Short Communication

Outcome of Accidental Exposure Prone to Blood Borne Viral Infections in an Educational Hospital

Shahnaz Sali[1], Shabnam Tehrani[1*], Sara Abolghasemi[1]

[1] Infectious Diseases and Tropical Medicine Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran

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Abstract

Background: The risk for transmission of blood-borne viruses (BBVs) such as Human immunodeficiency virus (HIV), hepatitis B virus (HBV) and hepatitis C virus (HCV) due to occupational exposure is a major concern in the health care setting.

Materials and Methods: This study among 337 health care workers (HCWs) accidentally exposed to BBVs was carried out from January 2009 to March 2015. The data were reviewed in labbafinejhad hospital, Tehran, Iran.

Results: 4 HCWs had exposure to HBS Ag positive, which HBS antibody titer of them was higher than 10 mlu/ml, 6 HCWs were exposed to HCV seropositive patients underwent laboratory investigations for HCV-antibody on 4,12, 24 weeks that results were negative. 3 cases had exposure to HIV seropositive patients which received standard antiretroviral post exposure prophylaxis.

Conclusion: Timely performance for PEP (Post Exposure Prophylaxis) reducing BBVs transmission among HCWs.

Keywords: Outcome, Accidental Exposure, Blood Borne Viral Infections

***Corresponding Author:** Shabnam Tehrani, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: Tehrani.shabnam89@yahoo.com

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Introduction

The risk for transmission of blood-borne viruses (BBVs) such as Human immunodeficiency virus (HIV), hepatitis B virus (HBV) and hepatitis C virus (HCV) due to occupational exposure is a major concern in the health care setting[1]. Exposure routes implicated in occupational BBVs transmission include: percutaneous injury (such as needle puncture or cut caused by a needle or other sharp object); mucous membrane contamination (such as splashing), through contaminated blood or other infectious body fluids[1-3]. Nurses, physicians, health technicians and cleaning personnel are potentially at risk for occupational exposure. The center for disease control and prevention (CDC) estimates that around 385000 percutaneous injuries are sustained by health care workers (HCWs) on an annual basis[4].

This study was undertaken to estimate the incidence of needle stick injuries and exposure to BBVs among HCWs.

Methods

This cross–sectional study among 337 HCWs accidentally exposed to BBVs was carried out during a period of six years from January 2009 to March 2015. The data were reviewed in labbafinejhad hospital, Tehran, Iran; which is specialized 231 bed public

tertiary care referral hospital with a total number of 930 HCWs are potentially at accidental risk of acquiring BBVs. The study was approved by the ethics committee in the hospital.

Results

The reviewed HCWs cases (337) were classified in to 131 nurses, 80 medical doctors, 59 medical technicians (37 surgical operation, 17 laboratory and 5 radiology technicians), 53 cleaning personnel, 13 nursing students, and 1 medical student (Table 1). Injuries were categorized as 258 needle sticks, 40 sharp cuts, 39 blood splashes on eyes (Figure 2). 244 HCWs were exposed to known serologically tested HIV, HBV and HCV negative patients, 44 cases had exposure to HBS Ag positive, 6 cases to HCV Ab positive, and 3 cases to HIV seropositive patients. One HIV positive patient was co infected with HCV infection. A total of 40 HCWs had occupational exposure to unknown sero-status patients (Table 2). HBS Antibody titer of the 44 HCWs, who had HBV exposure, was higher than 10 mlu/ml; therefore no intervention was done for them.

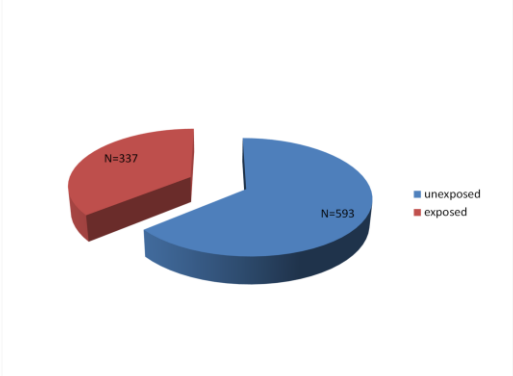

Figure 1. Number of Exposed HCWs

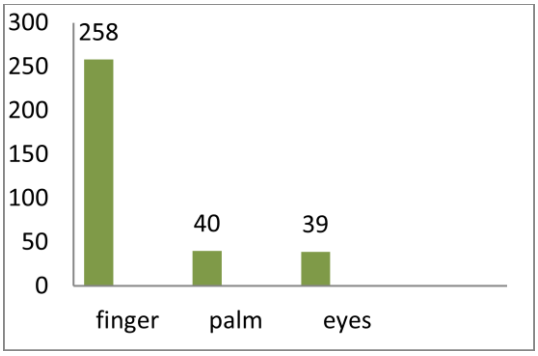

Figure 2. Site of exposure

Table 1: Categories of exposed HCW' s.

	N
Nurses	*131*
medical doctors	80
surgical operation	37
laboratory technicians	17
radiology technicians	5
cleaning personnel	53
nursing students	13
medical studen	1
Total	**337**

Table 2: Serostatus of source.

Serostatus of source	**Number**
HBS Ag positive	44
HCV positive	6
HIV positive	3
HIV+HCV positive	1
Unknwon	40
HIV, HBV, HCV negative	244

6 HCWs were exposed to HCV seropositive patients underwent laboratory investigations; follow up 2 weeks HCV RT-PCR was negative, thereafter 4,12, 24 weeks HCV-antibody were repeated and results were negative.

HIV exposed HCWs received standard antiretroviral post exposure prophylaxis (PEP) for 28 days, and underwent follow up investigations with HIV-antibody 4, 12, 24 weeks which results were negative.

Discussion

Key components in reducing risk for accidental exposure to BBVs are education of HCWs for use of

universal precautions, HBV vaccination for achieving appropriate HBS Ab level, implementing proper PEP and medical evaluation follow up.

In our study, the nurses were in top list of accidental exposure, which is according to other studies[5,6]. Therefore regular training of the HCWs especially nurses for appropriate use of barrier protection at contact with all body fluids and tissues, regardless of patient's diagnosis, is essential for reduction in the frequency of percutaneous injuries and transmission of blood borne pathogens.

In this study, follow up of HCWs who had HBV, HCV and HIV exposures showed no acquired infection that highlights the role of hepatitis B immunization and HIV PEP.

Timely administration of HIV PEP has been shown to reduce the odds of HIV infection by 81%[7,8].

Conclusion

Preventing intraprocedural and intraoperative injuries remains the primary priority for reducing BBVs transmission among HCWs.

Acknowledgment

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Conflict of interest

The authors have no financial interest in the products discussed in this article.

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