

Knowledge and Practice of Post Exposure Prophylaxis among BDS Interns.

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ABSTRACT

Background: Dental students face various threats during the time of their clinical training and learning, one of those is the possibility to be exposed to blood-borne infections, with the associated risk of HIV. According to UNAIDS, presently there are approximately 36.9 million people living with HIV/AIDS across the globe. The types of exposure which may pose risk to the dentist of acquiring blood-borne pathogens may be; percutaneous injury (e.g., Injury with needle-stick or with a sharp instrument), contact with the mucous membranes of the mouth or eye, contact with non-intact skin (e.g. chapped or abraded skin, or dermatitis affected skin). **Methods:** This was a cross sectional analytical study, conducted among Interns of various dental colleges of Lucknow, U.P. The study population of only 275 BDS interns voluntarily completed the questionnaire. A self-administrated questionnaire consisting of 14 close-ended items was used for data collection. The interns were given the questionnaire at the time of their clinical posting in various departments and were asked to fill it out without discussing it in fifteen minutes. **Results:** Total of 274 interns completed the survey. 83.2 % (n=228) interns heard about the term PEP. 93 % said that there should be guidelines regarding PEP in working areas, and 95% said that PEP can reduce the chances of developing AIDS in patients exposed accidentally to the used instrument/syringe. 53.3 % i.e. 146 interns had been pricked accidentally by infected instrument / Syringe. shockingly only 18 % interns went for the right way of PEP i.e. they first washed the prick area under running water, got the lab test of the patient and of self-done and by the time report comes they sought for medical advice and started the drug regimen. **Conclusions:** As this study as well as other studies in past have revealed that this is not rare for a dental practitioner to get pricked by any infected instrument or syringe during working on dental patients, the education of BDS students in Post Exposure Prophylaxis is mandatory which is not at all a part of BDS curriculum and thereby keeping dental graduates devoid of this life saving knowledge.

Keywords: Post Exposure Prophylaxis (PEP), HIV, Infected Instrument/Syringe, BDS Interns.

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INTRODUCTION

Dentistry is a noble profession, during study and training of which dental students undergo various risk factors. Dental students face various threats during the time of their clinical training and learning, one of those is the possibility to be exposed to blood-borne infections, with the associated risk of HIV.^[1] According to UNAIDS, presently there are approximately 36.9 million people living with HIV/AIDS across the globe. In 2017, about 1.8 million people were freshly infected with HIV worldwide i.e. about 5,000 new infections daily. Out of all, around 25% of people infected with HIV do not know their status and still need to access to HIV testing services. In India it is estimated that in 2017, there were approximately 87.58 thousand fresh HIV infections and currently 21.40 lakhs people are living

in India with HIV, giving the adult (15–49 years) HIV prevalence to be 0.22%.^[2]

As per the data of World Health Organization (WHO), 2.5% of the total HIV cases globally, are because of occupational exposure among health care workers.^[3] With this consideration, occupationally acquired HIV renders significant psychosocial challenges to the dentists and other health care workers due to associated discrimination and stigma. This kind of accidents happen to a few, but pose momentous risk to the dentists' health, families' health and to the patients also under their care.^[4] The types of exposure which may pose risk to the dentist of acquiring blood-borne pathogens may be; percutaneous injury (e.g., Injury with needle-stick or with a sharp instrument), contact with the mucous membranes of the mouth or eye, contact with non-intact skin (e.g. chapped or abraded skin, or dermatitis affected skin).^[5]

During internship, dental graduates take load of providing dental care in the out-patient departments at very early stage of their professional career in any dental college across the world and are thus at a great risk of occupational exposure to all the types of

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blood borne infections including HIV.^[6] Though they are trained in using the universal precautions but accidental skin injury by a sharp instrument or used needle of syringe is inevitable which places them at risk of acquiring this non-treatable health condition. The only option in that situation remains the use of Post Exposure Prophylaxis (PEP) using which these future health professionals can escape themselves from acquiring AIDS. Unfortunately, PEP for HIV is not included in BDS curriculum, so the status of their knowledge and practice of the same is not known. Therefore the objective of this survey was to know the knowledge, attitude and practice of interns of different dental colleges of Lucknow, Uttar Pradesh regarding PEP for HIV.

MATERIALS & METHODS

This was a cross sectional analytical study, conducted among Interns of various dental colleges of Lucknow, U.P. All the BDS interns of dental colleges of Lucknow were contacted out of which 300 interns agreed to participate in the study after knowing about the study. The study population of only 275 BDS interns voluntarily completed the questionnaire. A self-administrated questionnaire consisting of 14 close-ended items was used for data collection. The interns were given the questionnaire at the time of their clinical posting in various departments and were asked to fill it out without discussing it in fifteen minutes. Informed consent was taken from the participants after explaining them about the purpose of the study and confidentiality was assured. Ethical approval for the study was taken from the institutional ethical committee of KGMU.

All the questions were objective in nature with option of 'yes' or 'no' except two questions, one in which knowledge of immediate lab investigation was assessed and another one was in which the detail of PEP practice was assessed among subjects who had experienced the exposure to the used sharp instrument or syringe. The questionnaire was pretested on a random sample of BDS interns to ensure practicability, validity, and interpretation of responses. The validity of the questionnaire was assessed using Cronbach's alpha internal consistency coefficient. Data was analysed using Microsoft Office Excel 2016 and the results were expressed in percentage.

RESULTS

Total of 274 interns completed the survey. 83.2 % (n=228) interns heard about the term PEP in relation to exposure to infected instrument/syringe but 16.8 % (n=46) interns were not at all aware of PEP in any form. Out of all (274) interns, 93 % said that there should be guidelines regarding PEP in working areas, and 95% said that PEP can reduce the chances of developing AIDS in patients exposed accidentally to the used instrument/syringe. 80 % interns said that PEP is indicated after any type of infected sharp injuries. 97 % subjects said that they always use personal protective tools while working on patients. Out of all interns included in study, 53.3 % i.e. 146 interns had been pricked accidentally by infected instrument / Syringe. In answer to the question that what should be the immediate lab investigation be done after exposure towards used sharp instrument, 62 % said that blood test of the patient should be done, surprisingly 30 % interns said that we should go for the blood test of the health professional who got exposed and 6 % said that they don't know. 14 % of those interns who had been exposed to the used instrument/syringe, were not using the personal protective tools while working on patient, where as 86% of those were using the personal protective tools. 58 % of interns who had been exposed to the used instrument/syringe during working on patient, did not take any PEP for HIV whereas only 42 % did go for PEP. Out of total exposed interns who took PEP measures, shockingly only 18 % interns went for the right way of PEP i.e. they first washed the prick area under running water, got the lab test of the patient and of self done and by the time report comes they sought for medical advice and started the drug regimen. 23 % of the interns who were exposed to the used instrument/syringe, only washed the pricked area and had the drug regimen started but didn't get the blood test done. Among exposed 59 % interns only washed the area. In response to the question to those who went for PEP drug regimen that after how much time you started the drug regimen of PEP for HIV, only 19 % said that they started within one hour of exposure, 67 % could not start within one hour but started within 24 hours, 13 % could not start within 24 hours but started within 72 hours and only 1 % started after 72 hours.

Table 1: Responses of Subjects about PEP

Question	Response	Frequency n (%)
Do you know about post exposure prophylaxis (PEP) for HIV or other infection?	Yes	228 (83.2)
	No	46 (16.8)
Do you think there should be guidelines regarding PEP in working areas?	Yes	254 (92.7)
	No	20 (7.3)
Do you think PEP can reduce the chances of developing AIDS in persons exposed accidentally to the used instrument/syringe?	Yes	262 (95.63)
	No	12 (4.37)
Is PEP is indicated after any type of infected sharp injuries?	Yes	258 (94.16)
	No	16 (5.83)
Do you always use personal protective tools while working on patients?		266 (97)
		08 (3)

How you will proceed for lab investigation after exposure towards used sharp instrument?	Blood test of the patient only	170 (62.04)
	Blood test of the health professional only	84 (30.65)
	I don't know	20 (7.3)
Have you ever been pricked/exposed accidentally by infected instrument / Syringe?	Yes	146 (53.3)
	No	128 (46.7)
If exposed, were you using all personal protective tools while working on patient?	Yes	125 (85.61)
	No	21 (14.38)
If exposed, did you take PEP measures for HIV?	Yes	62(42.4)
	No	84(57.5)
If exposed, how did you proceed for PEP?	First washed the prick area under running water, got the lab test of the patient and of self done and by the time report comes sought for medical advice and started the drug regimen	27 (18.5)
	Only washed the pricked area under running water, had medical advice, started drug regimen but didn't get the blood test done	33 (22.6)
	Only washed the prick area under running water	86 (58.9)
If exposed, after how much time you started the drug regimen of PEP for HIV	Within one hour	27 (18.49)
	More than one but less than 24 hours	97 (66.43)
	More than 24 but less than 72 hours	19 (13)
	More than 72 hours	3 (2)

DISCUSSION

Pertaining to the occupationally acquired diseases, HIV is one of the major blood borne infection which is known for its non-treatability. Though it is always recommended to use personal protective tools including gloves while working on patient and most of the dental professionals follow it also but the fact is that despite taking proper precaution there may be instances when dentists get pricked by used sharp instrument or syringe and in that case Post Exposure Prophylaxis (PEP) is recommended. BDS internship is the first phase of dental profession in which there is relatively free hand given for treating patients in dental college OPD and therefore apart from having a good knowledge and practice of dental procedures the knowledge and practices of keeping oneself safe and healthy should also be inculcated by this phase among future dentists.

In present study 83.2 % interns knew about PEP for HIV in context to exposure to infected instrument/syringe, which is more than that found in study done by VO Kasat et al (68.8 % in dental students),^[8] Singh RK et al (65.5%) and Singh Gurudeep et al (53.4 % in health care workers),^[9,10] but less than that found in study done by Owolabi R S et al (97 % in health care workers),^[11] Mathewas B et al (92.8% in health care workers),^[12] and almost similar to the study done by Celia D A et al (87% in medical and para-medical students).^[13]

In present study 93% interns said that PEP guidelines should be there in the working areas which a bit lesser than the view of subjects in the study of Mercy Okah et al (100%).^[14] 95% interns in our study said that PEP can reduce the chances of developing AIDS in patients exposed accidentally to the used instrument/syringe which is similar to the data found in study done by Monalisa et al (100% dental interns),^[15] but more than the finding of Mercy Okah et al (78% among dental surgeons),^[14] and Singh Gurudeep et al (25.9% among health care professionals).^[10]

In our study 97 % subjects always use personal protective tools while working on patients which is similar to the finding of Celia D A et al (96.1% in medical interns),^[13] whereas far more than findings of Singh Gurdeep et al (31% among health care professionals)10. 80 % interns in present study were in view that PEP is indicated after any type of infected sharp injuries whereas only 27.6% subjects in the study of Singh Gurudeep et al,^[10] 15.4% subjects in the study of Binian Methew et al,^[12] and 51.9% subjects in the study of Mercy Okah et al,^[14] are in the same view.

In our study 53.3 % interns had experienced subcutaneous injury by used instrument / syringe during working on dental patient which is much more than that found in study done by Owolabi R S et al (31 % in health care workers),^[11] and Singh RK et al (21.4% in health care workers).^[9] The reason for higher incidence of subcutaneous injuries among dental interns in present study might be due to the fact that dentists deal with sharp instruments like elevators, endodontic files and scalpel also in addition to the syringes. Out of those who had experienced subcutaneous injury by used instrument/syringe during working on dental patient, 86 % were wearing required personal protective tools whereas 14% were not using any tool. Only 31.50 % among exposed took PEP measure for HIV which is almost similar to the study done by Singh Gurudeep et al (35.30% among health care workers),^[10] and R. Alenyo at al (28 % among Surgical Staff),^[16] but more than that found in the study done by Singh RK et al (14.89% in health care workers).^[9] 61 % among exposed immediately washed the wound and obtained PEP drug regimen through medical advice but did not go for blood tests of patient and self, whereas 29% in addition to the above mentioned, got the blood test also done of patient and self and started PEP regimen as per medical advice, this is similar to the finding of R. Alenyo et al (49 % got the blood test done).^[16]

The best result with PEP drug regimen can be obtained if it is started within one hour of exposure but it must be taken anyway within 72 hours of exposure. In response to the question to the exposed interns, after how much time PEP Drug regimen was started, only 19 % said started within one hour of exposure which is similar to that found in study done by Mercy Okah et al (20.4 % among dental surgeons),^[14] V O Kasat et al (20.4% knowledge of dental interns),^[8] R. Alenyo (22% among surgical staff),^[16] but less than the finding of V O Kasat et al (58.2% among dental practitioners),^[8] 67 % could not start within one hour but started within 24 hours which is double than that found in study done by Mercy Okah et al (31.4% among dental surgeons),^[14] 13 % could not start within 24 hours but started within 72 hours which is almost similar to the findings of Mercy Okah et al (18.5% among dental surgeons),^[14] and only 1 % started after 72 hours. This delay in getting the PEP drug regimen might be due to the lack of training in this field during BDS course.

CONCLUSION

As this study as well as other studies in past have revealed that this is not rare for a dental practitioner to get pricked by any infected instrument or syringe during working on dental patients, the education of BDS students in Post Exposure Prophylaxis is mandatory which is not at all a part of BDS curriculum and thereby keeping dental graduates devoid of this life saving knowledge. Therefore it is recommended to include this important issue in BDS curriculum so that future dental graduates can prevent themselves from acquiring this debilitating disease in case of accidental exposure to infected instrument.

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