

Research Article

Knowledge and practice of universal precautions among nursing staff at a tertiary care hospital in South Gujarat, India

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ABSTRACT

Background: Health care providers are at an increased risk of exposure to various infections like HIV, Hepatitis B, Hepatitis C etc. These infections are prevented if proper universal precautions are observed by health care providers consistently in their day to day clinical work. In study we have explored knowledge and practice of universal precautions among nursing staff.

Methods: A cross sectional study carried out among staff nurses in December 2013. Self-administered semi structured proforma was used for data collection. Information regarding knowledge and practice of universal precautions was collected.

Results: Out of 88 participants interviewed, almost all of them reported of having awareness about universal precautions and personal protective equipments. Only 44.3% nurses mentioned all the correct measures for universal precautions. 89.77% nurses were aware about health hazards of needle stick injury but only 67.05% correctly reported about how needle stick injury can be prevented. 38.64% nurses had experienced needle stick injury while working and most of them (79.41%) followed proper guidelines.

Conclusions: correct knowledge regarding universal precautions among nursing staff is still not of satisfactory level and training at repeated interval needs to be given to ensure correct knowledge as well as implementation of universal precautions.

Keywords: Universal precautions, Needle stick injury, Nurses

INTRODUCTION

According to CDC guidelines universal precaution are set of actions which are required to prevent infections from blood borne or body fluid borne infection. Main aim of universal precaution is to protect health workers and patients from infection. Body fluids to be treated in universal precaution are blood, CSF, pleural cavity fluid, pericardial cavity fluid, synovial fluid, semen, amniotic fluid, urine, vaginal secretion and saliva.¹ Four important practices recommended in universal precaution are a) hand washing; b) use of protective barriers to prevent

direct contact; c) safe handling and disposal of sharps; d) safe decontamination of instruments and other contaminated instruments. Most important pathogens related to universal precautions are HIV, HBV and HCV. Studies show that nurses are the commonest health worker at risk of infection and needle stick injury is the most common way of occupation health hazard in health worker.² WHO (World health Organization) has mentioned that 2.5% HIV cases and 40% HBV and HCV cases are seen because of occupational exposure.³ This shows that correct knowledge and practice of universal precautions are essential for the health care providers. Hence this present study was planned to assess the same

among nursing staff which eventually would be helpful while conducting their training sessions if at all required as per findings of the study.

METHODS

This was a cross sectional study conducted among staff nurses working in GMERS Medical College and Hospital Valsad, Gujarat, India. Data collection was done in December 2013. Study was started after obtaining permission from the concerned authorities. Predesigned and pretested performa was administered to the study participants after obtaining their consent. It was a self-administered questionnaire which contained demographic data, knowledge and practice of universal precautions related questions. In this study investigators contacted each nursing staff for administering the performa. Those staff nurses who could not be contacted in first attempt were to be contacted again second time. Even after two attempts if they could not be contacted and those who refused to participate in this study were excluded from our study. Study was approved from institutional ethics committee. Data was analyzed by MS Excel.

RESULTS

There were total 120 staff nurses when the study of initiated. They were contacted by the investigators from which 88 were included in our study after obtaining consent. Majority of the nurses belonged to age group 21 to 25 years. From this 73 nurses were female and 15 were male. Most of the nurses have 1-3 years of work experience.

All the participants were aware about the word universal precaution. But only 44.3% nurses knew all the correct steps for universal precautions. There were 45.5% nurses who knew about hand hygiene as an important step in universal precaution. Most of the participants were aware about personal protective equipments. 89.77% were aware about health hazards of needle stick injury. 67.05% knew that how needle stick injury can be prevented (Table 1). In this study it was found that 59.09% nurses had received proper training of universal precautions. 71.59% nurses reported of properly practicing hand hygiene in their day to day work in hospital. All the nurses answered that they were using one or more personal protective equipment (mask, gloves etc.) during their work. In our study we found that 38.64% nurses had experienced needle stick injury while working. Most of them (64.71%) had single exposure and 32.35% reported they had experienced twice the needle stick injury. While inquiring about measure taken after needle stick injury most of them (79.41%) followed proper guidelines but 11.76% had not taken any measures after needle stick injury. While answering about practice related to disinfection, 51.14% didn't know how to disinfect soiled linen and 53.41% didn't know how to clean blood spillage floor.

Table 1: Knowledge related to universal precautions among nursing staff.

Questions	Frequency (%)
Ever heard of Universal precaution	88 (100%)
Correct steps that are included in Universal precautions	
a) Hand hygiene	16(18.2%)
b) Personal protective measures	12(13.6%)
c) Prevention of needle stick injuries and sharps	15(17%)
d) Respiratory hygiene	6(6.8%)
e) Proper waste disposal	15(17%)
f) Patient care equipment	6(6.8%)
g) all of the above	39(44.3%)
h) a, c and e are correct	36(40.9%)
Correct practices for hand hygiene	
a) Before touching the patient for any procedure	39(44.3%)
b) After touching the patient for any procedure	35(39.8%)
c) In between two patients	29(33%)
d) During patient care when moving from a contaminated to clean body site of patient	21(23.9%)
e) All of the above	40(45.5%)
Knowledge about personal protective equipment	73 (82.95%)
Awareness about hazards of needle stick injury	79(89.77%)
Awareness about how to prevent needle stick injury	
a) Correct answer	59(67.05%)
b) Incorrect answer	29(32.95%)
Choose inappropriate sentence about disinfection of medical equipment.	
a) It is necessary to disinfect the telephones, door knobs and surfaces like nurses counters.	32 (36.66%)
b) All healthcare providers should ensure adequate disinfection of medical equipment and instruments.	8 (9.09%)
c) Hospital administration does not have a role in ensuring adequate sterilization of medical equipment.	42 (47.72%)
d) Not answered	6 (6.81%)
Following statement is not true regarding biomedical waste.	
a) Segregation of waste (clinical and nonclinical) is important for preventing spread of infection	4 (4.54%)
b) Biohazards labels are not always used for clinical waste products	62 (70.45%)
c) Color coded bags should always be used for disposing waste products (clinical and nonclinical)	12 (13.64%)
d) Not answered	10 (11.36%)

In response to question related to practices of segregation of biomedical waste most of the nurses knew proper segregation of biomedical waste (Table 2).

Table 2: Practices related to universal precautions among nursing staff.

Questions	Frequency (%)
Received any training regarding universal precaution	
a) Yes	52 (59.09%)
b) No	36 (40.91%)
Taking enough measures of hand hygiene?	
a) Yes	63 (71.59%)
b) No	25 (28.41%)
Using personal protective equipment such as gloves, gown, cap and mask in day to day practice	
a) Yes	88 (100%)
b) No	0
Ever had needle stick injury	
a) Yes	34 (38.64%)
b) No	54 (61.36%)
If yes how many times?	
a) One time	22 (64.71%)
b) Two times	11 (32.35%)
c) More than two time	1 (2.95%)
Measures taken after needle stick injury	
a) Followed correct measures	27 (79.41%)
b) No measures taken	4 (11.76%)
c) Squeeze the blood from injured area and clean with tap water	3 (8.82%)
How to disinfect soiled linen?	
a) Correctly answered	43 (48.86%)
b) Not correctly answered	45 (51.14%)
How to clean blood spillage on floor?	
a) Correctly answered	41 (46.59%)
b) Not correctly answered	47 (53.41%)
Segregate the biomedical waste in correct color bag	
a) Yellow bag	75 (86%)
b) Red bag	74 (84%)
c) Blue bag	68 (78%)
d) Black bag	60 (68%)

DISCUSSION

Healthcare workers are at great risk of blood borne infections. Most of them are because of occupational exposure. Universal precautions are very nicely designed and very effective to control blood borne infections. That will protect healthcare worker as well as patients from getting serious infections such as HIV, HBV and HCV. For that proper knowledge and effective practices of universal precautions are very essential. Our study had assessed knowledge and practice of universal precautions in nurses working at our hospital.

Our results showed that most of the nurses were well experienced and well trained in universal precautions. Still half of the nurses didn't know all the steps of universal precaution and steps of hand hygiene. Most of the nurses in our study were aware about personal protective measures and needle stick injury. This showed inadequate knowledge about universal precautions in nurses which were comparable to other studies done all over the world.⁴⁻⁶

In our study of the nurses reported of practicing proper hand hygiene and proper uses of personal protective equipment in their day to day practices. Hand washing is very simple measure which can prevent various infections and important part of universal precaution. Commonly used personal protective equipments in our study were gloves, cap and mask. Gown and goggles were not commonly used. Similar finding were observed in other study also.⁷

Results mentioned 38.64% nurses experienced needle stick injury. Needle stick injury is very common source of blood borne infection. Most common way of needle stick injury was occupation exposure. So healthcare staff especially nurses are at great risk of getting serious infection such as HIV, HBV and HCV infection. Study mentioned that recapping of used needles can contribute to needle stick injury.^{8,9} Doctors were more likely to recap needles than nurses and other healthcare workers.¹⁰ Proper disposal of sharps and needles is very essential to prevent injury. Screening of blood for HIV and other diseases is also important to reduce serious infection.¹¹ In our study half of the nurses had not proper knowledge of disinfection of linen and blood soiled floor. Results mentioned that most of nurses knew how the waste was segregated in different color coded bags and they were also practicing in proper manner. Government of India issued notification in march 2016 about bio medical waste rules 2016 according to it proper guidelines should be followed by who generate, collect, receive, store, transport, treat, dispose or handle bio medical waste.¹²

Our study was done with small sample size and better study can be planned with more sample size. Future study can be planned with involving doctors, students and other healthcare workers.

From our study it is recommended that proper training should be provided to healthcare workers for universal precaution. Training should include hand hygiene, use of various personal protective equipment, prevention and treatment of needle stick injury and handling of biomedical waste. Information about universal precaution can be spread in the form of posters in different wards. Proper immunization of healthcare workers against HBV should be done. Personal protective equipment should be available in hospital in enough quantity. Post exposure prophylaxis training should be compulsory for healthcare workers.^{7,13}

CONCLUSION

Our study showed less knowledge of universal precautions in nursing staff at our hospital. Most of them were practicing proper hand hygiene and proper use of personal protective equipment. But they were poorly practicing measures to prevent needle stick injury. Nurses knew segregation of bio medical waste and how to disinfect sharps and equipment. Still proper training in universal precautions should be given to prevent serious blood borne infection.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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