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NEEDLE STICK INJURY REPORTING AMONG SURGEONS IN TERTIARY HOSPITALS OF LAHORE.

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ABSTRACT… Needle stick injuries have a fairly common incidence in surgical practice exposing surgeons to an array of transmissible diseases. The aim of the study was to assess the prevalence of needle stick injury, and their reporting among surgeons in tertiary hospital setting. **Study Design:** Cross-sectional study. **Setting:** Various tertiary care hospital of Lahore. **Period:** January 2016 through April, 2016. **Materials and Methods:** Our sample size was 935 Surgeons. We determined the prevalence of needle stick injuries, reporting of NSI, the reasons for not reporting and the reasons for acquired injuries. **Results:** Needle stick injury was reported by only 85 (9.1%) participants. The reasons for not reporting varied; 363 (38.8%) did not report due to unawareness of the existence of a relevant system, 250 (26.7%) did not know whom to report, 86 (9.2%) were not able to spare time to report, 81 (8.7%) were afraid of results, 48 (5.1%) thought that patient was low risk and 107 (11.4%) did not bother. **Conclusion: T**here was a lack of hospital policy to cater to the reporting of injuries sustained during surgical practice. A dire need for a system was observed to educate the healthcare workers and provide a medium to assist the process of reporting.

Key words: Hepatitis B Virus (HBV), Post exposure prophylaxis, Needle Stick Injury (NSI), Pakistan, Surgeon.

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INTRODUCTION

Needle stick injuries (NSI) are reported in many countries[1] but in Pakistan we lack awareness and effective system for needle stick and percutaneous injuries. Globally, residents during their training, are the ones frequently exposed to the hazards of these injuries as they acquire technical and keen on acquiring the requisite surgical skills.[2]

Health care workers primarily associated with the Surgical field, are exposed to the risks associated with transmission of significant diseases included hepatitis B virus (HBV) disease, hepatitis C virus (HCV) disease and human immune deficiency virus (HIV) disease via needle stick and other percutaneous injuries sustained during practice.[3]

They can result into serious consequences and associated psychological stress to health care providers and their loves ones.[4,5]

In acquiring surgical skills, they encountered sharp surgical instruments.[6] Approximately 20 to 38% surgical procedures in teaching hospital are high risk that involves HBV, HCV and HIV infection.[7]

Reporting of these injuries is necessary for their screening and timely treatment to reduce risk in surgeon.

Pakistan is among the world's developing countries with a low GDP and a population that is largely underprivileged with unequal distribution of wealth. The handicapped economy of Pakistan has favored the urban, the rural rich, and a handful of elites. The prevalence of NSI and their reporting is unknown. We carried out this study to determine the prevalence, reporting of needle stick injuries, the reasons for not reporting and the reasons for acquired injuries.

METHODS

This cross sectional study was carried out using non probability convenient sampling technique at six tertiary urban clinical centers which included Mayo Hospital, Shaikh Zayad Hospital, Jinnah Hospital, Sir Ganga Ram Hospital, General Hospital and Children Hospital, Lahore of Capital city of the Punjab Province, during January 2016 through April, 2016. A total of 935 respondents were approached during the survey. Respondents to the survey included junior as well as senior surgeons. By junior surgeons, we mean House surgeons and Residents in training, while senior surgeons include Consultant surgeons ranking from senior registrars and above. Participation was entirely on a voluntary basis and no particular demographic information was used so as to identify a particular individual as a participant. Ethical approval was obtained from the ethical review boards of concerned Hospital authority. Permission was obtained from Hospital representatives to allow recruitment at their facilities. Participants were provided with informed consents to read and sign after knowing about the research, risk benefits and other aspects related to ethical issues.

The survey instrument was designed and reformed with available literature review and group discussions. Questions pertaining to the probable cause, frequency, location where NSI occurred, measures taken after NSI, Post Exposure Prophylaxis and Reporting of the incident were asked. All questionnaire filled at spot were included. Pre testing of the questionnaire was done with 10 participants (excluding the one included in the research) to know understandability, time consumption, feasibility and accordingly incorporated. Questionnaire left incomplete were excluded from the stud.

The collected data was entered and analyzed in SPSS version 20.0. Categorical variables were presented in the form of frequency (percentage) whereas continuous variables were presented in the form of mean ±SD.

RESULTS

Needle stick injury was reported by 32 (3.4%) participants and 903 (96.6%) chose not to report any authority. The knowledge of sharp policy was known by only 14 (1.5%) respondent and 921 (98.5%) didn't know about sharp policy. The probable cause of needle stick injury according to the survey was increased work load (n=387,41.4%), prolonged working hours (n=266, 28.44%), inaccessibility of safety equipment (n=117, 12.5%), colleague imprudence (n=42, 4.5 %), ward crowdness (n=24, 2.5%), patient non-cooperation (n=64, 6.8%) and inadequate light (n=35, 3.7%). Among them 181 (19.4%) did nothing after the injury, 190 (20.3%) washed injury site with water and soap, and 226 (28.4%) applied spirit/povidone and allowed the site to bleed (n=338, 36.1%). Only 39 (4.2%) had Post exposure prophylaxis (PEP) and 896 (95.8%) didn't have PEP (Table-I).

Among all participants, all had at least once endured a sharps injury in the previous month and year. The senior staff that was reported to did not have any knowledge about the hospital sharps policy and hence, could not carry out anything productive in this manner. The reasons for not reporting were varied; 363 (38.8%) did not report due to unawareness of the existence of a relevant system, 250(26.7%) did not know whom to report, 86 (9.2%) were not able to spare time to report, 81 (8.7%) were afraid of results, 03 (032%) patient was low risk and 156 (16.7%) did not bother. These injuries occurred while handling surgical instruments as mentioned by 57(6.1%) respondents, other reasons being while suturing (n=337, 36%) while recapping syringes 261 (27.9%), while blood sampling 110 (11.7%), while disposing the used needles (n=78, 8%) and the least 92 (9.8%), while passing cannula. Use of sharp container was for disposal of sharp material was taken by 279 (29.8%) while 656 (70.2%) didn't used sharp container. Majority 578 (61.8%) avoid recapping after use of syringe and 357 (38.2%) said that they don't use avoid recapping. Avoid leaving syringe open 668 (71.4%) said yes while 268 (28.6%) said no. When they were asked about any training regarding sharp instrument/ workshop 228 (24.4%) said yes while 707 (75.6%) answered no.

Characteristics	Frequency (N=935)	Percentage %
Gender		
Male	564	60.2
Female	371	39.8
Designation		
Junior surgeon (Residents)	509	54.4
Senior surgeon	290	31.0
House surgeons	136	14.5
Probable Cause		
Increased work load	387	41.4
Inaccessibility of safety measures	117	12.5
Colleague imprudence	42	4.5
Prolonged work hours	266	28.4
Inadequate light	35	3.7
Patient non-cooperation	64	6.8
Ward crowdness	24	2.5
Incidence in Year		
Once	278	29.7
Twice	441	47.1
More than once	216	23.1
Work Station with NSI		
Operation theatre	343	36.7
Ward	82	8.7
Emergency	392	41.9
ICU/CCU	118	12.6
Measures after NSI		
Nothing	181	19.4
Allow to bleed	338	36.1
Applied spirit/Povidone	226	28.4
Wash with soap and water	190	20.3
Post Exposure Prophylaxis		
Yes	39	4.2
No	896	95.8

Table-I. Sample characteristics

DISCUSSION

It has been recognized that Needle stick injuries are a fairly common occurrence in the lives of healthcare workers particularly those related to the field of surgery. In UK alone, it is estimated that 100,000 sharps injuries tend to occur in healthcare workers per annum[9] while CDC reports the numbers at 385,000 per annum in the US.[10] We have tried to address the incidence of these injuries in the lives of surgeons in training as well as the consultants in the setting of busy tertiary urban clinical centers in Lahore and found an affirmative response from virtually all the participants, which is consistent with Makary's data that showed 99% of surgical residents having a needle stick injury by their completion of training.[11]

Given the alarming numbers of injuries that surgeons face while discharging their duties, it is sad to observe the general trend prevalent when it comes to reporting 903 (96.6%) didn't reported NSI. Which is consistent with the data in other study[12], surgeons tend to under report NSI and our data depicts a staggering 96.6% of respondents who fail to approach the relevant authorities. Majority of them were unaware of the presence of hospital policy in the matter. With the rise in reported rates of blood borne pathogens like HIV, HBV, HCV in Pakistan[13,14], the danger of transmission increases while non-existent reporting rates cause further delay in getting investigated and pursuing treatment with the surgeon continuing to work being oblivious to the risk of exposure and secondary transmission[15,16]

Characteristics	Frequency (N=935)	Percentage %
NSI Reporting		
Yes	32	3.4
No	903	96.6
Knowledge of Sharp Policy		
Yes	14	1.5
No	921	98.5
Reason for not Reporting		
Didn't know about if system of reporting exists	363	38.8
Didn't know whom to report	250	26.7
Could not get time to report	82	9.2
Didn't bother	156	16.7
Thought patent to be low risk	81	8.7
Afraid of positive results	03	0.32
NSI Occurred During		
While handling surgical instruments	57	6.1
While suturing	337	36.0
While recapping syringes	261	27.9
While blood sampling	110	11.7
While disposing the used needles	78	8.0
While passing cannula	92	9.8

Table-II. Reporting

Early intervention in these cases will help in early diagnosis and if necessary, early anti-retroviral therapy which holds an 81% reduction in HIV infection[17] or treatment with HBV vaccine as the case may be. Similarly, prompt detection and treatment of HCV infection has shown enhanced cure rates (99% for acute infection as opposed to 50% for chronic infection).[18,19]

We observed in our study that most of the NSI were related to increased work load answered by 387 (41.4%) surgeons which created a sense of hurry leading to accidental self-infliction as corroborated by other studies.[12] In addition to this, long working hours, sleep deprivation, stress and overwork are other factors that substantially raise the possibility of NSI.[21-23] Moreover, majority of the injuries occurred in the setting of emergency (392 (41.9%) and 343 (36.7%) in operation theatres while handling surgical instruments and suturing similar to other data.[24] In the light of these results, it is evident that educational awareness programs should be instituted along with a workable policy and surveillance system to promote the adoption of sharp less methods of passing instruments during surgery, double-gloving, establishment of a safe zone in the operating field and the use of blunt tip needles wherever possible which might help in reducing the risk of NSI.[24-27] Of note is the NSI prevention education program that was implemented as a quality improvement project at Aga Khan University Hospital, Karachi in 2005 that showed significant reduction in needle stick injuries.[28]

These patterns are consistent with the data observed in our country, Pakistan which shows the reported incidence of NSI to be 0.29% in consultants, 24.5% in trainees, 44.7% in house officers and 16.3% in nurses.[9] Data pertaining to the impact of such injuries on the lives of the surgeons and its implications to be borne by the Health Department is lacking due to under reporting of such incidents and nonexistent surveillance systems. This study was conducted to determine the behavior associated with reporting these injuries among surgeons in the settings of active tertiary hospitals of Lahore.

CONCLUSION

In countries like Pakistan, limited resources are allocated for the health sector which uses its meagre budget to ensure the provision of basic health care while turning a blind eye to monitoring

the biohazard liabilities and the impact it has on our already deficient system. But to ignore such a distressing situation would only result in stressing the unquantified risk to surgeons practicing in the system and, therefore, patients. Hence, it is imperative to devise a prevention and reporting policy by the health department to ensure occupational safety and allow early detection and treatment for the healthcare workers. A simplified approach should be undertaken like establishing a NSI hotline and providing easy to follow algorithms along with promotion of surgical awareness for timely reporting.

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