ASSESSMENT OF KNOWLEDGE AND PRACTICES OF MEDICAL STAFF REGARDING OCCUPATIONAL POST EXPOSURE PROPHYLAXIS AGAINST HIV, HBV AND HCV INFECTIONS IN A TERTIARY CARE HOSPITAL, LUCKNOW

Abstract

To assess the level of knowledge regarding post exposure prophylaxis (PEP) among residents, staff nurse and other employees working in a Tertiary care Hospital.

Questionnaires were distributed among residents, staff nurse and other employees working in a Tertiary care Hospital. Out of 600 questionnaires distributed, 496 participants took part in the study. Ninety nine (20%) were residents, 214(43.1%) were staff nurse and 183 (36.9 %) were other staff members. Most of the HCWs were able to answer when they were enquired about the PEP. Regarding knowledge of HCWs on potentially infectious material that causes HIV, HBV and HCV infections, their responses were quiet poor. Of 496 respondents, 17 residents, 28 staff nurse and 14 other staff had needle prick and their responses regarding practices of PEP were not satisfactory. In this study 338 respondents (88 residents, 148 staff nurse and 102 other staff members) had complete Hepatitis B vaccination. This study recommends mandatory training of HCWs on PEP, Universal Work Precautions and vaccination strategies in various departments.

Keywords: Post exposure prophylaxis; health care workers; needle stick injury; HIV HCV HBV.

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I. INTRODUCTION

Transmission of blood borne pathogens (Hepatitis B virus HBV, Hepatitis C virus HCV, HIV) from patient to health care workers (HCWs) is an important occupational hazard faced by health care personnel. The World Health Organization estimated that, of the 35 million HCWs worldwide, three million experience percutaneous exposures to blood pathogens each year [1-4].Evidences show that there is knowledge gap among HCWs about HIV, HBV and HCV infections and their precautions. Hence we want to see the current situation of level of understanding of HCWs regarding post exposure prophylaxis (PEP) in various departments through questionnaire.

II. METHODS

1. **Study Design and Area:** It was a questionnaire study conducted at tertiary care centre India.
2. **Study Population and Sample Size:** Study population consists of residents, staff nurse and other medical staff working in various departments. The minimum sample size required for the study was 358.In this study total respondents were 496, residents 99; staff nurses 214 and other staff 183.
   - **Inclusion Criteria**
     - Medical staff working in various departments.
     - Those were willing to participate in the study.
   - **Exclusion Criteria**
     - Medical staff not available during study.
     - Those who were not willing to participate in the study.
3. **Data Collection:** Data were collected through Questionnaire. A self-administered Questionnaire was designed containing thirteen questions in Hindi as well as in English, to assess the knowledge and practices regarding occupational post exposure prophylaxis against HIV, HBV and HCV infections. Questionnaires were distributed in various departments and the employees were asked to fill it.Ethical clearance was taken from Institutional Ethics Committee.

III. RESULTS

Out of 600 questionnaires distributed, 496 participants took part in the study. Ninety nine (20%) were residents, 214(43.1%) were staff nurse and 183 (36.9 %) were other staff members. (Table 1)

Knowledge about PEP: Most of the HCWs were able to answer when they were enquired about the meaning of PEP (83.8% Residents, 73.8% staff nurse and 60.1% other staff) and the association was statistically significant ($p = < 0.001$).Very few HCWs knew how soon PEP was to be initiated after exposure to infectious materials (40.4% Residents, 36.9% Staff nurse and 30.6% other staff) $p=0.208$, not statistically significant. When the participants were enquired about the window period of HIV infection, only 27.3% of Residents, 16.4% of staff nurse and 24% other staff responded correctly ($p= 0.049$, statistically significant). Regarding HCWs knowledge on potentially infectious material that causes HIV, HBV and HCV infections, their responses were quiet poor. Overall only 21.37%

of HCWs knew about the high risk materials (43.4% Residents, 14% of staff nurse and 18% other staff).In our study only 118 respondents (32.3% residents, 24.8% staff nurse and 18% other staff members) knew about the availability of PEP during emergency and whom to contact (p=0.024). (Table 2)

Exposure and practices of PEP : Out of 17 exposed residents, only five residents (29.4%) informed ART centre and four (23.5%) of them received PEP and completed the course, 12 of them knew about the circumstances of the accident and 5 of them knew about the laboratory status of the source person. Similarly out of 28 exposed staff nurse, two (7.14%) of them informed ART centre and received PEP and only one staff nurse (3.57%) completed the course of ART and only one of the staff nurse knew about the circumstances of the accident and laboratory status of the source person. Among the 14 other staff members who had needle prick, only three (21.40%) of them informed ART centre and received PEP and only two (14.30%) members completed the course of ART and only two of them knew about the circumstances of the accident and four of them about laboratory status of the source person. In addition to above questions, HCWs were also asked about the regular practice of UWPs and Hepatitis B vaccination. 76.81% respondents told that they were practicing UWPs while dealing with the patients and the number was quite satisfactory and 68.14% of HCWs had complete dose of Hepatitis B vaccine. (Table 3)

IV. DISCUSSION

The present study focused on investigating the knowledge and practices of medical staff regarding occupational PEP against HIV, HBV and HCV infections in a tertiary hospital. Transmission of blood borne pathogens (Hepatitis B virus HBV, Hepatitis C virus HCV, HIV) from patient to health care workers (HCWs) is an important occupational hazard faced by health care personnel.

In this study majority of the respondents were aware of PEP, but very few HCWs knew how soon PEP was to be initiated after exposure to infectious material. On comparing this study with the study conducted in Mangalore India, poor knowledge was observed with respect to the time of initiation of PEP, drug regimen and their duration[5].In another study by Chogle et all, 64% of individuals had correct knowledge on the time of initiation of PEP, but only 6% knew the correct duration of PEP[6].One of the study from South Africa showed that around 67% of the respondents were not aware when PEP should be started and 81% did not know the correct duration[7].

The window period refers to the time after infection and before seroconversion, during which markers of infection are still absent or scarce to be detectable. The window period for HIV infection is three months. In our study most of the respondents were not aware of the window period.

In our study 23.8% respondents knew about the availability of PEP and whom to contact during emergency .This number was quiet less as compared to cross sectional study conducted among 755 HCWs in Trivandrum, India where 39% of the respondents knew that their institute provides PEP during emergency [8].In another study conducted by Siwach et all in Chandigarh, 70% of respondents were not aware of the availability of PEP [9].

The average risk of acquiring HIV infection after different types of occupational exposures is low compared to risk of infection with HBV or HCV.In terms of occupational exposures the important routes are needle stick exposures and mucous membrane exposures.

In our study out of 496 respondents ,59 (11.9%) had needle stick exposures and only nine of them received PEP.A cross sectional study was done among HCWs in a tertiary care hospital in Goa where 34.8% of HCWs had experienced needle stick injuries in the last one year and this number was quiet more as compared to our study [10].Another cross sectional study was conducted among 322 HCWs in a tertiary care hospital in Delhi, India ,which revealed that 79.5% of HCWs reported having had one or more needle stick injuries in their carrier and only 7.8% of HCWs took PEP against HIV/AIDS[11].

In the present study majority of the respondents were aware of universal work precautions (UWPs).Since it was a questionnaire study, there is tendency of HCWs to exaggerate their compliance with UWPs. The level of compliance can only be properly assessed by observation. In developing countries like India**[**12, 13] and in developed countries[14], the knowledge and understanding of UWPs among HCWs is inadequate. In various studies conducted in India **[**15], Indonesia [16] and Saudi Arabia [17]it was reported that in spite of having adequate knowledge regarding PEP, adherence to practices of UWPs among HCWs remained poor.

Hepatitis B infection is one of the major public health problems. The risk of HBV is four times greater for HCWs compared to that of the general adult population. In our study 68.14% of respondents had completed Hepatitis B vaccination as compared to the study done in tertiary care hospital in Delhi, where 55.4% were reportedly vaccinated against Hepatitis B **[**18].

V. CONCLUSION

There appears to be lack of awareness of HCWs regarding PEP against HIV, HBV and HCV infections in both medical and dental departments. Hence this study recommends mandatory training of HCWs on PEP, UWPs and vaccination strategies in various departments in tertiary care hospitals.

VI. TABLES

Table 1: Distribution according to type of respondents

SN	Respondents	Frequency	Percent
1	Residents	99	20.0
2	Staff Nurse	214	43.1
3	Other Staff	183	36.9
	Total	496	100.0

Table 2: Knowledge about Post Exposure Prophylaxis (PEP) Among Health Care Workers

SN	Variables	Responses						Statistical significance	
		Residents n=99		Staff nurse n==214		Others n=183		X^2	p
1	What is pep?	83	83.80%	158	73.80%	110	60%	19.2	<0.001
2	After exposure up to what time pep can be taken?	40	40.40%	79	36.90%	56	30.60%	3.14	0.208
3	What is window period of HIV infection?	27	27.30%	35	16.40%	44	24%	6.03	0.049
4	What is potentially infectious material?	43	43.40%	30	14%	33	18%	36.78	<0.001
5	Where do you get PEP in emergency?	32	32.30%	53	24.8%	33	185	7.43	0.024

Table 3: Exposure and Practices of Post Exposure Prophylaxis among Health Care Workers

SN	Item	Residents (n=99)		Staff Nurse (n=214)		Others (n=183)		Statistical significance	
		No.	%	No.	%	No.	%	χ^2	'p'
1	Have you ever had needle prick?	17	17.20	28	13.10	14	7.70	6.07	0.048
2	Have you informed ART centre after exposure?	5/17	29.40	2 /28	7.14	3/14	21.40	3.55	0.170
3	Have you ever received PEP?	4/17	23.50	2 /28	7.14	3/14	21.40	2.38	0.304
4	If taken, for how long did you take?	4/17	23.50	1/28	3.57	2/14	14.30	3.77	0.152
5	Description of the circumstances of the accident.	12/17	70.60	1/28	3.57	2/14	14.30	25	<0.001
6	Was the source person known?	5/17	29.40	1/28	3.57	4/14	28.60	6.2	0.045

7	Do you regularly practice universal work precaution?	75	75.80	177	82.70	129	70.50	8.45	0.015
8	Have you been vaccinated for Hepatitis B?	88	88.90	148	69.20	102	55.70	32.7	<0.001

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