

Original Research Article

Knowledge, attitude and practice about hospital acquired infection among health care personnel in a tertiary care hospital of Tripura

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ABSTRACT

Background: Healthcare workers (HCWs) are at increased risk of hospital acquired infections transmitted from both blood-borne pathogens. This study was aimed to assess the knowledge, attitude and practice of health care professionals towards hospital acquired infections.

Methods: A cross-sectional study was conducted among 191 on health care personnel (staff nurses, nursing student, lab technicians, OT assistants, ward girls, and sweepers) available on the day of survey of Tripura Medical College and Dr. BRAM Teaching Hospital, Hapania; data was collected using a self-administered questionnaire and analysed using Microsoft excel.

Results: Majority (70.7%) of the participants belonged to 18 to 25 years age group and were females (75.9%); mostly were Staff Nurses (35.1%) followed by nursing student (31.9%). The present study showed that, 87.4% healthcare personnel have some knowledge about Hospital Acquired Infection (HAI). According to study participants, most common hospital acquired infections was urinary tract infections (60.5%) and nurses were the most susceptible (34.6%) group to HAI. Among participants, 94.8% believed that working in hospital exposed them to infectious diseases and 60.2% were willing to change their working environment to avoid hospital acquired infection. Most of the study participants washed their hands after handling the patients (90.2%).

Conclusions: Knowledge about Hospital Acquired Infection is present among health care personnel but there is still lack of adequate quality control practice to prevent Hospital Acquired Infection. Importance of prevention of Hospital Acquired Infection should be emphasized among health care personnel by intensive IEC activities.

Keywords: Cross infection, Health personnel, Quality control, Nursing, Tripura

INTRODUCTION

According to the World Health Organization a Hospital Acquired Infection (HAI) is, “an infection acquired in hospital by a patient who was admitted for a reason other than that infection. This includes infections acquired in the hospital but appearing after discharge and also occupational infections among staff of the facility”.¹ In other words nosocomial infections are those infections

acquired in hospital or healthcare service unit that first appear 48 hours or more after hospital admission or within 30 days after discharge following in-patient care.²

These diseases are usually caused by bacteria or viruses and can be spread from health worker to patient or vice versa through contact - human contact with an infected surface, airborne transmission through droplets and/or

aerosols and, finally, by common vehicles as food or water.

These infections are particularly important in developing countries where very little amount of resources are available for use for an unbearable number of patients. HAIs not only affect patient health and safety, but also the health care system as a whole. In addition to monetary resources, hospital acquired infections increase the number of days a patient spends in the hospital, requiring additional medical care and hours spent providing patient care.³

Developing countries were reported to have up to 20 times the risk of contracting a nosocomial infection compared with developed countries.⁴ A prevalent survey in 2002 conducted by World Health Organization (WHO) in 55 hospitals of 14 countries showed an average of 8.7% of hospital patients had HAIs.⁵

Although infection is most prevalent in patients upon admission, health care workers also act as potential vectors for pathogenic agents.⁶ Healthcare workers (HCWs) are at increased risk of occupationally acquired infections transmitted from both blood-borne pathogens, such as hepatitis B and C and human immunodeficiency virus, as well as respiratory pathogens, such as influenza, tuberculosis, diphtheria and varicella.⁷⁻⁸ It is well recognized that the risk of transmission of pathogens when providing medical care and the reduction in the rates of the incidence of HAIs can be kept low through appropriate standardized prevention procedures.⁸ However, it has been reported that many such infections are caused by pathogens transmitted from one patient to another by way of HCWs who have not washed their hands between patients or HCWs who do not practice control measures such as use of hand disinfection, glove use etc.⁹ There are still nurses who have misconceptions about HIV detection from human biological specimens, such as oral secretion, urine, tears and sweat.¹⁰

Infection control is a key component of practice for all healthcare professionals, not only for their health but also to reduce nosocomial infections and thus improve patient safety.¹¹ Hand hygiene by healthcare staff has been reported to be of vital importance in the control of infection.¹² Considering the lack of information regarding students' knowledge of the preventive measures necessary to limit the spread of nosocomial infections, this study was done to assess the knowledge, attitude and practice of health care professionals towards hospital acquired infections.

METHODS

A hospital based cross sectional study was carried out among health care personnel working in Tripura Medical College and Dr. BRAM Teaching Hospital, Hapania, West Tripura. The study included 191 randomly selected health care personnel available on the days of survey. The

study period was one calendar month (February 2018). The study involved health care personnel from different segments of Tripura Medical College and Dr. BRAM Teaching Hospital, like staff nurses, nursing students, lab technicians, OT assistants, ward girls and sweepers. The study involved health care personnel who were willing to participate in this study and available during the survey. Doctors and interneers were not included among the selected health care personnel due to operational infeasibility. Health care personnel having evening duty and night duty were not included in study for feasibility. A predesigned, pretested, semi structured questionnaire was used to collect the required information. Questionnaire was translated into local language for convenience of the study participants. The questionnaire was validated by experts of department of Community Medicine. Questionnaire involved two parts; first part included questions regarding socio-demographic characteristics of the participants and the second part involved questions related to knowledge, attitude and practice about hospital acquired infection. The questionnaire was validated by conducting one pilot study among small group of health care personnel different from the study population before commencing the original research work.

Data was collected by researchers of Community Medicine department. The collected data was entered in Microsoft office excel sheet 2007 meticulously. Data was analysed and represented in frequency and percentage in the form of appropriate tables and charts. A well explained written consent was taken from all the participants before commencement of the study. Consent was translated into local language for better understanding of the study participants about the study. The ethical permission to conduct the study was obtained from Institutional Ethics Committee of Tripura Medical College and Dr. BRAM Teaching Hospital before conducting the actual study.

RESULTS

A hospital based cross sectional study was carried out among 191 health care personnel (doctors, nurses, interns, lab technicians, ward girls, ward boys and sweepers) in the month of April 2018.

The survey showed majority of the study participants were from 18 to 25 years age group (70.7%), females (75.9%), Hindu (94.8%), general (48.7%) and were from nuclear families (82.7%). Majority of study participants were Staff Nurses (35.1%) followed by nursing student (31.9%) (Table 1).

The present study showed that, 87.4% healthcare personnel have knowledge about Hospital Acquired Infection (HAI). According to study participants, most common hospital acquired infections was urinary tract infections (60.5%) followed by respiratory tract infections (35.3%), and nurses were the most susceptible

(34.6%) group to HAI followed by sweepers (31.9%). Among the study participants, 84.3% had knowledge about prevention of hospital acquired infection. Hand washing was the most common method to prevent hospital acquired infections (66.5%) followed by personal protective equipment (22.4%) and use of antibiotics (6.8%). Present study showed, 87.4% of the study participants knew about recognised sources of hospital acquired infections. Most common recognised sources of hospital acquired infections was mattresses and pillows (39.5%) followed by white coat (24.6%), nurse uniform (22.2%), thermometer (16.2%), mobile phones (13.2%) (Table 2).

Table 1: Distribution of study participants according to sociodemographic characteristics (n=191).

Sociodemographic characteristic	Frequency	%
Age group (years)		
18 to 25	135	70.7
26 to 33	41	21.5
34 to 41	9	4.7
42 to 50	6	3.1
Gender		
Male	46	24.1
Female	145	75.9
Religion		
Hindu	181	94.8
Muslim	5	2.6
Christian	3	1.6
Buddhist	2	1.0
Caste		
General	93	48.7
OBC	40	20.9
SC	41	21.5
ST	17	8.9
Occupation		
Staff nurse	67	35.1
Nursing student	61	31.9
Lab technicians	12	6.2
Ot assistants	11	5.8
Ward girl	7	3.7
Sweeper	3	1.6
Others	30	15.7
Education		
Up to primary	5	2.6
Up to lower secondary	12	6.2
Up to upper secondary (12 th pass)	96	50.3
Graduate	78	40.9
Type of family		
Nuclear	158	82.7
Joint	33	17.3

Regarding attitude about Hospital acquired infections (HAIs), 94.8% of healthcare professionals believed that working in hospital exposed them to infectious diseases and 73.8% participants thought all patients are potentially

contagious. Among the study participants, 64.4% believe that HAIs may get transmitted through unsterile needles and sharp objects and 63.9% believe that their family members may get infected through them. The present study showed, 45.5% of the study population thought precautionary measures taken against hospital acquired infections hamper their ability to do their jobs whereas 41.4% disagree to this statement. Among the study participants, 60.2% were willing to change their working environment to avoid hospital acquired infection (Table 3).

Table 2: Knowledge of study participants about hospital acquired infections (n=191).

Knowledge about hospital acquired infections	Frequency	%
Knowledge about commonly found infections		
Yes	167	87.4
No	24	12.6
Commonly seen hospital acquired infection*		
Urinary tract infection	101	60.5
Respiratory tract infection	59	35.3
Surgical wound infection	9	5.4
Reproductive tract infection	6	3.6
Blood borne infection	9	5.4
Skin and soft tissue infection	4	2.4
Gastrointestinal infection	3	1.8
Most susceptible group to hospital acquired infections		
Nurse	66	34.6
Sweeper	61	31.9
Doctors	23	12.0
Ot assistants	11	5.8
Lab technicians	19	9.9
Others	11	5.8
Knowledge of methods to prevent HAIs		
Yes	161	84.3
No	30	15.7
Methods to prevent hospital acquired infections*		
Hand washing	107	66.5
Personal protective equipment (apron, mask covers, shoe covers, gloves etc.)	11	6.8
Use of antibiotics vaccination	4	2.5
Isolation of infected patients	7	4.3
Knowledge of any recognized sources of hospital acquired infections		
Yes	167	87.4
No	24	12.6
Recognised sources of infections*		
Mattresses and pillows	66	39.5
White coat	41	24.6
Nurse uniform	37	22.2
Thermometer	27	16.2
Mobile phones	22	13.2
Bed side curtains	17	10.2
Stethoscope	12	7.2
Others	5	2.9

(*multiple response included)

The present study showed, 89% of the study population used reusable instruments and 61.7% of the study population used pre-sterilized instruments. The present study also showed, 91.1% cover their nose and mouth while sneezing in the hospital ward and 69.6% used masks before approaching patients. It was seen that, 90.2% of the study participants washed their hands after handling the patients but 83.2% of the study participants had history of touching of eyes, nose and mouth while handling patients. Practice of cleaning of white coat or nursing uniform regularly was seen among 64.4% of study participants.

The present study showed, 45% of the study participants previously had exposure to patient’s blood, vomit or other body (Table 4).

Table 3: Attitude of study participants about hospital acquired infections (n=191).

Attitude about hospital acquired infections	Frequency	Percent
Exposure to many infectious diseases while working in the hospital		
Agree	181	94.8
Disagree	8	4.2
No response	2	1.0
All patients are potentially contagious		
Agree	141	73.8
Disagree	35	18.3
No response	15	7.9
Transmission of hospital acquired infections through unsterile needles and sharp objects		
Agree	123	64.4
Disagree	41	21.5
No response	27	14.1
Believe that their family members may get infected through them		
Agree	122	63.9
Disagree	39	20.4
No response	30	15.7
Interference of precautionary measures to do their job		
Agree	87	45.5
Disagree	79	41.4
No response	25	13.1
Willingness to change working environment to avoid hospital acquired infection		
Agree	115	60.2
Disagree	30	15.7
No response	46	24.1

DISCUSSION

HAI’s are still considered one of the most serious and complex health problems worldwide. This survey yielded interesting findings regarding knowledge, attitude and practices regarding HAI’s among a random sample of

nurses, lab technicians, ward boy, and nursing students and other health workers in Tripura Medical College and Dr. B.R.A.M Teaching hospital.

Table 4: Practice of study participants about hospital acquired infections (n=191).

Practice about hospital acquired infections	Frequency	Percent
Practices of using of the reusable instruments		
Yes	170	89
No	21	11
Practices of using of pre-sterilized instruments		
Yes	118	61.7
No	46	24.1
No response	27	14.2
Covering of nose and mouth during Sneezing		
Yes	174	91.1
No	17	8.9
Use of mask before approaching a patient		
Yes	133	69.6
No	58	30.4
Washing of hands after handling every patient		
Yes	176	92.1
No	15	7.9
Touching of eyes, nose and mouth while handling Patients		
Yes	159	83.2
No	32	16.8
Practice of cleaning of white coat or nursing uniform regularly after hospital duty		
Yes	123	64.4
No	28	14.7
No response/ Not applicable	40	20.9
Exposure of study participants to patients blood, vomit or other bodily fluids		
Yes	86	45.0
No	105	55.0

The survey showed majority of the study participants were females (70.5%) which is almost similar to a study conducted by Yassi A, in British Columbia consisting of greater percentage of female (82%).¹³

The present study showed that, 87.4% healthcare personnel have some knowledge about Hospital Acquired Infection (HAI) which is almost similar to a study done by Ocran Irene in Ghana, where they found 88.7% Health Care Workers (HCWs) had some knowledge of HAI’s.² Urinary tract infections (60.5%) followed by respiratory tract infections (35.3%) were the two most common hospital acquired infections according to study participants which differ from a study conducted by Ankit SM in Gujarat where 98.8% of study participants unanimously acknowledged respiratory tract infection to be the most common HAI.³ Among the study participants, 84.3% had knowledge about prevention of hospital acquired infection which is slightly lower than a

study done by Ogonia D, in Nigeria (91.6%).¹⁴ Hand washing was the most common method to prevent hospital acquired infections (66.5%) followed by personal protective equipment (22.4%) and use of antibiotics (6.8%). In the use of protective barriers, Ojulong J, in Namibia showed, 42% of all respondents gave correct answer regarding use of gloves for each procedure, when there is a risk of contact with the blood or body fluid, when there is a risk of a cut and when healthcare workers have a cutaneous lesion.¹⁵ Paudyal P, among Nepalese healthcare workers found poor adherence with wearing protective clothing including protective aprons (33%) or masks (47%) in situations carrying a high risk of splash blood or body fluid.¹⁶ Regarding attitude about Hospital acquired infections (HAIs), 94.8% of healthcare professionals believed that working in hospital exposed them to infectious diseases which is higher than a study conducted by Marranzano M et al, in Sicily where only 54% of people believe that working in hospital may expose them to infections.¹⁰ Irene O, in Ghana showed, 67.6% health care workers (HCWs) believed hospital authority did not protect them from HAIs but believed one can protect himself or herself by washing hands with soap (57.1%).² The present study showed, 45.5% of the study population thought precautionary measures taken against hospital acquired infections hamper their ability to do their jobs which is higher than a study conducted by Yassi A, where 27% of respondents felt that precautionary measures interfere with their ability to do their job.¹³ Kamulegeya A, in Uganada found, lack of gloves (53.2%) and glove use not being a common practice on the ward (28.7%) were the most commonly cited reasons for not wearing gloves.¹⁷

The present study showed, 61.1% of the study population used pre-sterilized instruments which are much higher than a study conducted by Irene O, in Ghana where only 25.4% were using pre-sterilized medical instruments.² Studies indicate that healthcare workers hands are the main source of HAI transmission, and therefore, hand washing by caregivers is the most important procedure in preventing HAIs.¹⁸ Present study showed that, 90.2% of the study participants washed their hands after handling the patients which is higher than a study done by Ogoina D et al, in Nigeria (58.5%) and Paudyal Pet al, among Nepalese healthcare workers (70%).^{14,16} Mohammadzadeh M et al, in Iran found, the highest correct answer (87.5% of respondents) was to a question about washing hands after accidental contact with blood, liquids and secretions of patients.¹⁹

The present study showed majority of the health care personnel have knowledge about hospital acquired infection but there is still lack of adequate quality control practice to prevent hospital acquired infection. The study emphasizes on the need for adequate knowledge and maintenance of proper hygiene by health care personnel especially nurses in reducing the incidences of HAIs. The study also highlights use of different preventive methods such as hand-washing, disposal of wastes, sterilization of

instruments, use of protective equipment's like apron, gloves, masks, shoes etc practiced by health care workers while working in the hospital. Most of the health care personnel are willing to change their working environment instead of following standard precautions against Hospital Acquired Infection. The fear of getting infected from patients may compromise quality health care service to patients. Importance of information education communication to prevent Hospital Acquired Infection should be emphasized among health care personnel.

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