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Research Article

KNOWLEDGE OF HAND HYGIENE PRACTICES AMONG HEALTH-CARE WORKERS IN NEONATAL AND PEDIATRIC INTENSIVE CARE UNIT OF A TERTIARY CARE HOSPITAL OF ODISHA

JASASHREE CHOUDHURY*, ANUSPANDANA MAHAPATRA

Department of Pediatrics, IMS and SUM Hospital, BBSR, Odisha, India. Email: drjasashree@gmail.com

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ABSTRACT

Objective: The objective of this study was to assess the knowledge of hand hygiene of health-care workers in the neonatal and pediatric intensive care unit in a tertiary care hospital.

Methods: A study was conducted to assess the knowledge of hand hygiene for the five moments of hand hygiene of the World Health Organization. Health-care workers were given a questionnaire during routine patient care on a random basis and the data were collected. Data analysis was performed using SPSS software version 13.

Results: A total of 50 health-care workers were questioned during the observation period. Answers differed by role: Nurses (25) and doctors (10). 15 nurses have no knowledge of moments of hand hygiene and were excluded from the study. Nurses were more likely to use soap and water compared to waterless-alcohol-based hand hygiene practices. Doctors were most likely to use alcoholic hand rub.

Conclusion: Although knowledge of hand hygiene practice is high, use of alcohol-based disinfectant was found to be very low compared to soap and water.

Keywords: Hand hygiene, Health care, Soap and water, Alcohol hand rub.

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INTRODUCTION

Hand hygiene is the single most important factor in preventing nosocomial infection in intensive care units (ICUs). Hence, the correct knowledge and practice of hand hygiene is a must for every health-care worker. Lack of knowledge and compliance can lead to severe nosocomial infections and cross infections in ICUs [1]. The World Health Organization (WHO) has developed guidelines for hand hygiene in health care and promoting hospitals and health-care workers to implement the guidelines at every possible level. My five moments of hand hygiene approach is the most important recommendation of the guideline. If adherence to hand hygiene recommendations is followed, we can prevent and control the spread of health-care-associated infections. However, knowledge and practice of hand hygiene is poor worldwide particularly in developing countries [2].

Both the WHO and CDC guidelines recommend alcohol-based hand rub as a standard of care [3]. Hands when visibly dirty, soiled with blood or body fluids, soap and water to be used, whereas alcohol-containing hand disinfection is an effective alternative to standard soap and water in other situations. The importance of good hand hygiene practices in an intensive care setting cannot be overemphasized, yet many published studies conducted in ICUs have reported that health-care workers failed to wash their hands below the recommended times or the procedure was inadequate [4]. The aim of this study was to investigate the knowledge and practice of hand hygiene among the health-care workers in neonatal and pediatric ICUs in a tertiary care hospital.

METHODS

This was a cross-sectional study where a questionnaire was provided to all health-care workers working in pediatric ICUs of a tertiary care hospital which included doctors and nurses as shown in Table 1 [5].

Questions were asked about knowledge of all components of five moments of hand hygiene and whether they followed those five moments. Out of 50 health-care workers, 15 workers were excluded due to lack of knowledge about any of the component of five moments of hand hygiene. Data were collected from all health-care workers working in pediatric ICU and neonatal ICUs. "My five moments for hand hygiene" was promoted by the WHO, which define the key moments when health-care workers should perform hand hygiene practice. [5]. The five moments identified in this strategy include, (1) before touching a patient, (2) before clean or aseptic procedure, (3) after contact with body fluids, (4) after touching a patient, and (5) after touching the patient surrounding. As per guidelines hand, washing sinks were situated nearest to the point of care and alcohol-based hand rub disinfectant was provided at each sink and one for each bed in the corner. Data analysis was performed using SPSS software version 13.

RESULTS

A total of 50 health-care workers were given the questionnaire in the neonatal and pediatric ICUs between June 2016 and July 2016. 70% health-care workers had knowledge about my five moments for hand hygiene. Knowledge differed by role as follows: 71.4% of nursing staffs and 100% of doctors had knowledge of my five moments for hand hygiene. Health-care workers were more likely to use soap and water (63.8%) compared to alcohol-based hand hygiene disinfectant (36.2%). The knowledge and the technique of hand hygiene are shown in Table 2.

Overall knowledge of hand hygiene in nurses was 71.42%. Nurses mostly preferred to wash their hands with soap and water before touching a patient (76%) rather than using alcohol-based hand rub disinfectant (24%). Second, before any clean or aseptic procedure 76% preferred hand washing with soap and water and 24% with disinfectant. After contact with body fluids, 84% preferred hand washing with soap and water and 16% by alcohol-based disinfectant. After touching a patient, 68% preferred hand washing with soap and water and 32% with disinfectant. Finally, after contact with the patient surroundings 88% preferred hand washing with soap and water and 12% preferred hand hygiene with disinfectant.

About 10% of the doctors preferred to wash their hands with soap and water before touching a patient whereas 90% preferred hand hygiene with disinfectant. Second, before clean or aseptic procedure 30% preferred hand washing whereas 70% preferred disinfectant. Third, after contact with body fluids, 20% opted for hand washing with soap and water and 80% by use of alcohol-based hand rub. After touching a patient, 40% opted hand washing with soap and water and 60% preferred to use disinfectant and finally after touching the patient surroundings 30% preferred hand washing with soap and water and 70% preferred alcohol-based disinfectant.

DISCUSSION

According to the WHO at any point of time about 140000 patients suffer from hospital acquired infections in developing countries. It adds to increased morbidity, mortality, prolonged ICU stay, and the cost of treatment. It is a real challenge in ICUs [6].

Patients in the ICUs are more likely to be infected by multidrug-resistance microorganisms. Most of these infections are spread by transmission of microorganisms from the health-care worker's hands [7].

The WHO has developed a protocol for hand hygiene, to be followed before and after all patient or patient environment contact, before aseptic procedures, and after body fluid exposure. It is to be implemented in all hospitals worldwide. Kouni *et al*. concluded that even after a lot of promotional and motivational activities, compliance with hand washing is still poor due to lack of knowledge and practice [8]. This study aimed to determine the knowledge of hand hygiene among health-care workers. There are many studies showing the compliance of hand hygiene among health-care workers. Helder *et al*. in their study of hand disinfection in neonatal ICU opined that protocolized hand hygiene measures can prevent serious nosocomial infections [9]. Karabey *et al*. in their study of the frequency of hand washing in ICU concluded that hand washing can prevent transmission of multidrug-resistant organisms to patient. [10]. Sacar *et al*. suggested that hands must be washed both before and after touching or doing any procedure [11].

Mazi *et al*. and Scheithauer *et al*. in their studies have shown that compliance with hand hygiene among nurses is better than doctors [12,13], but the current study reports that the knowledge regarding hand hygiene is better in doctors than nursing staffs.

The current study was done to evaluate the knowledge of hand hygiene practices based on the WHO my five moments of hand hygiene. We found that most of the health-care workers prefer to use hand hygiene after the contact with the patient and the patient surroundings, in contrast to before the patient contract. These findings suggest that health-care workers prefer to protect themselves rather than patients.

van de Mortel and Murgo studied about implementation of the WHO hand hygiene practices in critical care units and suggested direct observation of compliance and measuring the consumption of hand hygiene product is important for proper implementation [14]. However, there is potential bias in directly observed compliance studies. Haas and Larson opined that one of the most important bias is the Hawthorne effect, which is attributed to the tendency of people who behave differently from the way they would otherwise when they are observed [15]. For that reason, we opted questionnaire method asked them whether they follow it or not. Bhumbala *et al*. in their study had found that use of mobile phones is adding the hand infection which gets transmitted to patients in ICU. He suggested to restrict the use of mobile phone and wash hands every time when one uses mobile phone [16]. Singh *et al*. in a study suggested that mobile phones and hands of health-care workers are source of nosocomial infections which can be prevented by hand washing [17]. Anupriya *et al*. in their study concluded that health-care-associated infection is a challenge in ICU and proper hand hygiene can prevent major nosocomial infections [18]. Wadhwa *et al*. in their study suggested that no of multidrug-resistant organisms are being detected due to lack of hand hygiene practices [19]. Nurses were more likely to use soap and water compared to waterless alcohol-based hand disinfectant in our study. Asare *et al*. in their study have shown that alcohol-based hand rub was better as it provides a residual effect that soap and water do not provide [20]. Most of doctors in our study have preferred to use alcohol-based disinfectant. Nurses think that alcohol-based disinfectants were not good for them because of the unpleasant irritant effects on the hands.

Table 1: Questionnaire

Five moments of hand hygiene	Answer (what to do)
Before touching a patient	Nil Hand washing with soap and water Hand hygiene with disinfectant
Before clean or aseptic procedure	Nil Hand washing with soap and water Hand hygiene with disinfectant
After contact with body fluids	Nil Hand washing with soap and water Hand hygiene with disinfectant
After touching a patient	Nil Hand washing with soap and water Hand hygiene with disinfectant
After touching the patient surrounding	Nil Hand washing with soap and water Hand hygiene with disinfectant

Table 2: Knowledge and technique of hand hygiene among nurses and doctors

Five moments of hand hygiene	Table n=35 (%)		Nurses n=25 (%)		Doctors n=10 (%)		p
	Hand washing with soap and water	Hand hygiene with disinfectant	Hand washing with soap and water	Hand hygiene with disinfectant	Hand washing with soap and water	Hand hygiene with disinfectant	Hand washing with soap and water and with disinfectant
Before touching a patient	20 (57)	15 (42.8)	19 (76)	6 (24)	1 (10)	9 (90)	0.35
Before clean or aseptic procedure	22 (62.8)	13 (37.14)	19 (76)	6 (24)	3 (30)	7 (70)	0.21
After contact with body fluids	24 (68.5)	11 (31.4)	21 (84)	4 (16)	2 (20)	8 (80%)	0.55
After touching a patient	21 (60)	14 (40)	17 (68)	8 (32)	4 (40)	6 (60)	0.12
After touching the patient surrounding	25 (71)	10 (28.5)	22 (88)	3 (12)	3 (30)	7 (70)	0.42

CONCLUSION

Knowledge of hand hygiene and its practice among nurses is low as compared to doctors. As nursing staffs are the backbone of hygienic practices in any ICU, correct knowledge of hand hygiene is essential. Alcohol-based hand rub is a good alternative to soap and water in most of the situations as it is simple, equally efficacious, and less time consuming. Regular teaching and motivation to be done so that recommended hand hygiene practices can be followed strictly.

REFERENCES

1. Pittet D, Allegranzi B, Sax H, Dharan S, Pessoa-Silva CL, Donaldson L, *et al.* Evidence-based model for hand transmission during patient care and the role of improved practices. Lancet Infect Dis 2006;6(10):641-52.
2. Jumaa PA. Hand hygiene: Simple and complex. Int J Infect Dis 2005;9:3-14.
3. Center for Disease Control. 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(16):1-45.
4. Metintas S, Akgun Y, Durmaz G, Kalyoncu C. Prevalence and characteristics of nosocomial infections in a Turkish university hospital. Am J Infect Control 2004;32(7):409-13.
5. World health Organisation. Hand Hygiene Technical Reference Manual: To be used by Health Care Workers, Trainers and Observers of Hand Hygiene Practices. Geneva: World Health Organisation; 2009.
6. Esen S, Leblebicioglu H. Prevalence of nosocomial infections at intensive care units in Turkey: A multicentre 1-day point prevalence study. Scand J Infect Dis 2004;36(2):144-8.
7. Laboratory Centre for Disease Control, Bureau of Infectious Diseases, Health Canada. Hand washing, cleaning, disinfection and sterilization in health care. Can Commun Dis Rep 1998;24 Suppl 8:i-xi, 1-55, i-xi, 1-57.
8. Kouni S, Mougkou K, Kurlaba G, Nteli C, Lourida A, Maroudi-Manta S *et al*. P130: Assessment of Hand Hygiene Practices at the Two Children's Hospitals in Greece. Antimicrobial resistance and infection Control, Vol. 2. Supplement 1, Article P130, 2013, Proceedings of the 2nd International Conference on Prevention and Infection Control, Geneva, Switzerland, June; 2013.
9. Helder OK, van Goudoever JB, Hop WC, Brug J, Kornelisse RF. Hand disinfection in a neonatal intensive care unit: Continuous electronic monitoring over a one-year period. BMC Infect Dis 2012;12:248.
10. Karabey S, Ay P, Derbentli S, Nakipoglu Y, Esen F. Handwashing frequencies in an intensive care unit. J Hosp Infect 2002;50(1):36-41.
11. Sacar S, Turgut H, Kaleli I, Cevahir N, Asan A, Sacar M, *et al.* Poor hospital infection control practice in hand hygiene, glove utilization, and usage of tourniquets. Am J Infect Control 2006;34(9):606-9.
12. Mazi W, Senok AC, Al-Kahldy S, Abdullah D. Implementation of the world health organization hand hygiene improvement strategy in critical care units. Antimicrob Resist Infect Control 2013;2(1):15.
13. Scheithauer S, Oude-Aost J, Heimann K, Haefner H, Schwanz T, Waitschies B, *et al.* Hand hygiene in pediatric and neonatal intensive care unit patients: Daily opportunities and indication- and profession-specific analyses of compliance. Am J Infect Control 2011;39(9):732-7.
14. van de Mortel T, Murgo M. An examination of covert observation and solution audit as tools to measure the success of hand hygiene interventions. Am J Infect Control 2006;34(3):95-9.
15. Haas JP, Larson EL. Measurement of compliance with hand hygiene. J Hosp Infect 2007;66(1):6-14.
16. Bhumbala U, Ahmad S, Mathur D. Study on microbial contamination of mobile phones and their role in nosocomial infection in a tertiary hospital of South India. Asian J Pharm Clin Res 2016;9(3):1-2.
17. Singh V, Chauhan P, Kanta R. Are we aware how contaminated our mobile phones with pathogenic bacteria. Int J Pharm Pharm Sci 2011;3(4):275-6.
18. Anupriya A, Priyanka N, Snehalaxmi R. Healthcare associated infections and infection control practices in intensive care unit of a tertiary care hospital. Asian J Pharm Clin Res 2016;9(4):399-402.
19. Wadhwa R, Sharma Y, Panday R. Nosocomial infection by non fermenting gram negative bacilli in tertiary care hospital: Screening and care. Int J Pharm Pharm Sci 2016;8(3):274-7.
20. Asare A, Enweronu-Laryea CC, Newman MJ. Hand hygiene practices in a neonatal intensive care unit in Ghana. J Infect Dev Ctries 2009;3(5):352-6.