



## STUDY OF POST EXPOSURE PROPHYLAXIS IN HEALTHCARE WORKERS OF A TERTIARY CARE HOSPITAL IN WESTERN INDIA

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**ABSTRACT** **SUMMARY:** With the increasing prevalence of Human Immunodeficiency Virus (HIV) infection there is increased incidence of exposure of HIV among the health care workers. Health care workers(HCW) are at increased risk of occupational exposure to HIV. The exact magnitude of the problem of exposure in Indian population is not fully known. Hence there exists a knowledge gap and the present study was undertaken to study occupational exposure among HCW in a tertiary care centre in Western India. In this Retrospective record based and personal telephonic-interview based study it was observed that 67.16% of all injuries occurred to Housekeepers while Doctors were second with 20.89% incidence. One third of the exposed HCWs were not advised post exposure prophylaxis (PEP), and one third of those who were advised PEP did not complete the PEP therapy.

**KEYWORDS :** Post Exposure Prophylaxis, Healthcare Workers, Adherence

### INTRODUCTION

With the increasing prevalence of Human Immunodeficiency Virus infection there is increased incidence of exposure of HIV among the health care workers. Despite efforts to implement universal safety precautions, accidents cannot be prevented. The absence of a vaccine or an effective curative treatment makes matters worse and as a result the victim is left apprehensive. Post exposure prophylaxis is an immediate medical treatment given to patients exposed to potentially active HIV sources to prevent transmission of pathogens and refers to comprehensive management instituted to minimize the risk of infection following potential exposure to blood pathogens. It consists of immediate first aid, counselling, risk assessment, relevant laboratory investigations based on informed consent of the exposed person and source person and depending on the risk assessment, the provision of short term (28 days) antiretroviral therapy (ART), along with follow up evaluation.[1,2] Health care workers are at increased risk of occupational exposure to blood borne pathogens with the average risk of transmission of HIV to a Healthcare Worker after percutaneous exposure to HIV infected blood estimated at 0.3%[3,4] and after mucous membrane exposure at 0.09%[5]. There are limited literatures available in Indian context about the PEP usage and outcome in HIV setting. The exact magnitude of the problem of exposure in Indian population is not fully known. Hence there exists a knowledge gap and the present study was undertaken to study occupational exposure among HCW in a tertiary care centre in Western India.

### AIMS & OBJECTIVE

The aim of the study was to study the post exposure prophylaxis among Healthcare Workers (HCW) following occupational exposure in a Tertiary Care Hospital in Western India, and to study the adherence to treatment and also reasons for non-adherence. Also to evaluate whether follow up was done after 3 months and 6 months.

### METHODOLOGY

This is a retrospective record based and personal telephonic-interview based study. HCWs in a tertiary care hospital who have had an occupational exposure from Jan 2015 to Jan 2017 were enrolled. HCWs who reported of occupational exposure to potentially infected blood or body fluids in the past 2 years were contacted personally or telephonically. Written informed consent was taken from all subjects available and verbal from those who participated telephonically. A detailed history regarding mode of exposure, time of reporting, reasons for any delay in reporting, type of regimen, adherence, reasons for non-adherence, any side effects of therapy were recorded in a standardized proforma using records or telephonically as given below.

Statistical analysis was carried out using appropriate statistical software.

|                                  |   |
|----------------------------------|---|
| Serial No.                       |   |
| Sex                              |   |
| Age                              |   |
| Injury type                      |   |
| Procedure                        |   |
| Time delay(hrs)                  |   |
| Occupation                       |   |
| HBsAg                            | Positive/Negative/Not done  |
| Hep B vaccine status             | Immunised/Non immunized/ Unknown/partial<br>Last vaccine taken:             |
| Anti HCV                         | Positive/Negative/Not done  |
| HIV                              |   |
| Type of PEP                      |   |
| Duration(Months)                 |   |
| Adherence                        |   |
| Reason for Non adherence         | Unavailability of medicines/ Medicine side effect/Others<br>If others _____ |
| Follow up done                   | After 3 months  |
| Follow up done                   | After 6 months  |
| Investigations done              |   |
| Any complaints or adverse effect |   |

### QUESTIONNAIRE USED

#### RESULT

A total of 67 questionnaires about the exposed HCWs were filled using the data collected from the Occupational hazard record of the OPD of the hospital and complete confidentiality was maintained.

Among the HCWs exposed to HIV there were forty five paramedical staff (housekeepers) constituting majority (67.16%) of all exposures, fourteen doctors constituting 20.89%, six nurses, and two lab technicians. Ninety five percent of these were between the ages of 20 and 35 years. Eighty two percent of the cases reported to the designated doctor within two hours of occurrence of exposure. Ninety percent of the injuries were by needle pricks rest ten percent were by sharp cuts of which 5% were minor/insignificant cuts.

Eighty two percent of cases were advised to take PEP and eighteen percent were not prescribed PEP, the reason for which was not recorded in the documents or was not explained to the individual. Of those who were advised PEP less than fifty percent (47.76%) adhered to the PEP protocol and completed therapy for the entire duration. Those who stopped PEP prematurely cited the adverse effects as the reason for discontinuing PEP.

## DISCUSSION

Our retrospective study conducted in a large public teaching hospital in India highlights the risk of occupational exposures among healthcare workers. While most commonly, recapping contributed to exposures, handling sharps such as IV needles and sutures during or after a procedure were the most common reasons for an exposure.

Our study was conducted in a Teaching hospital where Interns, Nursing students are expected to do routine blood sample draws, suturing and IV insertion procedures. Paired with their inexperience, long work hours and high volume of inpatient procedures puts them at high risk.

For the vast majority of cases, a stat PEP dose was administered within 24 hours suggesting quick assessment and good access to PEP was possible in our setting. However, it was noted that there was reduced compliance among the paramedical staff and sweepers and nearly half of them discontinued the prescribed PEP treatment without consulting the clinician. It is possibly because they did not perceive themselves to be at high risk for HIV infection. They also may have been less knowledgeable about importance of adherence to PEP and experienced side effects of the PEP medications.

Other teaching hospitals have also reported a high incidence of exposures among house-staff in both resource-constrained and resource-rich settings. A study at a private non-teaching hospital in Mumbai conducted over a six-year period found out that, 380 needle stick injuries were reported [6]. Nurses were found to have the greatest number of exposures with IV line insertion being the most common activity causing an exposure. In a cross-sectional survey of 266 HCWs in rural north India working in non-governmental health settings of 115 beds or less, nurses again had the highest reported number of exposures in the past year [7].

A recent survey of HCWs in Kenya found that there was a low uptake of PEP (4% of needle stick injuries), and this was largely attributed to HCWs' fear of getting HIV tested as well as the debatable perception that needle-stick exposures carry low risk for HIV [8]. In a small study in Malawi, PEP was reportedly underutilized with just 19 of 29 exposed HCWs initiating PEP [9]. Many of these HCWs were nurses and one of the reasons for low use of PEP was lack of awareness and fear of getting HIV tested.

Given that so many high-risk exposures occur during or after a procedure, it is likely that improved use of PEP and introduction of safer medical devices (e.g. needleless systems and sharps with engineered sharps-injury protections) would reduce the occurrence of high risk exposure to contaminated sharps.

A limitation was that our study took place at one large public teaching hospital and may not be generalizable to other hospital settings in India, where a formal program for reporting occupational exposures and providing PEP may be lacking.

## CONCLUSION

The present study shows that needle prick injury is the most common cause of occupational exposure to HIV infection. A comprehensive program covering universal precautions, procedural training and sharps handling is imperative for HCWs. PEP is protective against transmission of HIV among the exposed HCWs. There is a need for sensitizing the HCWs regarding the importance of PEP after occupational and non-occupational exposure to HIV.

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