Original Article

Impact of knowledge about Post exposure prophylaxis among nursing students - A cross sectional study

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Abstract

Background:
A cross sectional study was conducted to study the level of knowledge and attitude about Post Exposure Prophylaxis (PEP) among nursing students of Nagpur. Pre tested closed ended questionnaires were completed before and after an educational intervention to assess the knowledge retention in the students.

Method:
The study is a cross sectional study with a pre-test and post-test conducted among 108 nursing students of a Nursing college in Nagpur. The questionnaire consisted of a total of 19 questions with sections of general information of the students followed by facts about HIV and AIDS, prevention and lastly PEP.

Result:
The knowledge in pre test session was poor in all the three sections. It was observed that knowledge on all the three aspects improved in the post test session. The increase in knowledge was statistically significant for all the three sections. The retention of knowledge imparted to the students was satisfactory.

Conclusion:
Nurses are probably the most vulnerable of all the health care workers to get exposed to the occupational hazard of HIV infection. Sadly the knowledge regarding various vital aspects of this plague of modern times is unsatisfactory in this important health workforce. However it is encouraging to note that the situation can be rapidly changed using simple methods of teaching and discussions focused on the topic.

Key words: **PEP, Nursing students, Pre and Post test, HIV, AIDS**

Introduction

Healthcare settings are constantly exposed to numerous occupational hazards. With the growing trend of HIV infection in recent years, it has posed increasingly difficult challenge for this population. It has rapidly become one hazard that people in the healthcare field fear most. It has been reported that nearly 3 million healthcare workers suffer percutaneous exposures each year. Of these, an estimated 66,000 hepatitis B, 16,000 hepatitis C, and up to 1000 HIV infections occur each year[(1)].

Avoiding occupational blood exposures is the primary way to prevent transmission of hepatitis B virus (HBV), hepatitis C virus (HCV), and human immunodeficiency virus (HIV) in health-care settings [(2)]. Due to the increasing problem of HIV infection from needle sticks, the Center for Disease Control now recommends what is known as post-exposure prophylaxis (PEP) for those workers with needle stick injuries thought to be at risk of carrying the HIV virus.

This is all the more important as the incidence of needle stick injury in specific health care groups such as surgeons, orthopedics is very high. In some studies as high as 44 % of the surgeons admitted having suffered a needle stick injury[(3)]. The risk of transmission of blood borne diseases is still low by this route. Another study reports that the probability of transmission of HCV from an infected patient to the doctor is only 0.001 – 0.032% annually. [(4)] This being so, these is no place for complacency, because as the prevalence of HIV infection will show a surge the probability of the health care workers acquiring HIV from the patients due to various professional activities will also increase.

Any direct contact (i.e., contact without barrier protection) to concentrated virus in a research laboratory or production facility is considered an exposure that requires clinical evaluation. For human bites, the clinical evaluation must include the possibility that both the person bitten and the person who inflicted the bite were exposed to blood borne pathogens. Transmission of HBV or HIV infection only rarely has been reported by this route [(5,6,7)].

PEP should be initiated as soon as possible. The interval within which PEP should be initiated for optimal efficacy is not known. Animal studies have demonstrated the importance of starting PEP soon after an exposure [(8,9)].

Nurses are probably the most commonly exposed health care staff exposed to needle stick

injuries and contact with infectious fluids. They also influence the behavior of other health care works allied with them like the ward boys and cleaners. Hence it is utmost important that they must know how to protect themselves from this potential but devastating professional health hazard. Little information is available about the knowledge of nurses in this critical area. A study was thus envisaged to study the existing knowledge and attitude about this vital issue amongst them.

Aims and Objectives

- To study the level of knowledge and attitude about Post exposure prophylaxis (PEP) in nursing students.
- To improve knowledge about PEP in nursing students.
- To study the impact of session and retention of knowledge in the study subjects

Material and methods

Study area: Madhuritai Deshmukh Nursing College, Vidya Shikshan Prasarak Mandal, Nagpur

Study subjects: 108 General nursing students including 2nd, 3rd year students and interns.

Study duration: 2 months in year 2009

Study design: Cross sectional study

Statistical analysis: Students paired single tailed "t" test was applied.

A pre and post test study was conducted among 108 nursing students. A prior permission of the head of the institute was taken and briefed about the objective of the study. After institutional ethic committee permission the study was started. All students were called in lecture hall and there were given pre test to fill the questioner. After pre-test, the students were briefed about the study and the lecture on HIV and PEP was delivered by investigator. Various aspects of HIV and PEP were discussed in detail. The topics covered were overview of HIV and AIDS, WHO classification, epidemiology, modes of transmission, symptomatology and testing. Special emphasis was given on practical aspects of prevention of infection during professional practice like the correct use of the syringe and handling of potentially infected material and fluids. The questionnaire consisted of a total of 19 questions with sections of general information of the students followed by facts about HIV and AIDS, prevention and lastly PEP section having 8, 5, 6 questions respectively.

The participants were encouraged to ask queries related to the topic. All the queries were answered by the investigators.

A post test session was conducted after a week of the pre test to assess the retention of knowledge. The collected data was analyzed with the help of student 't' test. Every correct answer was awarded +1 and every incorrect answer was given – 1. The "don`t know" option was given 0.

Results:

Table 1. Facts, prevention and PEP knowledge pre test and post test scores

Pre test scores Post test scores				P Value <0.001
Facts about HIV & AIDS				t value 9.50
Mean	S.D	Mean	S.D	
0.80	2.74	5.70	1.73	P Value <0.001
95% C.I: 0.27-1.33		95% C.I: 5.36-6.03		
Prevention				t value 14.16
Mean	S.D	Mean	S.D	
-0.25	1.35	3.67	1.33	P Value <0.001
95% C.I: -0.52 – – 0.00		95% C.I: 3.40 – 3.95		
PEP				t value 9.69
Mean	S.D	Mean	S.D	
1.05	2.13	4.40	1.45	
95% C.I: 0.64 – 1.46		95% C.I: 4.12 – 4.68		

108 nursing students participated in the study. An overwhelming majority of the sample consisted of females. The mean knowledge on the section of basic facts of HIV and AIDS was 0.80±2.74. In the post test for the same mean scores improved and was 5.70±1.73. The increase in the level of knowledge in the section of facts about HIV and AIDS was found to be statistically significant. ($t=9.50$, $p<0.001$)

In the prevention of HIV infection section the scores in the pre test session were poor. The mean scores were -0.25±1.35. This indicated that

although the general awareness about the disease is increasing, the nursing students were unaware about the exact possibilities and circumstances where infection is possible. The post test mean score was 3.67 ± 1.33. The range of the scores of the pre test and the post test is maximum for this section. It indicates that if specific information is provided regarding the prevention of HIV and its modes of transmission, the subjects are likely to retain the same. One reason contributing to this raised score could also be that the lecture and following discussion focused specifically on individual case scenario at a time. Fox example: Is it possible to get infected by spilled blood, soiled toilet seat, needle stick injury rather than a generalized and rhetoric talk on the modes of spread. The difference in the pre test and the post test scores for the section of prevention was found to be statistically significant. ($t=14.16$, $p<0.001$). For the section on PEP the pre test session score was 1.05±2.13. In the post test the scores improved with means of 4.40±1.45 which is a significant improvement. ($t=9.69$, $p<0.001$)

It is observed that there is a big jump in the knowledge regarding all the 3 sections included in the study. The variation between the knowledge of the study subjects also decrease in the post test session. When the improvement in the mean scores in each of the three sections of facts of HIV and AIDS, prevention and PEP was tested statistically, it was observed that the improvement was significantly better than that expected by chance alone for all the sections.

The abysmal score in the pre-test section of the prevention section is especially bothering. Knowledge is the first line of defense against the blood borne infections including HIV. Ignorance in this area of work can have a disastrous outcome on the health of the nurses. It is safe to assume that this will also undermine the confidence of the nurses to deal with patients confidently and effectively. However, it is also good to know that the difference between the scores is also the highest in the prevention section. This demonstrates that focused and clear messages on HIV prevention if delivered even for a brief period will make a lasting impression on the subjects.

Discussion:

Nurses play a pivotal role in the health care delivery system in India. Consequently the education of nurses is important for successful prevention of transmission of HIV at workplaces. Without being armed with correct and precise knowledge about the disease which spread through occupational work exposure, carrying out the duties of a nurse is fraught with problems. As the number of cases who get infected with HIV will increase the patients needing hospitalization and professional care is also bound to increase. This may expose the nursing staff to unacceptably high probability of contracting the infection in absence of the knowledge regarding prevention. Given the level of stigmatization of HIV and AIDS in the current day, special emphasis was given on the need to seek urgent medical attention in case of an occupational exposure to potentially infected material especially blood. Although the infectivity of HIV is lower than that of Hepatitis B and C the outcome is grave and hence needs specific mention.

The unsatisfactory scores observed in the pre-test questionnaire could be a reflection of the wider ignorance regarding the disease in the general population. Although the scene is rapidly changing, it is observed that knowledge regarding specifics of transmission and prevention is lacking[10,11]. This situation although not desirable even in the general population is more worrisome in nursing and other health care staff who have to deal with infected materials on a day to day basis. Even surgeons have a very low reporting rate (9%) of serious exposures like needle stick injury [3]. Hence these is a further need to educate and motivate the health care workers to seek help in case of potentially infectious exposures.

The study emphasizes on need of education about HIV for the nurses by means of training programs that have HIV as a center issue. This will not only lead to curbing the spread of the disease occupationally but is also expected to bring about a change in the outlook and attitude of the staff towards the patients. Eventually it may mean a higher quality of care to people living with a HIV AIDS (PLWHA) and the public at large.

The study was done at a single college and the sample size is also small. Hence the findings of the study lack wide generalization ability. How much retention of the imparted knowledge remains over an extended period of time also remains to be seen. Follow up studies are required to assess the same.

Conclusion:

It is concluded that a single interactive session shows tremendous increase in the level of

knowledge about PEP among the nursing students. Multiple exposures to such lectures and actual demonstrations can be expected to reinforce the understanding and knowledge of various aspect of PEP. Although education about the disease, its prevention and PEP is incorporated in the syllabus of the students, such extra interactions seem to benefit the students in a great way. The message is expected to be passed to their peers and other class III and IV workers and can prove to be a boon to the all the health care workers working with people living with HIV AIDS.

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