ORIGINAL ARTICLE

FREQUENCY OF NEEDLE STICK INJURY AMONG DENTAL CARE PERSONNEL IN ISLAMABAD DENTAL HOSPITAL

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ABSTRACT

Needle stick injury is a worldwide issue in health care facilities that helps in transmission of different blood borne pathogens. This study was conducted to identify the most common causes and frequency of needle stick injury among dental health care workers at different designations.

A 5-item questionnaire was provided to 191 candidates including dentists, house officers, final year students, third year students and paradental staff to estimate the frequency and occurrence of needle stick injury.

The results showed that 46.6% personnel had suffered from needle stick injury in the duration of their clinical practice in Islamabad Dental Hospital. The department having the highest occurrence was OMFS 57.3%. Recapping of needles 31.46% and personal carelessness 20.22% were the leading causes of NSI. Final year students had the most reported cases of NSI followed by house officers which was 33.70% and 23.59% respectively and the senior faculty had the least cases of NSI which was 5.61%.

The study concluded that recapping of needles and hasty work were the leading causes of NSI most commonly occurring in final year students. A standard protocol should be followed for its prevention in the health care institutions.

Key words: *NSI, IDH, HCU, HCW's*

INTRODUCTION

Needle stick injury (NSI) or per cutaneous exposure is the piercing of skin by a needle or any other cutting object, which was previously in contact with blood, tissue, or other body fluids.[1] It is a great risk for people who have to work with hypodermic syringes and other such appliances. The world health organization definition of "safe injection" is the one that does not harm the recipient, also it does not expose the provider of the injection to any avoidable risk furthermore it does not result in any waste that is dangerous to the community.[2]

Needle stick injury is a global issue in health care facilities and is a wellspring of contamination among the health care personnel (HCP).[3] Unsafe injection practices are highly prevalent in developing countries. These injuries can occur at any time during the process of usage, disassembly or disposal of needles.

Needle stick injury is one of the most common contributing factor regarding transmission of blood borne diseases which include Hepatitis B, Hepatitis C and AIDS.[4] In our region there is previously only one study by Siddique K et.al which suggested that health care providers working in the general surgery department (43.3%) were most commonly involved. Hasty work (37.9%) and recapping needles (19.5%) were reported as the commonest causes.[11] This study was published in 2008 that too in the medical field. There is no study currently available which discusses NSI frequency in dental sector of our region.

This study will help distinguish and eliminate the leading causes of NSI.

METHODOLOGY

A five-item questionnaire was distributed among ten randomly selected individuals after taking consent

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to conduct the pilot study. The questionnaire was then reformed accordingly. After taking consent from the respective department heads, informed consent was taken from the individuals and then the pretested paper-based questionnaire was provided to the students of third year and final year during their viva/ practical examination so that the students have gone through all the departmental rotations. The same questionnaire was provided to the health care personal in their respective department. The questionnaire was filled by the researchers on behalf of those health care personnel who could not read or were unable to understand English language. A total of 191 candidates were made a part of this study including all the doctors, PG trainee, house officers, students of third and final year and assistants. The questionnaires were then collected and coded and the data was entered and analyzed on SPSS 20.0 for frequency and percentages.

RESULTS

Needle stick injury of 46.6% was found among the dental care personnel. The highest frequency of 33.70% was found in final year students following, 23.50% in house officers,14.61% among the 3rd year, 13.48% in PG trainees, 8.99% in dental assistants and the least in the senior faculty (5.61%). It was most commonly reported in the OMFS department (57.3%) followed by the periodontology department (16.85%), operative department (13.48%), prosthodontics (4.49%), orthodontics (4.49%), sterilization (3.37%) and none in OPD. The most common reasons of NSI were recapping of needle (31.46%), followed by personal carelessness (20.22%), other (19.10%). The most common reasons in the 'other' category was probe and periodontal curette. Handling of uncooperative patient (12.36%), surgery and suturing (8.99%) and injecting and drawing blood (7.86%).

DISCUSSION

Occupational exposure to blood makes HCW more prone to these infections. NSI can be caused by needle or other sharps.[7] Thus it is very critical and important to develop an effective policy which can oversee and control needle stick injury among dental care personnel.

World Health Organization in a survey estimated that annual global needle stick injury has reached up to two million per year and another investigation estimated it to be 3.5 million.[5,6]

A study in Washington regarding percutaneous injuries in health care personnel reported that out of 4695 accepted state fund injury claims, 923(20%) were of dental care providers. Out of these 924 cases 97% were from non-hospital or private setting.[9]

The New England Journal of Medicine published a study on needle stick injuries among surgeons in training. Amongst a total of 699 respondents, 582 (83%) suffered from needle stick injury during their training. By their final year of training almost all the residents have had a needle stick injury; among which 53% of the injuries had involved a high risk patient.[10]

Similarly, Agha Khan University reported that out of 80 participants 45% reported to have suffered from needle stick injury in their careers. The incidence of injury was significantly more in doctors. Identified reasons primarily were pressure or being overburdened, followed by negligence.[12]

The present study refers to certain aspects of NSI in a tertiary dental care setting, Islamabad Dental Hospital(IDH). It was found that a total of 46.6% of dental care personnel had experienced NSI in their careers in IDH (Fig 1). Among these, final year students were most commonly affected, with 33.70% of them having experienced it in the two years of their clinical exposure. Following them were the house officers with 23.59%. The least amount of NSI was present in the senior faculty having only 5.61% (Fig 2).

Several reasons were identified as a causative factor for such injuries (Fig 3). In this study recapping of needle (31.46%) followed by personal carelessness (22.22%) are of prime importance. Almost half of the injuries had taken place during recapping of needle. The most common reasons found in the "Other" category were probe and periodontal curettes. This finding signifies the importance of proper and efficient handling of syringes while performing the procedures.

Dental care personnel having a place in surgery department were the most generally influenced by NSI due to the frequent exposure to sharps and administration of Local Anesthesia(LA) on almost every patient. This was closely followed by periodontology department in which the most common cause was the use of sharp curettes and inadequate technique/inexperience during manual scaling.

The limitation in this study is that the selected sample size is small. In spite of this, the statistics revealed merit attention as the persistence of NSI is relatively high amongst the dental care personnel. This shows how important it is to introduce safety equipment and adequate measures in health care settings to reduce the frequency of NSI.

CONCLUSION

The study concluded that recapping of needle and hasty work were the leading causes of NSI. To manage this, knowledge about risk to health care personnel regarding NSI and post exposure protocol should be reinforced on regular basis by the hospital management.

Pertaining to the findings of the study it is important that reporting of sharp injuries be considered a mandatory protocol of infection control activity in general and dental health setups. A survey on large scale needs to be conducted to identify the prevalence of NSI of this region .

REFERENCES

1 CDC-the national surveillance system for health care workers (NaSH) [internet] Cdc.gov.2011 [cited 15 November 2016]. Available from: http ://www.cdc.gov/nhsn/PDFs/NaSH/NaSH-Report-6-2011.

2 Sharma R, Rasania SK, Singh S. Study of Prevalence and Response to Needle Stick Injuries among Health Care Workers in a Tertiary Care Hospital in Delhi, India. Indian J Community Med. 2010; 35(1): 74–77.

3 Zafar A, Habib F, Hadwani R. Impact of infection control activities on the rate of needle stick injuries at a tertiary care hospital of Pakistan over a period of six years: an observational study. BMC Infect Dis 2009; 9:7.

4 CDC-Injection Safety [internet]. Cdc.gov.2016 [cited 15 November 2016]. Available from: https://www.cdc.gov/injectionsafety/.

5 Leao JC, Teo CG, Porter SR: HCV infection: aspects of epidemiology and transmission relevant to oral health care workers. Int J Oral MaxfacSurg 2006, 35:295-300.

6 Alamgir H, Yu S.Epidemiology of occupational injury among cleaners in the health care sector. Occup Med.2008; 58:393.

7 Lavoie M, Verbeek JH, Pahwa M.Devices for preventing per cutaneous exposure injuries caused by needles in health care personnel. The Cochran e database of systematic reviews.2014; 3.

8 Kirchner B.Safety in ambulatory surgery centers: Occupational Safety and Health Administration surveys. AORN Journal.2012; 96:540.

9 Shah SM, Merchant AT, Dosman JA.Per cutaneous Injuries among dental professionals in Washington State. BMC Public Health.2006; 6:269.

10 Makary MA, Al-Attar A, Holzmueller CG, Sexton B. Needle stick injuries among surgeons in training. N Engl J Med 2007; 26:356.

11 Siddique K, Mirza S, Tauqeer SF. Knowledge attitude and Practices regarding needle stick injuries amongst healthcare providers. Pak J of Surg.2008; 24(4):243-8.

12 Zafar A, Aslam N, Nasir N, Meraj R, Mehraj V. Knowledge, attitudes and practices of healthcare workers regarding needle stick injuries at a tertiary care hospital in Pakistan. J Pak Med Assoc.2008; 58(2):57-9.

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