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Original Research Article

Awareness about Post-Exposure Prophylaxis after Needle Stick Injury among Interns in a Tertiary Care Hospital in Andhra Pradesh

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Abstract:

Introduction: Medical interns are the most vulnerable group and are at increased risk of accidental needle stick injuries (NSI). This study is to assess awareness among interns about post exposure prophylaxis after needle stick injury.

Methodology: A cross sectional study was done among interns in tertiary care hospital using pre tested self-administered questionnaire sent through google forms and out of 130 interns104 responded voluntarily. Descriptive statistics like frequency, percentages, mean, and standard deviation were used. To check the association between the knowledge and other factors, Chi Square was used, a 'p' value of less than 0.05 was considered statistically significant.

Results: In the study females were 51% and mean age of participants was 22.94 ±0.94 years. Among the total participants 81(89.01%) were exposed to NSI. 62(58.6%) gave correct response for ideal time and 18(17.3%) for maximum time to start PEP and 17(16.4%) for duration of PEP. Diseases transmitted through NSI, first dose of PEP should be available at the casualty, potentially infectious body fluid is blood, were answered correctly by all the interns.

Conclusion: Awareness about PEP among interns was average to above average. Creating awareness about NSI and PEP will prevent diseases transmitted through NSI. Information education and communication material should be displayed prominently at the places of work, emphasizing the point about no recapping. Government must ensure the availability of PEP in all hospitals.

Keywords: needle stick injury (NSI), post exposure prophylaxis (PEP), medical interns.

Introduction

Injuries from needles used in medical procedures are called "needle stick injuries." [1]The healthcare personnel are at increased risk of needle stick injury and medical interns are the most vulnerable group to get exposed to accidental needle stick injury. [2] Needle stick injury can lead to serious or fatal infections with blood-borne pathogens such as Hepatitis B, C and HIV. [3] These needle stick injuries have always been one of the most important risk factors for healthcare personnel's for transmission of various infections such as Hepatitis B, Hepatitis C and Human Immunodeficiency Virus (HIV). [3]Most injuries can be avoided by simply adhering to general precautions and post-exposure prophylaxis (PEP) for HIV, but health care workers will only be able to protect themselves if they are aware of these precautions. [1]Our study was undertaken to assess awareness among interns about post exposure prophylaxis (PEP) after needle stick injury and to determine the factors affecting the awareness of post exposure prophylaxis after needle stick injury.

Methodology

A cross sectional study was conducted among Interns of Viswabharathi Medical College, Kurnool between April and May 2023. The convenient sampling method was used to collect the data among the participants. A total of 104 interns out of 130 were participated in our study. A pre-tested semi structured questionnaire was sent through google forms.

The questionnaire consists of twelve questions and the one score was given for a correct response and zero for an incorrect response. The scoring was categorized into two categories, ≤50 percentage of score considered as poor awareness and ≥50 percentage of score as good awareness. Statistical analysis was done by importing data from Google Forms to MS Excel and analysed using EpiInfo. Descriptive statistics like frequency, percentages, mean, and standard deviation were used. To check the association between the knowledge and other factors, Chi square was used and 'p' value of less than 0.05 was considered statistically significant.

Results

A total of 104 interns participated in our study, 51 (49 %) were males and 53 (51%) were females. The age ranged from 21 to 26 years with a mean age of participants was 22.94 ±0.94 years (Table 1).

Table 1: Sociodemographic features of respondents

Variable	Frequency	Percentage
Age		
• 21-23 Years	81	77.8
• 24-26 Years	23	22.1
Gender		
• Male	53	51
• Female	51	49

Knowledge Regarding Needle Stick Injury:

All the interns were heard about needle stick injury and defined needle stick injury.

Among them 81 (77.9%) were exposed to needle stick injury and among them only 62 (76.5%) reported to casualty medical officer. Among those exposed to needle stick injury, 64 (79.01%) received injury while recapping and followed by 40 (49.38%) while doing injection. All the participants were aware about the diseases transmitted through needle stick injury.

Table 2: Knowledge regarding post exposure prophylaxis

Knowledge	Correct response, N (%)
1) What should be the response immediately after NSI?	27 (26%)
2) Ideal time to start PEP?	62 (58.6%)
3) Maximum time to start PEP?	18 (17.3%)
4) Duration of PEP?	17 (16.4%)
5) If mucous membrane is involved, what precautions do you take?	69 (66.3%)
6) Where to avail emergency dose of PEP apart from ART centre?	84 (80.7%)
7) Potentially infectious body fluids considered at risk?	90 (86.5%)

Knowledge about post exposure prophylaxis:

Three fourth of the interns 85(82%) heard about PEP after NSI. The correct answer for 'immediate response after needle stick injury was washing with water, soap and PEP' and only 27 (26%) of interns gave the recommended response.

More than half 62 (58.6%) of the interns were aware about ideal time to start PEP (within two hours) after NSI. Maximum time to start PEP is (72 hrs) and only 18 (17.3%) gave correct response. The duration of PEP was 28 days but only 17 people (16.4%) provided the right answer. Majority of 90(86.5%) interns correctly identified blood as potentially infectious body fluid. Around 69 (66.3%) people told that when mucous membrane is involved in injury, 'precaution to be taken was rinsing thoroughly with water'. Apart from Anti-retroviral therapy center, emergency dose to avail PEP is casualty and a majority of 84(80.7%) interns were aware about that. 'PEP is not 100% effective' was answered correctly only by 60 (58%) and 'PEP is not required for all types of exposures' by 38 (56.5%) interns.

Table 3: Association between knowledge about pep and sociodemographic factors

Factors	Knowledge Category		Total	P Value
	Poor (Score Below 50)	Good (Score Above 50)		
Gender				
• **Male**	19 (37.25%)	32 (62.74%)	51	0.882
• **Female**	19 (35.84%)	34 (64.15%)	53	
Age Category				0.358
• **21 – 23 Years**	13 (16.04%)	68 (83.95%)	81	
• **24 – 26 Years**	06 (26.08%)	17 (73.91%)	23	

Awareness about PEP after needle stick injury was good among the females (64.15%) and age group between 21 to 23 years (83.95%). There was no significant association between gender (p=0.882), age category (p=0.358) to score category.

Discussion:

The majority (86.5%) of the study participants in our study accurately recognized high-risk bodily fluids. In research by Diprose et al. on anesthetists in the UK, 45.2% of high-risk bodily fluids were correctly recognized. [4] One should rinse with soap and water or regular saline when high-risk bodily fluids come in contact with mucocutaneous surfaces or open wounds. After accidental NSI, one must allow to bleed gently and wash with soap and water. [5,6] Only one third of the interns were aware about it.

A study conducted by Jayanth et al. Vellore India showed that most needle stick injuries (75%) occurred while doing recapping in interns in our study 79% injuries occurred while during recapping. [7] Hanafi et al. in their study on interns in Egypt, found that recapping or disassembly of syringe (36%) was the most common activity, associated with NSI similar to our study (79%). [8] Similar studies conducted in developed countries have shown the same.

In our study majority (80%) of the interns were aware about the place to get emergency dose of PEP was casualty. Whereas in a study on surgeons in USA found that it was only 7.7%. [9]

Limitations of our study was the study was conducted among interns only, and thus the findings cannot be extrapolated to all the health-care professionals.

Conclusion

Knowledge about Needle stick injury is good among the interns and more than half of the interns were aware about PEP. There were no association between gender and age groups on the knowledge of PEP among the interns.

Information education and communication material should be displayed prominently at the places of work, emphasizing the point about no recapping. Students must be sensitized frequently about practicing the standard precautions after needle stick injuries. Government must ensure the availability of PEP in all hospitals.

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