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Original Article

KNOWLEDGE AND AWARENESS REGARDING NEEDLE STICK INJURIES AMONG HELATH CARE WORKERS IN TERTIARY CARE HOSPITAL IN AHMEDABAD, GUJARAT

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ABSTRACT

Health care professionals are exposed to variety of dangers like infections, cuts and needle stick injuries, exposure to anesthetic gases, radiations, dermatitis causing substances, vaccines, serums etc. This study focuses on issues related to some of these risks and possible ways and means on how to overcome these risks. **Objective:** To assess the knowledge, attitude and practices among health care workers about needle stick injury. **Materials and Methods:** A cross-sectional study was carried out in a teaching hospital in June 2008. **Results:** Mean age of Health care workers was 33.5 years, majority (50%) in the age group of 20-30 years. 61% HCWs had less than 5 year of work experience. 67% HCWs had received hepatitis B vaccination of which only 17.9% had carried out Anti HBs antibody check up. Knowledge about disease transmitted by NSIs was satisfactory. Though 36% had suffered Needle stick injury (NSIs), only 8.3% reported the incident of NSIs. 81% HCWs know about universal precaution guidelines. **Conclusion:** There is an urgent need for strengthening skills, developing newer competencies and broadening our knowledge in occupational health and safety and disaster management.

Key words: Knowledge, Awareness, NSIs.

INTRODUCTION

Health care professionals are most negligent as far as their own health is concerned. They are exposed to high risk of various infections and also become victims of lifestyle diseases due to their stressful schedules and high degree of professional responsibility.

Health care workers (HCWs) who have occupational exposure to blood are at increased risk for acquiring blood-borne infections. The level of risk depends on the number of patients with that infection in the health care facility and the precautions the HCWs observe while dealing these patients. There are more than 20 blood-borne diseases, but those of primary significance to health care workers are hepatitis due to either the hepatitis B virus (HBV) or hepatitis C virus (HCV) and acquired immunodeficiency syndrome (AIDS) due to human immunodeficiency virus (HIV).[1]

Health care workers incur 2 million needle stick injuries (NSIs) per year that result in infections with hepatitis B and C and HIV. The World Health Organization estimates the global burden of disease from occupational exposure to be 40% of the hepatitis B and C infections and 2.5% of the HIV infections among HCWs as attributable to exposures at work.[2] While 90% of the occupational exposures occur in the developing world, 90% of the reports of occupational infection occur in the United States and Europe.[3] As of June 2001, 57 confirmed and 137 suspected cases of occupational HIV transmission in the United States had been reported by the CDC.[4] But estimates of up to 35 new cases of HIV and at least 1,000 cases of serious infection are transmitted annually to HCWs.[5]

METHODS AND MATERIALS

This study was a cross-sectional study. The sample was selected randomly, and at a time by the observer and without any prejudices in order or reduce or minimize the selection bias. The sample size will be representative, i.e. nearly 100 employees will be interviewed for their views and experiences in the same institute for needle stick injuries. This will directly help to increase the precision and reduce the Standard Error.

The sources of data were both, the persons themselves and the records also. Thus we considered both primary and secondary data for the study. As the hospital is having many sub-faculty units for different specialities, the employees were interviewed from all the departments of Kesar Sal Medical College & Research Institute, Ahmedabad. All the selected employees were first explained about the objective of the study and its probable benefits in local language and terminology and they were encouraged to give reply. A detailed Performa

prepared was asked in sequential manner. The employees were guided and supported as and when required during the interview, but they were not asked the leading questions.

After collection of data, the data was compiled and analyzed in a phased manner.

RESULTS

Table 1 shows some demographic characteristics of the studied health care workers.

Table 1: Demographic characteristic of health care workers

Demographic characteristic	Number (%)
Age (y)	
20-30	49(49.0)
30-40	27(27.0)
40-50	14(14.0)
50 +	10(10.0)
Sex	
Male	44 (44.0)
Female	56 (56.0)
Job category	
Doctors	39(39.0)
Nurse	27(27.0)
Lab. Tech	16(16.0)
O.T. Assistant	01(01.0)
Supportive staff	17(17.0)
Duration as health care workers (in years)	
< 5	61 (61.0)
6-10	20 (20.0)
10-15	5 (0.5)
16-20	14 (14.0)
Hepatitis B vaccination	
Done	67 (67.0)
Not done	33 (33.0)
Anti HBs antibody check up	
Checked	12 (17.9)
Not checked	55 (82.1)

Of the 100 health care workers, 49% were aged between 20 to 30 years (mean 33.5 $\pm$ 10.08 years), 56% were females and 39% were doctors, 27% nurses in the wards and 16% laboratory technician. 61% of the subjects had been working as health care workers for less than 5 years. Also, 67% subjects had been vaccinated against hepatitis B, while 33% had neither been vaccinated nor investigated for immunity to past exposure. Of the 67 subjects, only 12 (18%) had been tested for anti-HBs antibodies after hepatitis B vaccination to check their response.

Table 2 shows the level of knowledge and preventive measures taken by health care workers regarding needle stick injuries. Our study showed that 11% and 28% of the health care workers, respectively, were unaware of the fact that AIDS and hepatitis C can be transmitted by needle stick injury. 36% of health care workers had a history of needle stick injury and of those, 67% had 1- 2 pricks per year. Only 3 subjects (8.3%) reported the injuries to doctors to get post-exposure treatment. 22% subjects were of the impression that needles should be recapped after use, and 81% were aware of universal precaution guidelines.

Table 2: Knowledge, attitude and practices of health care workers of biological hazards and preventive measures regarding needle stick injuries

Questions	Number (%)
Which diseases are transmitted by needle stick injuries (NSI)	
Hepatitis B	100 (100.0)
Hepatitis C	72 (72.0)
AIDS	89 (89.0)
Did you ever have NSI?	
Yes	36 (36.0)
No	64 (64.0)
What is the frequency of NSI per year?	
1-2	24 (67.0)
3-4	09 (25.0)
5-6	03 (08.0)
Have you reported the incident of NSI?	
Yes	3 (08.3)
No	33 (91.7)
Should needle be recapped after use?	
Yes	22 (22.0)
No	78 (78.0)
Do you know about universal precaution guidelines?	
Yes	81 (81.0)
No	19 (19.0)

DISCUSSION

Occupational disease burden in India is growing at an unprecedented pace. As a result of market liberalization and globalization, the profile of occupational diseases has changed. Proportionate training of human resources in occupational health and safety has not taken place in our country. The medical fraternity has systematically ignored the importance of occupational health and safety and disaster management in teaching, training and epidemiological research.

In this study, the 100% health care workers who participated were aware of the fact that hepatitis B can be transmitted by needle-stick injury, but about 20% were not aware that both hepatitis C

and HIV can also be transmitted by needle-stick injuries.

36% health care workers had a history of needle stick injuries, of which about 92% never reported the incident to a doctor to get post-exposure treatment because they were not aware of the importance of post-exposure prophylaxis. In the US, 8,00,000 of the approximately 5.6 million health care workers suffer needle stick injuries each year.[6] Data from the EPINet system suggest that at an average hospital, workers incur approximately 30 needle stick injuries per 100 beds per year.[7]

It is believed that only one out of three needle stick injuries are reported in the US, while these injuries virtually go undocumented in many developing countries.[8] The incidence of infection with HBV has declined in health care workers in recent years largely due to the widespread immunization with hepatitis B vaccine.[9] In many health facilities, even though the personnel are vaccinated, the sero conversion status after vaccination is not assessed. We had a similar finding in our survey where only 12 workers (17.9%) had been tested for anti-HBs. In one study, about 3% of subjects were found to be negative for anti-HBs after vaccination.[10] The CDC recommendation is to test for antibody after completion of three injections of HBV vaccine, and if negative, give a second three-dose vaccine and test again for anti-HBsAg antibodies. If there is no antibody response, no further vaccination is recommended. If an employee has a blood exposure to a patient known or suspected to be at high risk of HBsAg sero- positivity, he should be given HBIGx2 (one month apart) or HBIG and initiate revaccination.[11]

It is documented that 10%-25% injuries occurred while recapping a used needle.[12]The recapping of needles has been prohibited under the Occupation Safety and Health Administration (OSHA) blood-borne pathogen standard.[13] In 1985, in order to increase awareness among health care workers of the dangers of sharp injuries and other types of disease transmission, the Centers for Disease Control (CDC) and the Occupational Safety and Health Administration (OSHA) in the United States introduced the "Universal Precaution Guidelines," which have become the worldwide standard in both hospital and community care settings.[14] In the present survey, 22% workers practices recapping of needle after use and 81% workers were aware of the universal precaution guidelines. An increasing number and variety of needle devices with safety features are now available. Needle less or protected needle IV systems have decreased the incidence of needle-stick injuries by 62%-88%.[15] Health care worker can help the employer in the selection and evaluation of such devices. In the present study only 50% of workers knew about new needle less safety devices.

This study revealed that knowledge of health care workers about the risks associated with needle-stick injuries and use of preventive measures was inadequate. A standing order procedure (SOP) should been formulated regarding needle stick injuries in hospital. It outlines precautions to be taken when dealing with blood and body fluids. It also contains reporting procedures and management of all needle-stick injuries. Educational talks were given to health care workers on hazards, prevention and post-exposure prophylaxis to needle-stick injuries. A hospital-wide hepatitis immunization program should also been started.

CONCLUSION

The most effective means of preventing transmission of blood-borne pathogens is to prevent exposure to NSIs. Primary prevention of NSIs is achieved through the elimination of unnecessary injections and elimination of unnecessary needles. The implementation of education, Universal Precautions, elimination of needle recapping, and use of sharps containers for safe disposal have reduced NSIs by 80%, with additional reductions possible through the use of safer needle devices.[16, 17]

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