August 30, 2018

PharmacologyOnLine

Newsletter • 2018 • vol.2 • 1-8

KNOWLEDGE AND ATTITUDE OF HAND HYGIENE MAINTENANCE AMONG THE HEALTH CARE WORKERS AND PATIENTS IN HOSPITALS OF JESSORE DISTRICT, BANGLADESH

Amit, A.R. [1]; Aziz, M.A.[1]*; Akter, M.I.[2]; Sajon, S.R.[1]

[1]Department of Pharmacy, Faculty of Biological Science and Technology, Jessore University of Science and Technology, Jessore-7408, Bangladesh.

[2]Department of Pharmacy, Stamford University Bangladesh, 51, Siddeswari Road, Dhaka-1217, Bangladesh.

*debusubju@gmail.com

Abstract

Hand hygiene is the healthy and clean condition of the hand which is a mandatory to stop the spread of communicable disease. According to WHO, hand hygiene is the primary measure to reduce infection and it is also claimed by WHO that many problems are introduced for not maintaining the hand hygiene of the health care providers. However, this study was conducted to elucidate the knowledge and attitude of hand hygiene maintenance among the health care workers and patients in hospitals of Jessore district, Bangladesh. A questionnaire taking after the characteristics of golden standard WHO guidelines was used through the whole study from September 2017 to January 2018. 50 doctors, 60 nurses and 200 patients were randomly chosen as study population. We found out that 29 doctors out of 50 did not take any incentives to train up the nurses in hand hygiene maintenance and 15 doctors used alcohol based hand rubs and 23 doctors used multiple methods for hand hygiene maintenance. Out of 60 nurses 39 did not have any proper training on hand hygiene. Moreover, patient related data such as awareness on health hygiene according to gender, age and monthly income is represented. In the end, the results we received is not satisfactory enough and more incentives among health care providers and patients are needed to improve the current situation and provide a better healthcare service to the mass people.

Keywords: *Hand hygiene, health care workers, patients, Jessore district, Bangladesh.*

Introduction

Communicable disease is also known as infectious or transmissible disease which is an illness resulting from an infection caused by invasion of an organism or toxic agent in body tissue and multiplication and reaction of body defense mechanism towards these infectious agents and toxins [1]. During receiving healthcare, thousands of people die every day around the world and hand is the main pathway of disease transmission during healthcare. So maintaining the hand hygiene can be a useful step to avoid transmission of harmful germs during the receipt of healthcare. Every health worker involved in direct or indirect patient care should be able to perform and maintain proper hand hygiene procedure in the right process and at right time [2]. Transmission of disease may occur by direct contact with patients, handling an invasive device used in patient care, after removing gloves, after in contact with body fluid of patients, not cleaning hands with appropriate technique etc [3].

In the prevention of health care associated infections and the spread of antimicrobial resistant pathogens, the maintenance of hand hygiene is considered the most important step [4]. In spite of the major role of hand hygiene maintenance, not following the proper guidelines for hand hygiene is still a major problem in healthcare settings. Though the recent advancement in the understanding of the epidemiology of hand hygiene has made us concerned about the promotion of this important health factor. And thus the necessity of revisiting the guidelines, improving standards and practices, successful intervention strategies are materialized [4, 5]. There are many contributing factors for the adherence of recommended hand hygiene guidelines [6] and adhering to hand hygiene is recommended for prevention and control of the spreading of HCAI (Health Care Associated Infections) [3]. In spite of being a crucial factor, it is matter of regret that following the hand hygiene practices is poor worldwide [7, 8]. It is the times need to observe the current practices and attitude of health care workers towards hand hygiene, in order to develop appropriate and targeted interventions that might improve their hand hygiene practices [9].

World Health Organization (WHO) estimated that Health Care Associated Infections (HAIs) affect 1.4 million patients at any time worldwide. The burden of HAIs is greatly increased, causing additional morbidity and mortality in Intensive Care Units (ICUs). Multidrug–Resistant pathogens are commonly involved in such infections and pose challenges in effective treatment. In the prevention HAIs, proper hand hygiene is the most important and least expensive method and according to Centers for Disease Control and Prevention and WHO guidelines, alcohol–based hand rub should be the first choice for hand antisepsis [10]. Most of communicable diseases are thought to be transmitted by the hands of health care workers (HCWs). For this, assessing the knowledge and practice of hand washing among HCWs is important [11]. Hospital acquired infections throws a very real and serious challenge to all who are admitted to hospital. Microorganisms and toxic agents are easily transmitted though HCWs hands and for this, hand hygiene practice substantially reduce the transmission. So study to assess the HCWs hand hygiene knowledge and practicing attitude is important. However, this study has been conducted to (a) assess the hand hygiene practices among Health Care Workers and (b) assess the reasons for non-compliance in hand hygiene practice.

Materials and method

Setting and design

A cross-sectional study was conducted to the inpatients, outpatients and health care workers of four hospitals (Chowgacha upazila health complex, Jessore; Jessore 250 bedded general hospital, Jessore; Ad-din Sakina Medical College Hospital, Jessore; Queens Hospital pvt. ltd., Jessore). These hospitals are Government & non-Government hospital and serve as advanced health care providers in

Bangladesh. Data was collected by administering questions to patients, nurses and doctors. 200 patients, 60 nurses and 50 doctors of various departments were involved as inclusion criteria for collecting data. The study was conducted from September 2017 to January 2018.

Data collection

This cross-sectional health survey was carried out with a self-designed standard questionnaire by directly interviewing the doctors, nurses and patients. About 11 Bachelor of Pharmacy (Hons.) students of Jessore University of Science and Technology, Bangladesh were assigned by the chief investigator Md. Abdullah Aziz, Assistant Professor, Department of Pharmacy, Jessore University of Science and Technology, Bangladesh. No financial or material incentive was offered to participants. Data collection was subject to strict controls and procedures were followed precisely, to ensure that the data was valid, reliable and useful. Data was obtained on the hand hygiene practices among HCW at hospitals. The healthcare workers were informed about the purpose of the study. And consent was obtained prior completion of the questionnaire. The questionnaire was delivered by the researcher personally to the participants. The participants were given clear instructions of filling the questionnaire. It took roughly about 25-30 minutes to fill in the questionnaire. The participants were followed in their respective departments (work place) during morning and afternoon shifts. Two departments were covered per day. The questionnaires were written in English since all participants were able to read and write the English language well and the medium of instruction in these hospitals were English.

Ethical considerations

The study was conducted following the general principles (section 12) of WMA declaration of Helsinki [12]. This survey based research is also logistically supported by the Department of Pharmacy, Jessore University of Science & Technology, Bangladesh. The institutional ethical review committee of Jessore University of Science and Technology, Bangladesh approved all the protocols used in this survey. The whole procedure was completed with the consent of these four hospital authorities and confidentiality of the health care workers as well as patients was maintained strictly.

Statistical analysis

Data are represented as frequency and percentages. Changes in awareness on hand hygiene according to gender, age and monthly income is represented in odd ratio with 95% confidence interval and their significance. All data were analyzed using SPSS software (version 23; IBM Corporation, New York, USA).

Results

It was the first study conducted in the Jessore district of Bangladesh about the hand hygiene status and the awareness of abiding by the guidelines of hand washing among the health workers and patients. In this survey 200 patients, 60 nurses and 50 doctors of various departments were involved. The participants were asked question regarding their actions and knowledge in the health care system. Questions varied from doctors to nurses to patients.

In Bangladesh, doctors are the main health care professionals who treats patients for different health related issues and serves them proper guidelines to maintain a healthy status. In this survey, 50 doctors were served with a series of close ended questions and multiple choices and their given answers are tabulated in table 1. Here we can see that in case of special training program for nurses, staff and patients, among the 50 doctors, 21 doctors responded positively and 29 responded negatively. 15 doctors have taken necessary steps for the development of hygiene condition whereas 35 doctors did not take any actions. Moreover, 7 doctors use antiseptic soap, 15 doctors use alcohol based hand rubs (AHRBs), 5 doctors use disinfectants and antiseptics and 23 doctors uses multiple above mentioned methods for the maintenance of their hand hygiene. And

out of the 50 doctors 28 thinks alcohol and hand rubs are the most effective method to control hygiene.

In table 2, answers of the nurses of health care workers are represented. Among the 60 nurses of health workers only 21 had special training on hygiene whereas rest 39 had no extra training on hygiene. 33 nurses or health care workers wash hands before and after patient counter, 20 wash hands only after patient counter and 7 wash hands before patient counter. In case of agents used for hand washing, 35 nurses or health workers wash hands with both soap or alcohol based hand rubs (AHRB), 10 of them wash hands with soap and 15 out of 60 wash hands with alcohol based hand rubs (AHRB). In case of spreading communicable diseases, they think it may spread through blood (9), nasal discharge (15), saliva (7), vomit (27), feces (30) and urine (5).

In table 3, awareness of hygiene is represented and changes in awareness of the hospital patients according to gender, age and economic status is tabulated. We can see that awareness about hygiene is more in female than male (OR: 1 to 34.78). Awareness is more in the younger generation than the old ones. Awareness on hygiene is more in the age 25-30 years, whereas, awareness is the lowest in age more than 50 years. In this table, we can also see that health hygiene awareness also depends on economic status. This may be due to the fact that economically stable people are introduced with much healthy environments than the economically unstable people. In table 4, the habits on health hygiene of the hospital patients are represented. We can see that here out of 200 patients everyone washes hands before eating but only 78 patients wash hands with special substances such as soap or hand wash. 80 patients out of 200 drink water from tube wells whereas 58 drink mineral water, 49 drink supply water and 13 drink boiled water. And most of the patients are not satisfied with the hospital hygiene system.

Discussion

In this study, questions asked to the doctors were to assess their personal hygiene practice during patient contact and to determine if they have enough incentives to train the HCWs in most recent health hygiene procedures and knowledge. We found out that though the doctors maintain hygiene during patient contact there is not enough incentives to train the HCWs. Moreover, most of the nurses and HCWs are not well trained and they have limited knowledge on hand hygiene maintenance, its importance and mediums of spreading disease from patient to patient. From the data represented in table 3 and table 4 we can say that health hygiene largely differs from gender to gender, age to age and in different economy class. In this study we revealed that female patients are more aware about the hygiene condition than the male patients. We also found that younger people are more concerned about health hygiene that older people as they are more familiar with the modern knowledge on hygiene than older people and economically stable patients are also aware about health hygiene than the unstable ones.

Our study has some strengths and limitations. The direct interviewing of the physicians, nurses and patients led us to assess their knowledge and attitude regarding hygiene maintenance. So, the study may represent the actual status of hygiene condition in those hospitals of Jessore district of Bangladesh. And among the limitations the most notable is- not being able to observe the activity of the study population due to lack of proper authorization. Moreover, the population studied in the study was a part of the health sector of Jessore district. So, it may not represent the whole situation of hygiene maintenance in all the hospitals of Jessore district. The data represented in this study are unique and based on a self-designed questionnaire based on the criteria included in the gold standard of hand hygiene [13]. But there is not enough data to compare our study with other ones.

Hand hygiene maintenance differs from institution to institution [14] and non-adherence to the proper methods of hand hygiene may lead to potentially modifiable health care associated infections [15]. For this, we think some immediate measures are necessary to improve the health condition of the hospitals in Jessore district. They are- (a) increase the tendency to wash hands before and after patient contact; (b) improve awareness on applying the knowledge of hand recontamination practices; (c) teaching the stuff about the usage of hand gloves and ensuring the proper usage of hand gloves; (d) improve knowledge about alcohol rub use and its benefits in health care [9]. In the end, we hope that ensuring these steps may make it feasible to improve the overall situation of hand hygiene in the hospitals of Jessore district, Bangladesh.

Conclusion

In the end, we can conclude that the hygiene maintenance in the health care system is not satisfactory and more improvements and incentives to train up the health care works is needed as soon as possible. Government should take immediate steps to train up the HCWs and ensure a better, healthier and more hygienic condition for the betterment of the patients.

Abbreviations

HCW: Health Care Worker; HAI: Hospital Acquired Infection; CI: Confidence Interval; OR: Odd ratio; AHRB: Alcohol Based Hand rubs.

Acknowledgements

The authors would like to thank Department of Pharmacy, Jessore University of Science and Technology, Jessore, Bangladesh. And also would like to thank all the volunteers who dedicated their important time to collect the data.

Conflict of interests:

The authors declare that there is no conflict of interests regarding the publication of this paper.

References

1. https://en.wikipedia.org/wiki/Infection [accession date: 27/05/2018].
2. http://www.who.int/gpsc/5may/Hand_Hygiene_Why_How_and_When_Brochure.pdf [accession date: 27/05/2018]
3. Pittet D, Allegranzi B, Sax H, Dharan S, Pessoa-Silva CL, Donaldson L, Boyce JM (2006). Evidence-based model for hand transmission during patient care and the role of improved practices. Lancet Infect Dis (10): 641-652.
4. Boyce JM, Pittet D. Guideline for hand hygiene in health-care settings. Recommendations of the Healthcare Infection Control Practices Advisory Committee and the HICPAC/SHEA/APIC/IDSA Hand Hygiene Task Force. Society for Healthcare Epidemiology of America/Association for Professionals in Infection Control/Infectious Diseases Society of America. MMWR Recomm Rep 2002; 51: 1–45.
5. WHO. WHO Guidelines for Hand Hygiene in Health Care (Advanced Draft). Geneva: WHO, 2006. http://www.who.int/patientsafety/challenge/en (accessed Sept 5, 2006).
6. Haas JP, Larson EL (2008) Compliance with Hand Hygiene Guidelines: Where are we in 2008? Am J of Nurs 108(8):40–44.
7. Sproat LJ, Inglis TJ (1994). A multicentre survey of hand hygiene practices in intensive care units. J Hosp Infect 130: 126-130.
8. Jumaa PA (2005) Hand hygiene: simple or complex. International J Infect Dis. 9(1): 3-14.
9. Asare A, Enweronu – Laryea CC, Newman MJ. hand hygiene practice in neonatal Intensive care unit inGhane.JinfectControl.2009; 1: 3(5): 352-6.

10. Tschudin-Sutter S1, Pargger H, Widmer AF. Hand hygiene in the intensive care unit. Crit Care Med. 2010 Aug; 38(8 Suppl):S299-305.
11. Khaled M, Abd elaziz, Iman. Assessmentof knowledge, attitude and practice of hand washing among HCWs in Ain-Shams University Hospital In Cario. The Egyptian Journal of community Medicine.2008;26(2)
12. WMA Declaration of Helsinki: Ethical Principles for Medical Research Involving Human Subjects.
13. Haas JP, Larson EL. Measurement of compliance with hand hygiene. J Hosp Infec. 2007; 66: 6-14.
14. Danchaivijitr S, Pichiensatian W, Apisarnthanarak A, Kachintorn K, Cherdrungsi R. Strategies to Improve Hand Hygiene Practices in Two University Hospitals. J Med Asso Thai. 2005; 88: S155-S160.
15. Srivastava S, Shetty N (2003) Healthcare-associated infections in neonatal units: lessons from contrasting worlds. J Hos Inf. 2003; 65: 292-306.

Table 1: Concept and incentives of doctors regarding hand hygiene.

Question Pattern	Respond	Frequency	Percentage (%)
Special Training program for nurse, staff and patient	Yes	21	42%
	No	29	58%
Steps taken for development of hand hygiene condition	Yes	15	30%
	No	35	70%
Comment on good hand hygiene control management system	Good	12	24%
	Not so good	24	48%
	Bad	14	28%
Substances used for management of hand hygiene	Antiseptic Soap	7	14%
	AHRB	15	30%
	Disinfectants and antiseptics	5	10%
	Multiple method	23	46%
Control of hand hygiene	Water	None	0%
	Water and hand wash liquid	4	8%
	Water and skin disinfectants	18	36%
	Alcohol and hand rub	28	56%

Table 2: Knowledge and application of hygienic procedure of nurses or health care workers.

Question pattern	Respond	Frequency	Percentage (%)
Training on hand hygiene	Yes	21	35%
	No	39	65%
Time of washing hands	1.Before and after patient counter	33	55%
	2.Only after patient counter	20	33.33%
	3.only before patient counter	7	11.67%
Chemicals used for hand wash	1.Soap	10	16.67%
	2.AHRB	15	25%
	4.All of the above	35	58.33%
Mediums of spreading HAIs	1.Blood	9	15%
	2.Nasal discharge	15	25%
	3.Saliva	7	11.67%
	4.Vomit	27	45%
	5.Feces	30	50%
	6.Urine	5	8.33%

Table 3: Awareness on health hygiene according to gender, age and monthly income.

Category	Range	Awareness		Odd ratio (95% CI)
		Yes	No	
Gender	Male	64	59	1
	Female	67	10	34.78 (2.122-293.430)**
Age (Years)	25-30	61	26	1
	31-40	41	28	0.000 (.000-0.11)**
	41-50	24	11	0.017 (.000-1.110)*
	>50	5	4	0.158 (.002-10.989)
Monthly Income (TK BDT)	>40,000	19	0	1
	31,000-40,000	28	0	0.000
	21,000-30,000	43	7	0.000
	10,000-20,000	29	31	0.000 (0.000-0.004)**
	<10,000	12	31	0.022 (0.003-0.179)**

*Significantly different from reference group (*P < 0.05). **Significantly different from reference group (**P < 0.01).

Table 4: Responses of patients regarding their habit and hospital condition.

Question Pattern	Respond	Frequency	Percentage (%)
Washing hands before eating	Yes	200	100%
	No	0	0%
Usage for special substances for washing hands	Yes	78	39%
	No	122	61%
Source of drinking water (in hospital)	Mineral water	58	29%
	Tube well water	80	40%
	Supply water	49	24.5%
	Boiled water	13	6.5%
Washroom and toilet condition	Hygienic	8	4%
	Unhygienic	192	96%
Condition of hospital hygiene	Satisfied	87	43.5%
	Not Satisfied	113	56.5%