

The awareness of and compliance with universal precautions among class IV hospital workers

U M Siddiqui^{1*}, V Acharya²

¹Final year student, Kasturba Medical College, Manipal University

²Associate Professor, Department of Medicine, Kasturba Medical College, Manipal University

Abstract

Objective: To assess awareness regarding aetiology & modes of transmission of Human Immunodeficiency Virus / Acquired Immune Deficiency Syndrome (HIV/AIDS) & Hepatitis B infections among class IV hospital workers and to assess their knowledge of post-exposure management, the steps practiced to prevent occupational exposure and to assess the efficiency of training programs.

Methodology: Hundred subjects from the House-keeping staff at the Kasturba Hospital, Manipal were randomly selected. Using a pre-designed questionnaire, they were interviewed regarding awareness of universal precautions, HIV and Hepatitis B and post exposure management.

Results: From the 100 study subjects 88% & 49% had heard of HIV/AIDS & Hepatitis B respectively. Ninety five percent of subjects said they knew needle stick injury was a serious event and 79% said that contact with infected blood was serious. While handling waste materials, 77% of these workers reported wearing protective clothing & 100% of the subjects reported wearing gloves. Ninety six percent of the subjects reported regular attendance at training sessions.

Conclusion: The compliance with universal precautions amongst these workers was good. They were aware of post exposure management and reported use of protective gear while handling waste materials. They also said that training sessions benefited them and that they would be interested in learning more.

Introduction

"Universal precautions," as defined by Centre for Disease Control (CDC), are a set of precautions designed to prevent transmission of Human Immunodeficiency Virus (HIV), Hepatitis B Virus

(HBV) and other blood-borne pathogens. These precautions include treating all patients & patient samples as though they are infected, and handling them with caution (1).

Class IV workers are defined as semi skilled manual workers, and in the hospital setup refers to workers who are involved in duties of waste collection and waste disposal.

With reference to HIV/AIDS, prevention is indisputably the most important objective. In the absence of a vaccine, the only weapon available for combating this dreadful infection is prevention by community awareness and health education (2). Health care workers are an important group who are at risk of infection.

The medical & paramedical personnel receive education on universal precautions & they join the health-care setup with this pre-acquired knowledge. The knowledge of & compliance with universal precautions among class IV hospital workers is of significance for the simple reason that they knit together the entire system of health care delivery. These workers are not limited to any department, procedure or patient. The key position of health care workers in the education of patients and the community at large and the great influence this group has on public opinion requires that they have optimal knowledge and sound attitudes based on appropriate facts (3). It is therefore imperative that they be educated & trained properly.

With this perspective, the present study aims at assessing the awareness of and compliance with universal precautions among class IV hospital workers in a tertiary care hospital.

Methods

This was a cross-sectional descriptive type of study carried out at the Kasturba Hospital, Manipal, a tertiary level hospital. The study was

*Corresponding author: U M Siddiqui, Kasturba Medical College, Manipal – 576104, Karnataka, India
(E-mail: uzma.msiddiqui@gmail.com)

conducted during a 2-month period from June to July 2009. The House-keeping department at the Kasturba Hospital, Manipal handles waste collection and waste disposal. A list of all the employees of this department was obtained and 100 subjects were randomly selected.

The subjects were first informed verbally of the purpose of the study & what was required of them. This was described to them in a language understood by them. They were also given detailed subject-information sheets. They were allowed to ask questions, and all their queries were answered to their satisfaction. They were then requested to sign on the consent forms.

The interview was done with the help of a pre designed questionnaire. They were asked questions pertaining to awareness on universal precautions, knowledge of the aetiology & modes

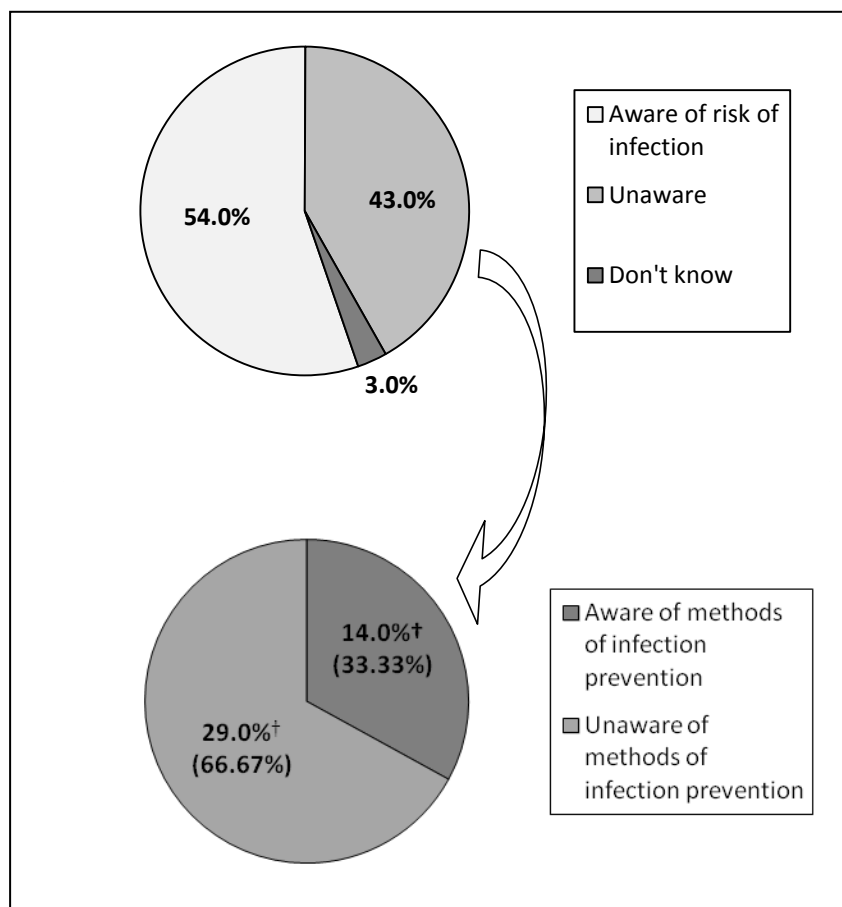
of transmission of HIV/AIDS & Hepatitis B, need for post-exposure prophylaxis, types of preventive measures used and the training programs held at the hospital.

Results

Among the study subjects (n=100) 43% felt they were at risk of infection due to their work while 54% were not aware of the risk. Among those who were aware, 67% knew it could be prevented (Figure 1).

Of the total study subjects 88% of the subjects had heard of HIV/AIDS. Among these 88 subjects who had heard of HIV/AIDS, only 29.5% knew of a viral aetiology and 70.5% were not aware of any aetiological agent. A similar situation was observed regarding Hepatitis B as well. While 49% of the subjects had heard of Hepatitis, only 26.5% were aware of a virus as the aetiological agent.

Figure 1: General awareness on risk of infection and its prevention



†The 2nd pie chart shows the distribution of those who were aware/not aware of 'methods of prevention' as a percentage of the total sample population (without brackets) and their percentages within the group of respondents who were aware of the risk of infection (within brackets).

Among the study subjects 95% considered injury due to needles/sharp instruments to be a serious event while only 79% considered getting splashed with blood/blood contaminated fluid to be so. The

perception of modes of transmission of HIV/AIDS and Hepatitis B among those who were aware of either/both infection is provided in Table 1.

Table 1: Awareness on modes of transmission of HIV/AIDS and Hepatitis B

| Mode of transmission | Number of subjects | Percentage of total |
|-----------------------------|--------------------|---------------------|
| Touching / hugging | 7 | 7.9% |
| Sexual contact | 73 | 82.9% |
| Contact with infected blood | 76 | 86.4% |
| Needle-stick injury | 81 | 92.0% |

In the event of needle stick injury or splashing with blood, 94% believed that they should see the casualty doctor while 78% told they would wash the area with water. Seventy one percent of the

sample would report to the personnel in-charge. In the event of needle stick injury or splashing with blood, the knowledge of the sample population on actions that could be taken is shown in Table 2.

Table 2: Participants knowledge on post exposure management

| Step taken | Number of subjects | Percentage of total |
|---------------------------------|--------------------|---------------------|
| Nothing can be done | 0 | 0% |
| Consult casualty doctor | 94 | 94% |
| Wash area of contact with water | 78 | 78% |
| Report to in-charge | 71 | 71% |

Almost all subjects reported wearing gloves when handling waste materials and considered it necessary to wash hands after removal of gloves.

Majority (96%) of the subjects were vaccinated for Hepatitis B and almost all (100%) were aware that training programs are held in the hospital where staff/doctors teach about precautions against infections. Ninety six percent of the subjects reported regular attendance at training sessions.

Discussion

The knowledge of and compliance with universal precautions varies not just from individual to individual, but also from one health care setup to another. The various factors which play a major role in this are the availability of proper training, post-exposure management & attitudes of the workers. From the 100 study subjects, only 43 felt

they were at risk of infection. This means that the rest (57%) did not feel the necessity for universal precautions. This has grave consequences on their compliance with precautions because though the workers are instructed to follow them, in view of seeing no harm, these workers may not take the guidelines seriously. Also amongst these 43 subjects, only 29 (67.4%) felt these infections were preventable (Figure 1). This reflects the lack of complete awareness amongst these workers, which once again may act as a hindrance to good compliance.

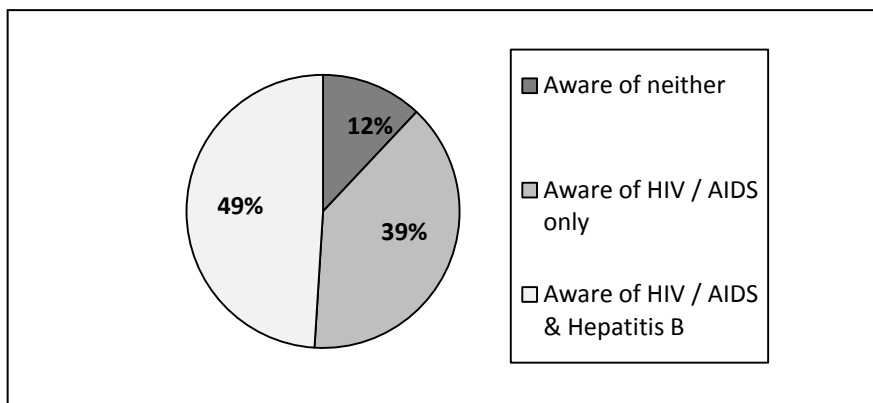
In effect only 29% of the entire study population was aware of universal precautions. As compared to a study in Thiruvananthapuram (4), where 40% of the population was aware of the same, this is low. This could be due to lack of proper training or lower education levels of the workers. When the

subjects were questioned of their awareness of HIV/AIDS, 88% had heard of the disease. It could be postulated that the 12% of the subjects who had not heard of the disease would put themselves at a higher risk for occupational exposure.

Of those who were aware of the disease 29.5% knew about the viral aetiology. In the study stated above 57.3% of the subjects knew the correct aetiology (5). Though knowledge of viral aetiology isn't important per se for these workers, as they are provided education on HIV/AIDS, they are expected to have heard of the viral aetiology. Thus, their knowledge of the correct aetiology can be taken as an indicator of how much they learn at the training sessions.

On awareness of Hepatitis B, only 49% of the subjects responded positively. This is considerably lower compared to the 88% who had heard of HIV/AIDS. Also it is important to mention that all subjects who knew of Hepatitis B virus (HBV) were also aware of HIV/AIDS (Figure 2). As stated earlier, HBV is the most infectious blood borne virus (6) and therefore its awareness must be brought on par with, if not more than HIV. Of the 88 subjects who were aware of either HIV or both HIV & Hepatitis B, the responses received for the modes of transmission of the same reflect that majority of the subjects knew the important modes of transmission. These figures are not very different from the ones obtained in a similar study earlier (5).

Figure 2: Awareness among study subjects (n=100) of HIV/AIDS & Hepatitis B



The most important risk for occupational exposure to HIV is needle stick injury, and the awareness of it among the study sample was high as described below.

When all 100 study subjects were questioned irrespective of their knowledge of any disease, 95% of subjects said they knew needle stick injury was a serious event and 79% said that contact with infected blood/blood products was serious. There is a high degree of awareness of the grave nature of needle stick injuries amongst the workers.

A research study (6) conducted at a 635 bed rural Northeast Mississippi Hospital in which a questionnaire evaluated their knowledge concerning blood-borne pathogens and their use of universal precautions reported that despite a high mean score on the knowledge portion of the questionnaire, only 61% of the participants responded that they consistently use personal protective equipment when caring for patients.

This reflects the gap between knowledge and implementation of good practices and is of relevance in interpretation of the findings of this study.

As stated earlier, the need for good post-exposure management is essential in a health care setup. There must be development of guidelines outlining the first aid required, reporting mechanism and procedure to be followed for post-exposure prophylaxis and follow-up testing (7).

In this study, it was found that all the subjects knew at least some aspect of the guidelines for post exposure management (Table 2). When compared with the 17% of subjects who did not know how to respond to injury in another study (4), the results of this study reflect a very good level of knowledge on post-exposure management.

In addition when it came to using gloves and washing hands after the use of gloves, 100% of the

subjects answered positively. It may reflect the availability of protective gear in the hospital & the sound training imparted to the workers although accuracy of this cannot be confirmed without further observation. In a similar study which was conducted by Gershon et al (8), 1716 hospital-based health care workers were assessed via self-reported levels of compliance with universal precautions. Compliance rate for glove use was 97% in that study.

Lastly, an objective of the present study was to assess the efficiency of training programs. Krishnamoorthi et al (9) in their study sought to evaluate the impact of training on knowledge of universal precautions for HIV/AIDS in urban South India. An interventional study conducted with 212 Health-care providers (HCP) concluded that workshops to train HCP about universal precautions significantly improved their knowledge about HIV/AIDS. This reaffirms the need for evaluations of training efficiency amongst Healthcare Workers.

Hence, from the present study, we may conclude the following. Only about half of the class IV workers working in the tertiary care hospital studied were aware of universal precautions. Majority of these workers were aware of HIV/AIDS and its modes of transmission. However only about half of these workers were aware of Hepatitis B. All of the class IV workers knew at least some of the steps to be taken in the event that they should need post-exposure management. The self-reported use of gloves and other protective gear was adequate.

References

1. Centre for Disease Control. Update: Universal precautions for prevention of transmission of human immunodeficiency virus, hepatitis B virus, and other blood borne pathogens in health-care settings. *MMWR* 1988;37:377-88.
2. World Health Organization: AIDS in South East Asia - No time for complacency. Geneva: WHO; 1992
3. Brattebo G, Wisborg T, Sjursen H. Health workers and the human immunodeficiency virus: knowledge, ignorance and behavior. *Public health* 1990;104(2):123-30.
4. Poullose NK, Hashim N, Kurian NP, Mathews N. A study on awareness & reported practice of universal precautions among grade-2 attenders of SAT & Medical college Hospital. SAT & Medical college Hospital Thiruvananthapuram. Paper presented at: 2nd National Conference of Students' Medical Research; 2009 Jan 9-10; Thiruvananthapuram, India.
5. Tibdewel SS, Wadhva SK. HIV/AIDS awareness among hospital employees. *Indian Journal of Medical Sciences* 2001;55:69-72.
6. Lewis R, Lamar DT, McCrory JS. Noncompliance of healthcare workers in utilizing universal precautions in the acute care setting. Paper presented at: 129th Annual Meeting of American Public Health Association; 2001 Oct 21-25; Atlanta, Georgia.
7. World Health Organization: Health care worker safety [Internet]. [cited 2011 Feb 2]. Available from: http://www.who.int/injection_safety/toolbox/en/AM_HC_W_Safety_EN.pdf
8. Gershon RR, Vlahov D, Felknor SA, Vesley D, Johnson PC, Delclos GL, et al. Compliance with universal precautions among health care workers at three regional hospitals. *American Journal of Infection Control*. 1995;23(4):225-36.
9. Krishnamoorthi R, Babu PM, Thomas S, Natrajan SK. Training on universal precautions for healthcare providers in necessary even in resource-limited settings. Paper presented at: 8th International Congress on Drug Therapy in HIV Infection; 2006 Nov 12-16; Glasgow, Scotland.