ORIGINAL ARTICLE

NEEDLE STICK INJURIES AMONG DENTAL STUDENTS, HOUSE OFFICERS AND PARADENTAL STAFF WORKING AT LIAQUAT MEDICAL UNIVERSITY HOSPITAL, HYDERABAD

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ABSTRACT

The objectives of the study were to find out the risks of needle stick injury and to identify who sustained such injuries and under what circumstances and what actions were taken to minimize the risks of needle stick injuries among dental students, house officers and para dental staff working at Liaquat Medical University Hospital. It was carried out from Aug 2011 to Sept 2012. Information was obtained through Questionare. Study design was descriptive. 513 students, house officers and paradental staff participated in this study . House officers 23 (4%) were male and 57 (11%) were female. Male students were 102 (20%) and female were 223(44%). Among Paradental staff male were 92(18%) and female 16 (3%), and they suffered 79(10%) injuries. Self inflicted injuries were 455 (58%) and through other persons 315 (41%). Department-wise injuries were Operative140 (18%), Prosthodontic 25(3%). Orthodontic 28 (3%). periodontology. 27(3%), Oral Maxillofacial Surgery 97(12%). Through block anesthesia 428 (55%) and through infiltration needle 345 (44%). Students were at high risk.

Key words: *Needle stick injuries. house officers. dental students, paradentals.*

INTRODUCTION

House officers, dental students and paradental staff are at an increased risk for needle stick injuries and its consequences because of their relative inexperience and lack of knowledge regarding instruments and sharpes handling and their disposal.[1,2] These injuries can result in significant health consequences and psychological stress for providers and their loved ones.[3] All health care providers who perform invasive procedures with sharp instruments are at risk. Injury in the operating-room setting presents the greatest risk.[4] Surgeons in training have the greatest risk of exposure to blood-borne pathogens,[5] such as HIV, hepatitis B and C, and other diseases.[6] The average risk of transmission of HIV to a health care worker after percutaneous exposure to HIV-infected blood has been estimated as 3 in 1000.[7] According to a WHO study, the annual estimated risk of health-care workers (HCW) exposed to blood-borne pathogens globally were 2.6% for HCV, 5.9% for HBV, and 0.5% for HIV corresponding to about 16,000 HCV infections and 66,000 HBV infections in HCW worldwide.[8] Because needle stick injuries are often under reported, health care institutions should not interpret low reporting rate as low injury rate. Injuries recorded through standard occupational reporting systems may underestimate the true injury rate as much as 10-fold.[9]

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METHODOLOGY

House officers, dental students and paradentals of LUMHS were included in the study. Information about injuries was collected through specially designed Questionare. SPSS17 was used to analyze data. It was done from AUG 2011 to SEP 2012. Study design was descriptive.

RESULTS

513 individuals both students, house officers and paramedical staff participated in this study. Details of the result can be seen in figure 1 and Table 1-4.

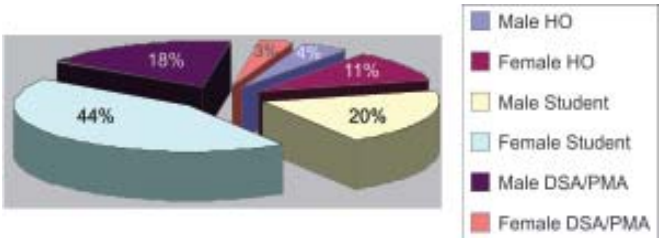

Fig. 1: Distribution of male and female participants of the study

TABLE 1: FREQUENCY OF NEEDLE STICK INJURIES & HBV VACCINATION

NSI (students and house officers)	Total	Persentage
First Professional Year	167	21%
Suffered one time	89	11%
Suffered twice	58	7%
Suffered three time	39	5%
Suffered more than three time	82	10%
Injury recalled	140	18%
Unreported	119	15%
DSA/PDS	79	10%
Total injuries	773	
Vaccination of HBV	352	68%

TABLE 2: DEPARTMENT WISE DISTRIBUTION OF NEEDLE STICK INJURIES

Department / location	No	Percentage
Oral surgery (out patient)	455	58%
Operative	141	18%
Prosthodontics	25	3%
Orthodontic	28	3%
Periodontlogy	27	3%
Oral surgery ward	97	12%
Total	773	

TABLE 3: TYPE OF TECHNIQUE USED

Type of technique	Needle stick injury	persent-age
Infilteration Anesthesia	428	55%
Block Anesthesia	345	44%
Total	773	

TABLE 4: REASONS OF NEEDLE STICK INJURIES

Reasons of injury	No	Percentage
Hurry	325	42%
Fatigued	155	20%
Lack of skill	109	
Lack of supervision	40	5%
With out gloves	99	12%
Re-seating of needle	45	5%
Total	773	

DISCUSSION

Needle stick injuries are one of the hidden problems in health care personnel. In this study, 52% of the students reported at least one NSI, most of which occurred while doing minor oral surgical procedure due to lack of experience when they enter in clinical year. International studies have shown that lack of experience in many procedures, insufficient training, work overload and fatigue leads to occupational sharp injuries.[10] Same was observed in this study. In the present study dental students had higher percentage of needle stick injuries compared to medical students. Both International studies have similar findings. In this study dental female students had more needle stick injuries because they were more in number than male students in dental colleges compared to other studies.[11] Two studies done at Agha Khan Hospital Karachi showed 12-27 NSI per year per 100 fulltime doctors. In second study 80 participants (45%) had NSI[11,13] compared to this study (52%). The most common reason for under-reporting was the personnel's lack of knowledge that all injuries had to be reported. Other reasons are based on a background of insufficient knowledge or poor practices.[14] The observed high level under-reporting suggests that students need education on prevention. Present study identified several risk factors for non reporting of needle stick injuries that warrant attention. A history of a greater number of injuries were associated with under reporting.[14]

After needle stick injuries chances of acquiring hepatitis B infection are more compared to hepatitis C and HIV.[15] Hepatitis B infection is however largely preventable as hepatitis B vaccination is 95% efficacious. Among HCW 18-85% hepatitis B vaccination exposure has been well-known worldwide.[16] In UK 90% HCW's are vaccinated against hepatitis B. In India 55.4% HCW's and 60% of Nepali HCW are vaccinated. In a related Iranian study 85% participants had been vaccinated. It is also interesting to note that considerably more participants with NSI had been vaccinated against hepatitis B compared to those who did not have NSI.[17] In this study, 68% of the students, house officers and paramedical staff reported having received doses of vaccine for HBV. The results of the present study show that the way of teaching to dental students when they enter in clinical year about needle stick injury should be updated so that dental students and paramedical staff become conscious about the implication of work-related exposure of NSI and other shield strategies for blood-borne infections. Wearing gloves is known to be an important line of defence. In this study only 12% dental students when examining the patient were not wearing gloves, however when they were doing procedure like extraction of teeth, restoration of teeth, impression taking, and scaling of teeth they wore gloves. Some medical studies of medical health care workers show that they were not wearing gloves at the time of their injury and higher proportions were among the nurses and the technicians. Most (84.4%) of the injuries were admitted to be due to self mistake.[14,18] In the present study, most of the injuries 45% occurred when using inferior alveolar block technique and 55% when giving infiltration anesthesia.

CONCLUSION

House officers, students and paradental staff should be made aware about the risk involved of needle stick injuries.

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