ORIGINAL ARTICLE

NEEDLE STICK INJURY AND HEPATITIS B VACCINATION AWARENESS AND PREVALENCE AMONG DENTAL COLLEGE STUDENTS IN RAWALPINDI

[1]SAMAN MALIK, [2]WAJEEHA JABEEN, [3]FAIQA HASSAN, [4]USMAN UL HAQ, [5]NAVEED MAZHAR BHATTI, [6]TABASSUM NAVEED

ABSTRACT

The aim of this study was to assess the awareness about the transmission of blood borne diseases through needle stick injury in dental students. A cross-sectional study was carried out on 80 final year dental students (68 females and 12 males) at the Margalla Dental College, Rawalpindi in the year 2018.A structured, self-administered questionnaire was developed by the authors and distributed amongst dental students. For assessment of good and bad knowledge, 10 questions were asked. 40% (32) students of final year were found to be exposed to needle stick injury (NSI). The number of students who had received Hepatitis B vaccination was 71.25% (57). It is evident from the result of the study that educating students about prevention and management of needle stick injury is very important and all students should be vaccinated for Hepatitis B.

Key Words: *Needles stick injury, Hepatitis B Vaccination, Dental students and Awareness.*

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INTRODUCTION

Any injury that breaks the continuity of the skin is defined as percutaneous injury. It includes needle stick injuries from dental needles, surgical blades or other sharp objects for example needles, probes and empty ampules.

Needle stick injuries carry a great hazard of exposure and transmission of blood borne infections for instance Human Immunodeficiency virus, Hepatitis B (HBV) and Hepatitis C (HCV). Probability of acquiring Hepatitis B infection after needle stick injuries is more than Hepatitis C and HIV. A dental practitioner is at greater risk of exposure to needle stick injury than general population because of daily exposure to infections and patients. Blood borne infections for example HIV, Hepatitis B and C spread from carrier patients to dentists most commonly through needle stick injury. The threat of transmission from patient to the dental practitioner for Hepatitis C is 3%, Hepatitis B 30%, and HIV 0.3%. However effective Hepatitis B vaccination has largely prevented Hepatitis B infection.2 The transmission of infection can be prevented by strictly following personal precautions and using personal protective equipment like gloves, mask, gowns, face masks and eye protection equipments.5

Dental students that are practicing new techniques and procedures at dental colleges are at risk of acquiring blood borne infections and injuries. Also they are in experienced so the risk of injury increases. Accidental injuries occur by needle while administrating local anesthesia during dental procedures. The spread of blood borne infection from hollow bore needle is more than from solid needle because they carry small amount of blood on their outer surface as compared to remnants of blood inside the hollow bore needle.8 These remnants of blood inside the bore contain large volume of susceptible pathogens to transmit blood borne diseas-

[1] **For Correspondence:** Dr Saman Malik, Senior Registrar, Oral Biology, HITEC-IMS Dental College, Taxila Cantt, 0312-3456303; Email id: Somey_hassan@hotmail.com
[2] Dr Wajeeha Jabeen, HOD, Assistant Professor, Periodontology, HITEC-IMS Dental College, Taxila Cantt 0331-5536142; Email id: wajeehajaved034@gmail.com
[3] Dr Faiqa Hassan, Senior Registrar, Oral Medicine, HITEC-IMS Dental College, Taxila Cantt 0321-5370292; Email id: faikahasan6@live.com
[4] Dr Usman Ul Haq, HOD, Assistant Professor, OMFS, HITEC-IMS Dental College, Taxila Cantt, 0336-4233001; Email id: Usman.mkg2010@gmail.com
[5] Dr Naveed Mazhar Bhatti, HOD, Associate Professor, Orthodontics, HITEC-IMS Dental College, Taxila Cantt. 0300-2139208; Email id: naveedbhatti@hotmail.com
[6] Prof Dr Tabassum Naveed, Department of Medical Education, HITEC-IMS Medical College, Taxila Cantt. 0321-263044; Email id:tabassumnaveed@hotmail.com

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es. Other reasons may be the limited dental field i.e. oral cavity with wide range of bacterial community as normal flora, contact of dentist directly with patient's blood and saliva or heavy flow of patients in outpatient departments.

Pavithran et al. found that around 3.5 million needle stick injuries occur yearly. Gichki et al.6 found that besides Hepatitis B and C, other pathogens can be transported through NSI.

This study was conducted to assess the knowledge of Hepatitis B vaccination and awareness about needle stick injury and management protocol in students as very few studies have been carried out in Pakistan.

METHODOLGY

A cross sectional survey was carried out at Margalla College of Dentistry, Rawalpindi from 1st to 30th May 2018. A structured, self-administered questionnaire was prepared by the authors, including NSI frequency, etiology of disease, and first aid management of needle stick injury. The inclusion criterion was final year 12 male and 68 female students of Margalla College of Dentistry, Rawalpindi. The exclusion criteria were the students who were absent on the day of survey and who were not willing to participate. Questionnaire was distributed amongst 80 final year dental students, selected on the basis of convenience sampling method with necessary instructions. For assessment of good knowledge and less knowledge, 10 questions were asked, each carrying 2 marks, students who scored less than 60 percent marks were considered to have less knowledge about NSI and who got more than 60 percent were contemplated to have good knowledge. The data was analyzed using Statistical package for social sciences software (SPSS) version 21.

RESULTS

The response rate was 100% (n=80) with sample, consisting of 68 females and 12 males. Out of the 80 dental students, 32(40%) were found to be exposed to NSI and 57(71.25%) were vaccinated for Hepatitis B (Table 1 & 2). Maximum number 12(37.5%) of NSI were reported in students who did not use the scoop technique for needle recapping, followed by 9(28.12%) students who were tired and exhausted, 6(18.75%) students with careless attitude and 5(15.625%) students who did not use gloves (Table 3).

DISCUSSION

Needle stick injury is most commonly occurring accident in the dental and medical care environment.9 This study was conducted to assess the needle stick injury and Hepatitis B vaccination awareness and prevalence in students of Margalla Dental College, Rawalpindi.

Jabar et al. reported in study that dental teaching institutes are at risk of acquiring infections through NSI with ratio ranging from 1.97-12.5 per 10,000 visits. Forty percent students in our study suffered from needle stick injury which is less than 49% students reported by Talas et al. and more than 33% students found in study by Swe KM et al. Out of students who suffered from NSI, 71.25% reported the incidence which is in contrast with 40% by Jabar et al.[14] and 29% by Mungure et al. In this study 37.5% students suffered NSI while needle re-capping which is more than 27% reported by Talas et al.[15] and 26% by Jabar et al.[14]

In this study 77% students used gloves while performing dental procedures which are quite similar to Alanzi et al.5 94% students. We found that 15.62% students were not using gloves while attending patients which is similar to17% reported by Swe KM et al.[16] and less than 49% by Siddique et al.

Seventy seven percent students had good knowledge about post-exposure prophylaxis (PEP) which is more than 47.8% reported by Jabar et al.[14] and 10% by Siddique et al.[18] In other study by Pavithran VK et al.[13] 62% were aware about the post-exposure prophylaxis. He stated that 84.9% individuals washed the wound under running water which is more than our 41.25% students.[13]

TABLE 1: OCCURRENCE OF NEEDLE STICK INJURY

Needle stick injury(NSI)	n(80)	%
Yes	32	40
No	48	60
Total	80	100

TABLE 2: HEPATITIS B VACCINATED AND NON-VACCINATED STUDENTS

Hepatitis B	n (80)	%
Vaccinated students	57	71.25
Non-vaccinated	23	28.75

TABLE 3: REASONS OF NEEDLE STICK INJURY (NSI)

Reasons	n(32)	%
Careless attitude	6	18.75
Did not use scoop recap method	12	37.5
Tired and Exhausted	9	28.125
Did not use gloves	5	15.625
Total	32	100

TABLE 4: KNOWLEDGE AND AWARENESS ABOUT NEEDLE STICK INJURY

	Good knowledge n=80	Percentage %	Poor knowledge n=80	Percentage %
Reporting of the incidence	57	71.25	23	28.75
Encourage bleeding from the site of injury	48	60.0	32	40.0
Knowledge of Post exposure prophylaxis(PEP)	62	77.5	18	23.5
Needle recapping by scoop technique	69	86.25	11	13.75
Washing injury in running water	33	41.25	47	58.75
Washing NSI with antiseptic solution	29	36.25	51	63.75
Patient screening	40	50	40	50
Used needle disposal management	55	68.75	25	31.25
Use double gloves while treating carrier patients	62	77.5	18	22.5

Other reasons for NSI in this study were careless attitude which is 18.75% and 28.125% students were tired and exhausted due to patient overload. Afia et al. reported 38% students with careless attitude and 41%overloaded with work and tired. The study by Afridi et al. reported that 60% students attributed NSI to stress, 42% due to patients overload.

In this study, 60% students encouraged bleeding after being pricked, 41.25% washed the wound under running water and 50% took the patient's blood sample for screening. Afridi et al.[20] reported that after NSI 20% individuals washed the wound under running water and 19% encouraged bleeding. In similar study by Guruprasad et al. 31% promoted bleeding, 14% washed the wound under running water and 7% checked the status of patient. Swe KM et al.[16] showed that 90.9% participants had knowledge about washing wound under running water and 92% knew about taking sample of patient after injury for screening.

In this survey, 71.25% students were vaccinated for Hepatitis B which is less than 86.5% by Bhattari et al. and 88% by Gichki et al.6 vaccinated students and close to 67.7% reported by Talas MS et al.[15] In this study 29.75% students were non-vaccinated, however 51.4% students were reported by Noubiap et al. who were not vaccinated.

In this study students were well aware about post exposure prophylaxis and management after needle stick injury. More care and awareness regarding needle stick injuries and post-exposure prophylaxis is required while teaching dental students.

CONCLUSION

In this study 40% (32) students were found to be exposed to needle stick injury. Twenty nine percent students were not found to be vaccinated. Most common reason for needle stick injury was not following the scoop method for needle recapping. There is need for improvement in safety measures and preventive protocols while training dental students.

RECOMMENDATIONS

Educational workshops for needle stick injury prevention and management trainings are needed. The clinical department of teaching institutions must have a written protocol for avoidance of needle stick injury and management policies of such injuries must be displayed in the department. Hepatitis B vaccination should be made compulsory for every dental student.

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CONTRIBUTIONS BY AUTHORS

1 Saman Malik:	Conducted literature review, data collection, compiling results and data entry.
2 Wajeeha Jabeen:	Supervision and interpretation of the results.
3 Faiqa Hassan:	Supervision, interpretation of the results, proof reading of the first and final draft for publication.
4 Usman Ul Haq:	Literature review, analysis of results.
5 Naveed Mazhar Bhatti:	Study design, review and analysis.
6 Tabassum Naveed:	Study design, review and analysis.