IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 14, Issue 12 Ver. II (Dec. 2015), PP 116-119
www.iosrjournals.org

Occupational exposure to blood & body fluids among the nursing staff in a tertiary hospital of Manipur

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Abstract:
Background: *Occupational exposure to blood & body fluids are very common in health care setting. Strategies to reduce such exposure in a systematic way can improve the health outcome both for professionals & patients.*
Objectives: *To assess the status of occupational exposure among nurses & measures undertaken following exposure in a tertiary health centre of Manipur*
Materials & Methods: *A cross-sectional study was conducted among all the nursing staffs in a tertiary health care centre of Manipur during October 2011 to September 2013. Respondents were purposively selected and data were collected using structured questionnaire. Descriptive statistics like percentage was used to describe the findings using SPSS version 20.*
Results: *Total respondents were 446 nurses. Response rate was 98%. Majority of the nurses (98.7%) answered HIV/AIDS as the disease that could be transmitted through occupational exposure to blood, body fluids and contaminated sharps. Almost all of the nurses considered needle stick injury (94.8%) as the mode of transmission of blood borne infection. Prevalence of sharp injury was 28.7%. Majority of them stated that sudden movement of the patient as a reason for last sharp injury (78.1%). They washed hands with soap, water and antiseptics (43%) after being exposed to blood and body fluid. Only around 1 in 100 participants seek for post exposure prophylaxis for HIV. 40% of the participants got tested for HIV status. Majority of the respondents had received vaccination (Hepatitis B) against blood and body fluid infection (74.2%). Around 40% of them were not aware of the need for Hepatitis B vaccination.*
Conclusion: *Occupational exposure in the form of needle stick injury is high. Practice following the exposure is also not satisfactory. Continuing education about strategies to reduce such exposure & prompt actions about it can effectively improve the outcome.*
Key words: *occupational exposure, HIV, Hep B, sharp injury*

I. Introduction:

Occupational exposure to blood & body fluids are very common in health care setting & needle-stick injury is the most common form of occupational exposure. Common causes of needle-stick injury include two-handed recapping and the unsafe collection and disposal of sharp wastes. Health workers have a higher risk of exposure especially those working in operating, delivery and emergency rooms and laboratories. The other risk groups are those of cleaners & waste collectors.[1]

Developing countries have highest prevalence of HIV-infected patients in the world as well as highest record of needle-stick injuries (NSIs). Frequency of needle-stick injury gets increased with high injection rate usually with previously used syringes.[2] Recapping, disassembly and inappropriate disposal adds to this higher risk as well.[3] In India, the situation is worse and occupational safety of HCWs remains a neglected issue.[4,5] Few scattered data from this country shows that incidents of sharp injury range from 300 to 400 per annum.[6] But under-reporting is common due to lack of reporting to the relevant authorities and obtain prophylaxis.[7]

Occupational exposure to blood & body fluids has not been pronounced among health care workers, particularly in developing countries. In India, very few studies, with varying focus, have been conducted in this field. Therefore, this study is conducted to assess the occupational exposure among nurses & measures taken following exposure at a tertiary health centre i.e. Regional Institute of Medical Sciences, Imphal.

II. Materials and methods:

Cross-sectional study was conducted among the nursing staffs in a tertiary health care centre of Manipur during October 2011 to September 2013. In this study, respondents were purposively selected and data were collected using structured questionnaire. The questionnaire was divided into 2 sections which included questions on baseline characteristics & questions on occupational exposure as well as measures taken following exposure. Those who refused to participate and who could not be contacted even after 3 successive visits were excluded from the study. After obtaining the permission from the respective Head of the departments, nurses working at RIMS, at the time of their duty, were approached. They were initially informed about the study, and those who consented were given a questionnaire. An appointment for 30 minutes was made with each of the individual respondent to answer questionnaire and any doubt regarding the topic and questions was clarified. Data so collected were checked for consistency and completeness and fitted in data base software. Descriptive statistics like percentage was used to describe the findings using SPSS version 20. The study was approved by Institutional Ethics Committee, RIMS, Imphal. Informed consent from the study participants was taken. Confidentiality of the respondents was maintained.

III. Results:

Total respondents were 446 nurses. Response rate was 98% excluding 6 respondents who did not give consent & 4 of them who could not be contacted. Among them, 119 nurses were 40 yrs and above (30%). All nurses were females. 253 respondents had job experience of <5yrs, i.e. 56.7%. [Table 1].

Majority of the nurses (98.7%) answered HIV/AIDS as the disease that could be transmitted through occupational exposure to blood, body fluids and contaminated sharps. Hepatitis B was known to more than 9 in 10 participants. But knowledge on Hepatitis C was little less (88.3%). [Table 2]

Almost all of the nurses considered needle stick injury (94.8%) as the mode of transmission of blood borne infection. More than two third of the respondents knew about muco-cutaneous exposure and use of unsterilized instrument as a potential source of blood body fluid infection. [Table 3]

Prevalence of sharp injury was 28.7%. Majority of them stated that sudden movement of the patient as a reason for last sharp injury (78.1%). They washed hands with soap, water and antiseptics (43%) after being exposed to blood and body fluid. Only around 1 in 100 participants seek for post exposure prophylaxis for HIV. 40% of the participants got tested for HIV status. [Table 4a, 4b, 4c]

Majority of the respondents had received vaccination (Hepatitis B) against blood and body fluid infection (74.2%). A large percentage of them, 40% of the nurses were not aware of the need for Hepatitis B vaccination. [Table 5a, 5b]

IV. Discussion:

In the present study, 99% of nurse told HIV as the most common disease that could spread through blood and body fluids exposure. Hepatitis B was known to 93.2% of them. Hepatitis C was little known compared to others (88%). This was similar with Bayapa et al, Mukharjee et al, Abdulraheem et al respectively.[8,9,10] In this study, majority knew that needle stick injury and muco-cutaneous exposure as a mode of transmission of blood borne infection which was similar to a study conducted in Pakistan.[11] 29% of the nurses in the present study had needle stick injury which was comparable with other study findings conducted by Sh. Praveen et al, Shah R et al respectively.[12,13] Different prevalence rates (30% to 71.1%) were reported from many studies conducted among different study populations.[14,15] 15% of the needle stick injuries were due to recapping which was comparable to the Manipur study where recapping where 15% injuries were due to recapping.[12] This study finding were quite less compared to a study in Gujrat where recapping needles was a common cause of NSI (39%).[13] Majority washed hand with soap and water (15%). This finding was comparable with Manipur data where 15.8% of the respondents washed injuries with soap and water and 44.7% of them washed with water, soap and applied antiseptics.[12] This finding was quite less than a study finding conducted by Shah R et al.[13] In the present study post exposure prophylaxis was taken by 1.5% of the participants and HIV testing was done in 40% of them which was almost similar with the study findings by Sh Praveen et al[12] where 0.9% of the respondents had taken PEP and HIV testing was done on 40.6% of them. In this study, 0.7% of the respondents squeezed blood from spot and 3.9% of the nurses applied pressure to stop bleeding which was similar to a study finding by Shah et al [13] where 0.5 per cent said that they expressed the blood from the spot and 4 per cent applied pressure to stop bleeding. 74.2% of the nurses respectively were vaccinated against Hepatitis B. This was similar to the finding from Pakistan by Rana JS [16] whereas in a study by Bapaya et al [8] in Madurai HBV vaccination coverage was only 49.5%.

This study is one of its first kind showing the importance of occupational exposure to blood & body fluids in health care setting in North eastern India. But questionnaire method might have over-rated the findings because of social desirability bias.

Occupational exposure to blood & body fluids i.e needle stick injury is quite common. But measures undertaken following those incidents are quite unsatisfactory. Intake of postexposure prophylaxis or practicing hand wash were quite less. Ongoing education about strategies to reduce such exposures is needed. Reporting system should be strengthened so that appropriate medical care can be delivered.

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Table 1: Baseline characteristics (N=446)

Characteristics	Number	Percentage
Age (years)		
20-24	58	13.0
25-29	82	18.4
30-34	119	26.7
35- 39	53	11.9
40 and above	134	30.0
Gender		
Female	446	100
Job experience (yrs)		
<5	253	56.7
≥5	193	43.3

Table 2: Diseases that could be transmitted through occupational exposure to blood, body fluids etc. (N=446)

Responses	Number	Percentage
HIV/AIDS	380	98.7
Hepatitis B	359	93.2
Hepatitis C	340	88.3

*Multiple answers allowed

Table 3: Modes of occupational exposure to blood & body fluids (N=446)

Responses	n	(%)
Needle stick injury or injury with contaminated sharps	365	94.8
Use of unsterilized medical instrument for any invasive procedure	293	76.1
Muco-cutaneous exposure to blood and body fluid if not intact	245	63.6

- Multiple answers allowed

Table 4a: Participants' response to whether he/she had ever sharp injury (N=446)

Responses	n	(%)
Yes	128	28.7
No	318	71.3

Table 4b: Reason of last sharp injury (N=128)

Responses	n	(%)
Sudden movement of the patient	100	78.1
During recapping	19	14.8
During handling waste	9	07.0

Table 4c: Measures taken after being exposed to needle stick injury (N=128)

Responses	n	%
Wash with soap and water	19	14.8
Wash with soap and water and antiseptics	56	43.7
Apply pressure to stop bleeding	5	03.9
Squeeze to extract more bleeding	1	00.7
Take tetanus toxoid	43	33.5
Get tested for HIV	51	39.8
Seek post exposure prophylaxis	2	01.5

*Multiple answers allowed

Table 5a: Received vaccination (Hepatitis B) against blood and body fluid infection (N=446)

Responses	n	%
Yes	331	74.2
No	115	25.8

Table 5b: Reasons for not receiving Hepatitis B vaccination (N=115)

Responses	n	%
Not aware	46	40.0
Not available	13	11.3
Don't consider at risk of infection	50	43.4
No time	6	5.2