hepatitis B/C respectively via NSI. Most of them were nurses and other paramedical staff with low experience. A study conducted on medial students in Karachi showed 90% of the medical students were aware of HBV, HCV and HIV transmission via NSIs¹⁶. Whereas in a study by Devaki T et al and Habib F et al, 92% and 57.95% of HCWs were sure about transmission HIV, HBV and HCV via NSI respectively^{6,7}.

Patients with NSI should seek treatment as soon as possible, as efficacy of postexposure prophylaxis declines after 48 to 72 hours. Early work up, treatment and monitoring of the patients can be provided with proper education regarding PEP. Unfortunately only 54.11% of the doctors had sufficient knowledge about the post exposure prophylaxis of the hepatitis B, C and HIV whereas none of the nurses or other paramedical staff had adequate knowledge about the post exposure prophylaxis. Similar findings were observed in a study in India which showed among doctors in Delhi 62.8% were not aware of PEP for HIV¹⁸. However, another study in India by Salekar S et al., showed all doctors and approximately more than half of the other staff members were aware of PEP for HIV.

A worrisome factor was the low immunization rate (45.6%) of the HCWs against hepatitis B in our study. A study in Egypt by Hanafi MI et al¹⁷ showed immunization of only 15% of HCWs whereas some other studies

showed immunization of 56%, 60% and 92.8% of the participants^{6,14,15}.

Most of the workers used tray to keep syringes (61.1%), and used sharp disposal container (73%) or destroyer (50%). However some had a danger practice of moving with uncapped needles and bending or breaking needles by hand. Devaki T et al showed almost similar findings. Needle destroyer was used in 37.7%, and sharp disposal container in 36.8% of the cases. In Guruprasad Y et al disposal container was used in 15%, needle was bend and thrown in dustbin in 7% and needle destroyer was used in 44% of the cases. In our study only half of the workers wore gloves while in practice. Salelkar S et al, showed use of the gloves by 58% of the workers. Lee LK et al showed use of gloves by 62% of the participants during procedures whereas a study in Malaysia showed use of the gloves by 83% of the participants^{19,15}. All these findings show the improper disposal of the syringes and avoidance of use needle destroyers by the HCWs which leads to high risk of disease transmission in case of exposure.

CONCLUSION

Occupational exposure to blood borne pathogens via NSI was quite high in our study. Lack of awareness of these hazards, underreporting, and low knowledge about post exposure prophylaxis makes it imperative to address this issue. It is crucial to train the HCWs by organizing regular training sessions throughout their career and improve their knowledge about preventive protocols in the future. Reporting of the NSI should be encouraged and complete vaccination of the workers must be mandatory before entering into practices.

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CONFLICT OF INTEREST

None declared.

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NIL

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.