

Case Report

Needle Stick Injuries: Continuous Surveillance is Essential Task

Avinash Kumar*, Palash Das, Vipin V Nair, Georaj P, Rakhi T Raj and Vikas Johns

Department of Microbiology & Infection Control, The Mission Hospital, Bidhanagar, Durgapur, India

Abstract

Needle Stick injuries (NSIs) among Health Care Professionals (HCPs) are one of the significant aspects of any Hospital and it should be monitored continuously and sincerely to prevent blood borne infections. The main objective of this 1 year, annual prospective study is, to be acquainted with the prevalence of NSIs in our tertiary care hospital, so that we can determine risk factors for injury, and do potential interventions for prevention.

Keywords: Blood born viral infections; Health care professionals; Needle sticks injuries; Post exposure prophylaxis

Introduction

Healthcare Professionals (HCPs) often faces occupational hazard like accidental needle stick injuries (NSIs). The risk of acquiring blood born viral infection like Human Immunodeficiency Virus (HIV), Hepatitis B Virus (HBV) and Hepatitis C Virus (HCV) by NSIs depends on several factors. These factors comprise hollow bore needle, depth of penetration, visible blood on the needle and advanced stage of the disease of the source [1]. The important routes in terms of occupational exposure are NSIs (0.3% risk for HIV, 9-30% for HBV and 1- 1.8% for HCV) [2].

Methods

This is an observational prospective annual study done in HCPs of all sections of a Tertiary Care Hospital from May 2018 to June 2019. A questionnaire was administered when NSIs were self-reported by

*Corresponding author: Avinash Kumar, Consultant & Head, Department of Microbiology & Infection Control, The Mission Hospital, Bidhanagar, Durgapur. Tel: + 91 9654876021; E-mail: lakhya@gmail.com

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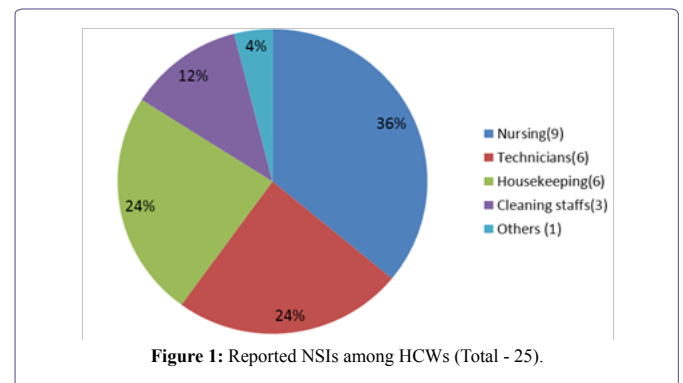
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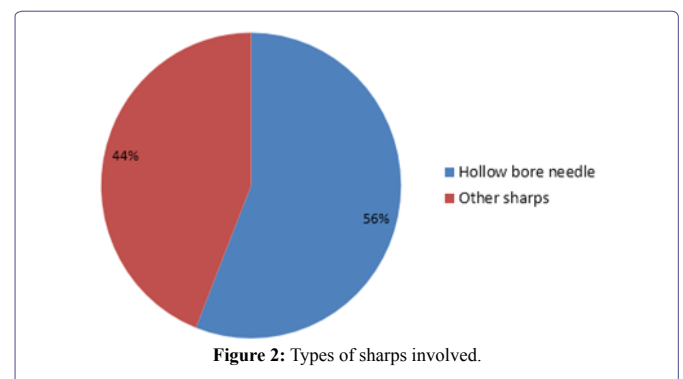
HCPs. The questionnaire consists of mode of exposure, depth of injury, immunization status, type of occupation etc. Blood samples of HCPs exposed by NSIs and of the source, if identified, was collected for baseline HBV, HCV and HIV serum markers. The HCPs who were previously reactive of blood born viral infections were excluded from this study. The exposed HCPs were followed up and repeat testing was done after 3-4 weeks for seroconversion up to 6 months.

Results

The total HCPs reporting NSIs were 25 in which nurses, 09 (36%) Housekeeping, 06 (24%) cleaning staff, 03 (12%), 06 (24%) technicians and 01 (4%) Marketing official. Among the staff that had NSIs, 55% had a work experience of less than 1 year. The devices responsible for NSIs were mainly hollow bore needles (56%) (Figure 1).



The patient source was unknown in 06 (24%) of the NSIs. The sex ratio (male/female) was 0.785. The immunization status of victims were 64% (Figure 2).



Of total source status, 01 was HBs Ag (Hepatitis B surface antigen) and one HCV positive (Figure 3).

Recapping of needles caused 25 (8.5%) and other improper disposal of the sharps resulted in 55 (18.6%) of the NSIs (Figure 4).

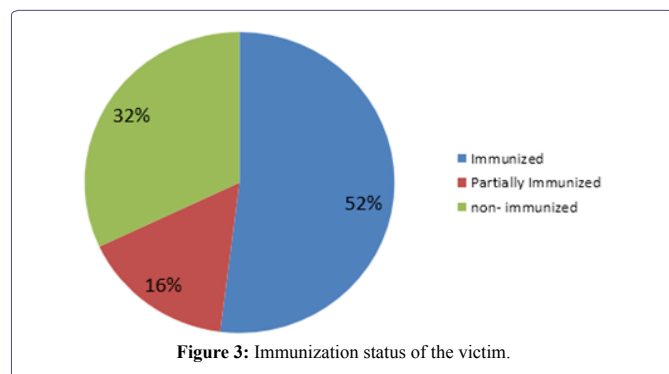


Figure 3: Immunization status of the victim.

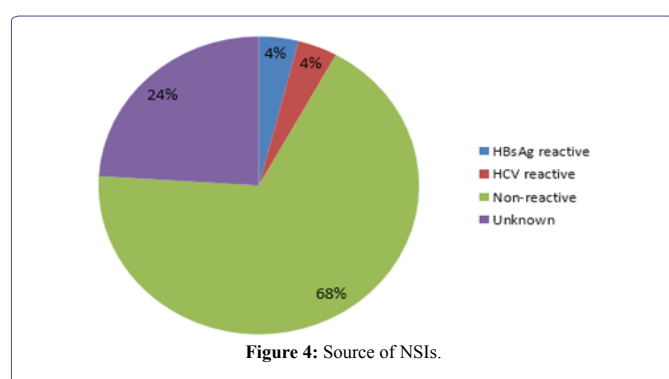


Figure 4: Source of NSIs.

Post-exposure prophylaxis for HCWs who reported injuries was provided immediately. Subsequent 6-month follow-up for human immunodeficiency virus showed zero seroconversion (Figure 5).

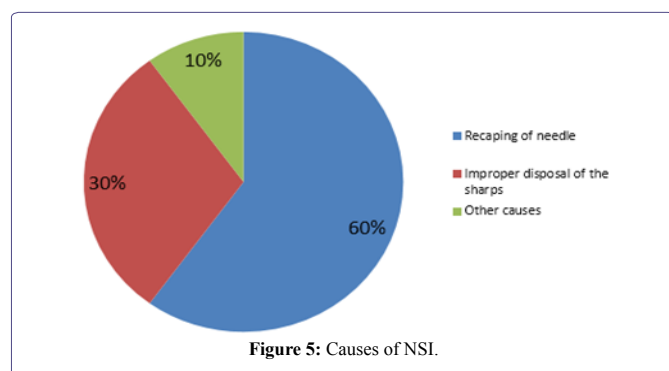


Figure 5: Causes of NSI.

Discussion

As the result itself says, that the NSIs occurred in less experienced, young HCPs, more emphasis should be given for frequent training, education and other precautionary measures. The decision to provide Post exposure prophylaxis (PEP) in our hospital is based on the clinical consideration of risk only. The provision of information regarding PEP was given full confidentiality including information about HIV testing, PEP provision and the reasons for seeking PEP. In our study, the practice of recapping needles was found to be most important factor for the cause of NSIs followed by others like handling and passing

needles or sharps after use, failing to dispose of used needles properly in puncture-resistant sharps containers and poor healthcare waste management practices. In other studies like Ghauri et al. observed 46%, and Alshihry observed 21% cases of NSIs while discarding the needles in comparison to (n = 7; 14%).

In order to reduce NSIs, we are educating and training our HCPs to follow strict compliance to universal work precautions like avoiding injections when safe and effective alternatives are available, avoid recapping needles, plan for safe handling and disposal of needles after use, promptly dispose of used needles in appropriate sharps disposal containers, report all NSIs promptly to ensure that they receive appropriate follow-up care. They participate in training related to infection prevention. The Recording and monitor NSIs with an injury register in each location of healthcare setting is compulsory. All categories of HCPs within the hospital should be trained on how to protect themselves against HIV and other pathogens transmitted by blood or body fluids. This information must be reinforced on a regular basis. All the HCPs must take an individual and collective responsibility in this regard. We conduct hospital infection control meeting quarterly for regular training and monitoring hospital infection control including universal precaution and post-exposure prophylaxis implementation and quality control.

All HCPs must be routinely vaccinated against the hepatitis B virus. The vaccination for hepatitis B consists of 3 doses: baseline, 1 month, and 6 months. Most of the recipients (99%) seroconvert after completing the full course. There is no vaccine or prophylaxis against hepatitis C. The first dose of PEP must be administered ideally within 2 hours (but certainly within the first 72 hours) of exposure and the risk evaluated as soon as possible [3].

Conclusion

To conclude, all hospital personnel must have proper awareness regarding risks of NSIs, etiquette for incident reporting, continuous education, safe and sound instrument handling, needle disposal mechanisms, and active participation in ongoing staff training to decrease and prevent occupational hazard [4].

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