STATE OF NEEDLE STICK INJURIES AMONG PARAMEDIC NURSES OF CIVIL HOSPITALS AT SINDH..

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Abstract:

Background: Needle stick injuries (NSIs) are the most prevalent and preventable occupational hazard for health care workers (HCWs), resulted in transmission of blood-borne pathogens. Globally 35.7 million HCWs face the risk of NSIs during performing their professional activities. Among the HCWs paramedical nurses have the highest risk of injuries. Current study was conducted with objective to determine the prevalence of NSIs among paramedic nurses.

Methodology: A cross sectional study was conducted from September- December 2012among 139 randomly identified paramedic nurses of DHQ hospitals Mirpurkbas, Matiari and Hala, Face to face interview was conducted to collect information on incidence of NSIs, circumstances surrounding, post exposure management and associated factors. Data was entered and analyzed by SPSS version 17.

Results: The prevalence of NSIs for the last one year was n=41 (29.4%), of these, n=O(91.1%) caused by needle. Near half n=() (48.6%) occurred in emergency rooms followed by wards. One third n=() (65.3%) occurred during recapping of the needle; most of respondents n=()(70.45%) identified injuries fatigue as a cause of NSI. Only n=22 (53.65%) wear gloves at the time of procedure. Immediate response of n=27(65.85%) respondent was washed with tap water and soap after NSIs. Among the total only n=2(4.87%) took Post exposure management and n=0 (38.2%) of them had been vaccinated against hepatitis B.

Conclusion: Results revealed that paramedic nurse as high NSIs prevalence associated with fatigue and lack personal protection. Establishment of NSIs surveillance, training of HCW sand promotion of standard precautions are highly recommended. .

Keywords: Needle sticks injuries, Nurses, Prevalence and Risk Factors.

Introduction:

Needle stick injuries (NSI) are unintentional occupational wounds reported in health care settings, triggered by needles or sharps like blood collection needles, hypodermic needles, intravenous cannulas or needles used to join parts of intravenous delivery systems". It is highly reported among surgeons, physicians, nurses, laboratory technicians and waste handlers, because of the nature of work" . The annual number of injuries per HCWs varies from 0.2 - 4.7/year[xii]

Globally, every year more than 35 million HCWs face the risk of injuries with a contaminated sharp instrument or needles among them 3 million accidently got the injuries [xiii]: more than 90% belongs from low and middle income counties [xiv]". NSIs resulted in transmission of more than 20 types of blood-borne pathogens such as human immunodeficiency virus (HIY), hepatitis B virus (HBV) and hepatitis C virus (HCV) [xv]. Each year as result of occupational injuries 66,000 Hepatitis B, 16,000 Hepatitis C and up-to 1,000 HIV infections occur among HCWs[xvi], these infections are attributed to 2.5% of HIV cases. and 40% of Hepatitis B and C cases among HCWs[xvii]. Nurses have the highest rate of NSI among health-care workers [xviii], in a study from Malaysia the prevalence of NSIs was 27.9%[xix]=,38.5% in staff nurses and 78% in nursing Students of Republic Hospital of Kaunas[xx]40% in nurses of Jamaicaf [xxi], 53.2% in African nurses [xxii] and 55.5%in nurses of Thailand [xxiii].

In order to decrease incidence of NSIs among HCWs adaptation of universal precautions and care to avoid injuries from contaminated sharps and instruments are effective strategy, resulted decline the risk of blood-born pathogen infections. In addition, vaccination against HBV is an important adjunct to universal precautions[xxiv]. However, when NSI occur, the risk of infection can be significantly reduced by following protocols for post exposure prophylaxis (PEP). Guideline issued for the management of NSIs in 1983 and 1991by Centers for Disease Control and Prevention (CDC)[xxv], and Occupational Safety and Health Organization (OSHA)[xxvi] respectively. This includes urgent evaluation of the source and exposed person's status along with the timely administration of hepatitis B immune globulin (HBIG), hepatitis B vaccine and/or HIV PEP where applicable. For HCV, testing should be performed to determine if infection develops [xx-vii._xxviii_xxix]. Reporting occupational NSIs

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directly to the occupational health service is of major importance preventing transmission of blood-borne diseases. Furthermore, reporting facilitates appropriate counseling and timely post exposure interventions

Most developing countries including Pakistan not have surveillance for occupational exposure to blood and body fluids, hence limiting estimation of the exact magnitude of such accidents. Little is known about the factors that predispose to this. Previous studies on needle stick injury mainly focused on the prevalence of injuries. This study aims also to identify the factors associated with needle stick injury. Therefore, this study was conducted with the objectives (a) to determine the prevalence of NSIs among the nurses, (b) to determine the association between NSI and selected variables such as age, marital status, years in service, educational qualification and (c) to assess the measures undertaken by the respondents after the NSIs.

Methodology:

A cross-sectional study was conducted in District Headquarter hospital of Mirpurkhas, Matiari and Hala among random sample of nurses from September to December 2012. Study population consisted of nurses who were working with close contact with patients, or were potentially exposed to NSIs while attending to or handling samples from patients. All nurses who were working at DHQ hospital the time of data collection were recruited. Face to face interviews were conducted by using standard semi-structured questionnaire based on literature reviewed to collect information. The questionnaire consisted of 30 questions divided into three parts. The first part presented sociodemographic questions. The second part had questions about the needle stick and sharps injuries at work, their frequency (including number, nature and reason), the place where the NSIs occurred and whether the event was reported. The third part listed questions about safety and health at work including HBV immunization status. A 12-month recall period was used throughout the questionnaire. The operational definition of NSI for the study was, "any prick to the respondent by a needle previously used on a patient, is work related and sustained within the hospital premise in the last 1 year." Collected data was coded, entered and analyzed with the help of Bpi-info version 3.5.1 (CDC, Atlanta, USA). Descriptive statistics like frequencies, proportions and means were calculated. We evaluate the prevalence of NSIs, frequency of reporting and proportion of those who received PEP. We used bivariate analysis to determine measure of association (odds ratio) between occupational exposure and associated factors. Statistical significance of the associations was determined by Chi-square, with a P-value of less than 0.05 considered significant.

Ethical Consideration:

Approval and clearance for this study was received from Ethical review committee of Muhammad Medical College, permission was obtained from respective hospitals, before commencement of the study. Written Informed consent was sought and obtained from the participants before face to face interview and participation was voluntary.

Results:

One hundred thirty nine nurses participated in the study, 65 from Muhammad Medical College, Mirpurkhas 41 from DHQ hospital of Mirpurkhas and remaining 29 from DHQ hospital of Matiari. Of 154,n=15 (9.7%)refuse to participate in the study, so response rate was 90.3%. More than one third n=51 (36.6%) of the respondents were aged between 20 and 39 years, with a median age of 29 years (range 18-61years). Nearly n=59 (42.2%) had been working as nurses from six to ten years; their median work duration was 7.5 years. Most of the nurse n=34 (24.4%) was belong to Casualty Department. Among total 32 (23%) were qualified nurses and completed their Bachelor of Science in Nursing (BSN) degree. Among total of n=41 (29.4%) nurses reported to have NSIs during the last one year, which is higher n=37 (90%) in less qualified nurses groups (G. Nursing I LHV I CMWs). The frequency of NSIs was higher n=14 (34%) among nurses who were working at Casualty Department. (Table # 01)

Table # 01: Distribution of NSIs according to the characteristic of the respondent.

Variables	Frequency N=139	Frequency of NISs
Age		
<19	1	0
20-29	24	3
30-39	51	21
41-49	33	7
50-59	21	6
Marital Status		
Unmarried	54	7
Married	85	34
Specialty Area		
Surgery	25	9
Casualty Department	34	14
Obs: & Gynecology	31	6
Medicine	23	4
Pediatrics	14	3
Others	12	5
Experience in Years.		
Less than 1	19	6
1 to 5	30	18
6 to 10	59	8
11 to 15	22	7
Greater then 15	9	2
Qualification		
B.S.N	32	4
G. Nursing / LHV / CMWs	107	37
Place of Working		
Mirpurkhas	69(49.6%)	23
Matiari	41(29.4%)	11
Hala	29(20.8%)	7

Staff nurses reported 41 (29.4%) NSIs events, one third n=15 (36.5%) occurred in the emergency rooms followed by Procedure room n=l1 (26.8%),most injuries n=13 (31.7%) happened at the time of recapping the needle followed by breaking of needle n=10 (24.3%), suturing n=6 (14.6%), during Injection Puncture & Placing needle in container n=4 (9.7%), Surgery n=1 (2.4%), and needle left in appropriate place n=3 (7.3%). Table # 02

Table # 02: Distribution of NSIs according place, procedure and associated factors

Variables	Frequency of NSIs	% age
Location		
Procedure Room	11	26.8%
Ward	7	17%
Emergency Room	15	36.5%
Operation Room	8	19.5%
Procedure		
Recapping a needle	13	31.7%
Breaking of needle	10	24.3%
During Injection Puncture	4	9.7%
Surgery	1	2.4%
Placing needle in container	4	9.7%
Needle left in appropriate place	3	7.3%
Suturing	6	14.6%
Factors		
Heavy workload	12	29.2%
Un co-operative patient	9	21.9%
Lack of assistance	4	9.7%
Fatigue	13	31.7%
Others	3	7.3%
Use gloves at the time of procedure		
Yes	12	29.2%
No	29	70.8%

Factors, which led to injuries among nurses were fatigue n=9 (31.7%), heavy workload n=12 (29.2%), uncooperative patients n=9 (21.9%), lack of assistance n=4 (9.7%) and others n=3 (7.3%). Most of respondents n=29 (70.8%) in were not wearing gloves during procedures. The immediate measure was wash with water only n=5 0,wash with water and soap n=9 0, Applied with antiseptic only n=4 0, Wash with water and applied antiseptic n=7, wash with water and soap, applied antiseptic n=11, wash with water and soap, applied antiseptic & PEP n=5. Among total NSIs exposed nurses n=22 check their blood for blood born pathogen on this n=3 checked blood for HBV, n=19 for HBV and HCV, and n=1 for HBV & HeV & HIV. In the exposure person n=13 were positive for HBV vaccination. Only 38.2% of nursing students completed full vaccination against HBV. Over one fourth 26% of remaining nurses had history of incomplete vaccination and 35.8% didn't vaccinated against HBV. Table # 03

Table # 03: Immediate Measures after NSIs

Measures	Frequency of NSIs	% age
Wash with water only	5	12%
Wash with water and soap	9	21.9%
Applied with antiseptic only	4	9.7%
Wash with water and applied antiseptic	7	17%
Wash with water and soap, applied antiseptic	11	26.8%
Wash with water and soap, applied antiseptic & PEP	5	12.1%
Blood test done after NSI Only for HBV	3	7.3%
Blood test done after NSI for HBV&HCV	19	46.3%
Blood test done after NSI for HBV & HCV & HIV	1	2.4%

Discussion:

We determined the prevalence of percutaneous injuries and splashes, described the circumstances surrounding the exposures and determined the associated factors among healthcare workers in a provincial hospital in Nakuru., Kenya.

Despite the risk of transmitting blood-borne diseases in the workplace, little is known about the factors that predispose to this. Previous studies on needle stick injury mainly focused on the prevalence of injuries. This study aims also to identify the factors associated with needle stick injury. The objectives of this study were to determine the prevalence of needle stick injury and to determine the level of knowledge of blood-borne disease and Universal Precautions, risk perception as well as the practice of Universal Precautions.

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