



AWARENESS AND PREVALENCE OF NEEDLE STICK INJURY IN HEALTHCARE PROFESSIONALS

Dentistry

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ABSTRACT

Needle stick injury occurs frequently to healthcare workers who work in clinical set ups and hospitals. This is one of an occupational hazard that can be preventable sometimes. Universal safety precautions are introduced but needle stick injuries are unavoidable most of the times. These injuries are caused by blood collection needles, hypodermic needles, needles in diagnostic aspiration procedures and needles in interventional and surgical procedures. Awareness of needle stick injury among dentists was only after getting exposed to various infection such as HIV, Hepatitis B, Hepatitis C. 25 blood borne viral infections are caused due to needle stick injuries, transmission of these viruses occur as a result of contamination of mucous membrane, with blood or body fluids most of which tend to become percutaneous injuries. Students and health care professionals must be aware of the universal protocol before dealing with sharps and needles. As a result many institutions initiated to follow strict protocol and made healthcare professionals how to deal with post exposure prophylaxis.

KEYWORDS

needle stick injury, HIV, healthcare workers, prophylaxis

INTRODUCTION:

Needle-stick injuries are known to occur repeatedly in healthcare settings and can backfire with various complication. While the prolusion of universal cautions and safety conscious needle designs has reduced the chronicity of needle-stick injuries, they continue to be reported, but on a much lower scale than in the past. During 1980's awareness on needle stick injury among healthcare workers were created after the identification of HIV. The major concern after a needle-stick injury is not HIV but other viral infections caused due to hepatitis B or hepatitis C. The Centres for Disease Control and Prevention (CDC) has developed a model which helps healthcare professionals know when to start antiretroviral remedy. [1]

Even though universal guidelines have de-escalated the pitfalls of needle-stick injuries over the former 30 years, these injuries continue to befall, at a much lower rate. Healthcare professionals at the highest threat for needle-stick injuries are surgeons, emergency room workers, laboratory room professionals, and nurses.

The use of needles is inevitable in healthcare, and even though every medical centre has guidelines on proper handling and disposal of needles and the newest design of safety conscious needles, needle-stick injuries continue to occur more frequently in et al. In utmost cases, needle-stick injuries occur predominantly because of unsafe practices and gross negligence on the part of the healthcare workers. The reality is that most needle-stick injuries are preventable by following established procedures. [2][3]

Many of the dental health care professional are not aware of the ways to prevent the needle stick injury and there is lack of awareness on the universal protocol introduced for this hazard. In case of such happening, this systemic study was with a few objectives.

OBJECTIVES:

Awareness among Dental healthcare professionals regarding transmission of various infections through needle stick injury.

Awareness among Dental healthcare professionals regarding the different methods for disposal of needles after use.

Awareness among the healthcare professionals regarding post exposure prophylaxis in case of needle stick injury.

Comparing the level of awareness on the universal protocol of NSI and prevalence of NSI among the dental healthcare professionals.

MATERIAL AND METHODS:

STUDY SELECTION:

This review considered papers written in English and the papers were searched using several electronic databases like as Web of Science, PubMed, Scopus, Embase, and ScienceDirect without time limitation using the following medical subject titles and keywords needle-stick, needle stick, sharp injury, and Healthcare workers using a combination of Boolean functions (AND, OR, and NOT). [4] [5]

ADDITION CRITERIA:

Study selection was supported the following addition criteria 1) Studies conducted in India; 2) subjects limited to dental HCWs in hospitals and dental institutions; 3) studies conducted on dental scholars; 4) studies published in English language; 5) studies assessing the knowledge, mindfulness and practice regarding NSI as outgrowth measures; and 6) experimental studies. No limitation in terms of publication date was considered in the search strategy. [6]

ELIMINATION CRITERIA:

The studies that were ruled out from the present review were 1) studies not conducted in India; 2) reviews; 3) studies engaging medical HCWs; and 4) studies on all HCWs that didn't distinguish between different healthcare professionals (dental, medical or any other). [6]

DATA EXTRACTION:

A preformed criteria was used gather information from chosen papers under the following subtitles author; sample size; time; country of study; study design; primary outgrowth (frequency of NSI), and possible confounding factors considered. And, papers were estimated to confirm its relevancy to the study and to confirm the quality of the work. also, all needed data about the frequency of NSIs and possible associated factors were gathered from the eligible papers. [7]

RESULT:

Four articles were included in the study as they fulfilled the requirements of reporting of experimental studies. [8] [9] [10] [11]. The study included only dental scholars. Studies were conducted in Maharashtra, Karnataka and Andhra Pradesh. All the studies were cross-sectional in nature and used questionnaire for gathering the

informatory data on NSIs from the scholars.

Rajiv Saini et al assessed the Knowledge and awareness level of dental scholars regarding NSI was the main outcome in the study .150 scholars. completed the questionnaire.

Irrespective of gender and age it was significant that majority of the scholars were apprehensive and had the knowledge on needle stick injury. On an average, 89.23% were correct and 10.67% were incorrect for knowledge about needle-stick injury. On the other hand, after applying Z test, there was a significant difference between awareness for management of needle-stick injury for all statements. On an average, 91.55% were correct and 08.45% were incorrect for their knowledge about managing the needle-stick injury. Their knowledge was not altered irrespective by the year of study in dentistry.[8]

Guruprasad *et al* assessed the knowledge, attitude and practice regarding threat of human immunodeficiency virus (HIV) transmission through NSI among dental scholars.

Of the 120 scholars, 11% were not aware that virus could be transmitted through infected needle. 67.5% were not aware of the correct disposal system of used needles and syringes as against interns 42.5%. Around 26% said that they would promote active bleeding at the site of injury but 30% were aware of the post-exposure prophylaxis.[9]

Hussain *et al* determined the prevalence and factors associated with sharp instrument injuries among different healthcare scholars. In the present study,39.8%) of the health care scholars could rightly define sharp instrument injury. Among all health care scholars who took part in this study, needle recapping was practiced by 94.7% of scholars. Majority of the scholars 56.1% used both hands to recap needles whereas 38.5% used one hand 'scoop' technique. Only 5.2 scholars avoided recapping needles. An aggregate of 33.3% of the scholars always use a sharps container to dispose the sharp instrument after use whereas 38.1% leave the sharp instrument on the working tray which implicit hazards for the workers involved in waste disposal. Protective measures to avoid sharp instrument injuries, such as wearing gloves were rehearsed by 96.6% of the health care scholars. Single glove technique was practiced by 94.5% of the scholars followed by use of face mask by 52.1% scholars and protective eyewear by only 15.1% of the health care scholars. [10]

Anjum et al assessed Awareness and prevalence of accidental blood-borne exposures among dental scholars was the main outcome in the study. The response rate in present study was 87%. 76% of the scholars reported having undergone accidental exposures with 24% of them being Per-cutaneous injuries. In 49% of respondents syringe needle was the most common instrument causing accidental injury. Accidental exposures and non-reporting of accidental exposures were prevalent in these scholars.[11]

DISCUSSION:

According to CDC, every period, more than 3 million HCWs expose themselves to blood and body fluids through sharps and splash injuries in the United States. NSIs may be a threat to the HCWs as they were in association with transmission of blood and blood borne pathogens including HBV, HCV and HIV.Wearing gloves is known to be an important line of defence, but several of the HCWs have not been wearing them at the time of their injury, technicians and nurses are at greater risk.

The main strategies to prevent this are knowledge on NSI, regular constant training, safe handling of needles and communicating effectively. Both education and trainings could raise awareness and knowledge regarding safe procedures, prevention of needle stick injury and. It's management. Safe handling of needle, along with the use of technology for sharp objects, would help HCWs too, to prevent NSI incidents. Last, effective communication along with satisfactory supervision from clinical preceptors would prevent underreported occurrences as well as help HCWs to perceive secured and confident to perform procedures, which latterly prevent them from injuries. [12]

The data was collected from four articles based on four objectives.this study shows that majority of the students has answered the questionnaire and has given appropriate answers.in this study we have reviewed four articles which overall states that the dental student

irrespective of age and sex has knowledge and awareness on needle stick injury but there are still a few of them who are not aware of it.various awareness programmes and universal protocols must be taught to students as it may become a serious issue.many viral infections may transmit easily from infected needles when needle stick injury occurs . Hepatitis B, hepatitis C, HIV are some of the major viral infections that can spread through infected needle. healthcare professionals who are aware of the vaccine and other prevention methods that are available are appreciated. [8] [9]

A particular survey results that majority of them were aware about the transmission of viral infections through infected needles but the minority of the students were not aware that viral infections were transmitted through infected needles.[10] [11]

It also states that majority of them were not aware that needles have a particular manner to be disposed. many has answered that needles can be left back in the tray either then incinerating it. In case of the needle stick injury the active bleeding must be stopped and post exposure prophylaxis must be taken but many were not aware of the prophylaxis hence awareness must be created among students on needle stick injury and what protocol they must follow after witnessing needle stick injury. In another study the students undergo accidental exposures and not reporting were more prevalent in this study.

There is a universal protocol which must be followed before usage of needle and syringes. double gloving, scoop method for recapping the needle, use of mask and protective eyewear, proper waste disposal system, incineration of syringe after use are all the major protocols to be followed after the operation of needles.

CONCLUSION:

Needle stick injury occurs to healthcare workers during surgical procedures, during aspiration through needles ,during collection of blood samples etc.usage of sharps and needles are inevitable in the life of healthcare professional so the right protocols must be followed and all the students and other healthcare professionals must have the knowledge on the post exposure protocols that are to be followed after the exposure to infected needles.strict protocol must be tutored in institutions and make sure the students follow it and this is the only way the incident rate of needle stick injury can be de-escalated.

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