

Assessment of Adherence to Hand Hygiene Practices in a Specialty Hospital

Bir Dal Hastanesinde El Hijyeni Uyum Gözlemlerinin Değerlendirilmesi

Ayhanım TÜMTÜRK¹, Özlem ERÇEN DİKEN², Semra Betül GÜLER¹

¹ Clinic of Infectious Diseases, Corum Chest Diseases Hospital, Corum, Turkey

² Department of Chest Diseases, Faculty of Medicine, University of Hitit, Corum, Turkey

SUMMARY

Introduction: Good hand hygiene represents an effective, simple and inexpensive means of preventing nosocomial infections. In this study, the adherence rates to hand hygiene practices among a group of health professionals employed in the intensive care unit and patient wards of a chest diseases hospital.

Materials and Methods: This study was conducted between January 2014 and December 2014 by the infection control nurse and unit supervisors, who comprised the research team, with the inclusion of all personnel in the intensive care unit with 10 patient beds and inclusion of at least 10% of the employed personnel in the patient wards, including the emergency department and a 3-storey healthcare facility. The study procedures were repeated once monthly for a total duration of 12 months. The Basic Calculation Formula described in the Hand Hygiene Practice Guidelines issued by the World Health Organization was used for study purposes.

Results: The overall adherence rate to hand hygiene practices in the hospital was 70.26%. The specific adherence rates among physicians, nurses, ward personnel, cleaning personnel, and other personnel were 61%, 75%, 64%, 61%, and 68%, respectively. In terms of the indications arising during patient care, the highest practice rates of hand hygiene were observed after contact with the patient (31%), while the lowest rates were observed prior to aseptic procedures (11%).

Conclusion: The adherence to hand hygiene exhibits some variation according to the category of health professional and the primary motivation for hand hygiene was self-protection. Continuous education should assist in improving adherence rates.

Key Words: Hand hygiene; Infection control; Nosocomial infections

ÖZET

Bir Dal Hastanesinde El Hijyeni Uyum Gözlemlerinin Değerlendirilmesi

Ayhanım TÜMTÜRK¹, Özlem ERÇEN DİKEN², Semra Betül GÜLER¹

¹ Çorum Göğüs Hastalıkları Hastanesi, İnfeksiyon Hastalıkları Kliniği, Çorum, Türkiye

² Hitit Üniversitesi Tıp Fakültesi, Göğüs Hastalıkları Anabilim Dalı, Çorum, Türkiye

Giriş: El hijyeni hastane infeksiyonlarının önlenmesinde basit, ucuz ve en etkili korunma yöntemidir. Bu çalışmada göğüs hastalıkları dal hastanesinin yoğun bakım ve servislerinde sağlık çalışanlarının el hijyeni kurallarına uyum oranları araştırılmıştır.

Materyal ve Metod: Bu çalışma Ocak 2014-Aralık 2014 tarihleri arasında acil servis, üç kat göğüs hastalıkları servisleri ve 10 yataklı yoğun bakım ünitesinde, birim sorumluları ve enfeksiyon kontrol hemşiresi tarafından, yoğun bakım ünitesinde çalışanların tamamını, servislerin en az %10'unu kapsayacak şekilde ayda bir gün olmak üzere, 12 ay süresince yapılmıştır. El hijyeni kurallarına uyum değerlendirilirken Dünya Sağlık Örgütü'nün "El Hijyeni Uygulama Kılavuzu"nda belirtilen "Temel Hesaplama Formülü" kullanılmıştır.

Bulgular: Bu çalışmada hastane genelinde el hijyenine uyum %70.26 olarak bulunmuştur. Hekimlerin %61, hemşirelerin %75, hasta bakıcıların %64, temizlik personelinin %61, diğer sağlık personelinin %68 oranında el hijyeni uyumu sağladıkları gözlemlenmiştir. Hasta bakım faaliyetleri sırasında ortaya çıkan endikasyonlarda sağlık personelinin en yüksek oranda (%31) hastayla temas sonrası el hijyeni sağladığı görülürken, en düşük (%11) aseptik işlemlerden önce el hijyeni uyumu sağladıkları gözlemlenmiştir.

Sonuç: Sağlık çalışanlarının el hijyenine uyumu mesleki farklılıklar göstermektedir ve daha çok kendini korumaya yönelik işlemlerden sonra olduğu görülmektedir. Hastanede düzenlenecek sürekli eğitimlerle bu oranların artırılması sağlanmalıdır.

Anahtar Kelimeler: El hijyeni; Hastane enfeksiyonları; Enfeksiyon kontrolü

INTRODUCTION

Good hand hygiene remains an effective, inexpensive, and simple infection control strategy in hospitals, where the occurrence of multiple-drug resistant microorganisms is on the increase with consequent adverse effects in terms of patient morbidity and mortality as well as significant health costs^[1]. Adherence to hand hygiene practices may minimize the patient-to-patient transmission of microorganisms. The objectives of hand washing is not only to remove the dirt on the skin surface, but also to completely remove the temporary flora and to decrease the number of organisms in the permanent flora. The aim of hand hygiene is to prevent infection spread through hands. Hand hygiene practices include a number of different practices such as hand washing, rubbing with antiseptic solutions, and also surgical hand anti-sepsis^[2]. Visible dirt on hands should be removed using water and soap, and alcohol based anti-septic solutions may be utilized in certain other situations, killing most of the temporary flora, preventing the contamination of the surroundings, and providing quick and strong anti-bacterial efficacy^[2].

Despite the guidelines issued in accordance with the recommendations of Centers for Disease Control and Prevention (CDC), adherence rates among health professionals remains a major problem^[3]. Particularly physicians seem to be exhibiting lowest rates of adherence, while nurses were found to have the highest adherence rates.

The objective of our study was to examine the adherence rates to good hand practices in

the intensive care unit and patient wards of a chest hospital disease.

MATERIALS and METHODS

This study was undertaken between January 2014 and December 2014 at Çorum Chest Hospital Disease, which is a 159-bed facility with a 10-bed intensive care unit. The adherence to good hand hygiene practices in the emergency department, patient wards, as well as in the intensive care unit were examined once monthly for a total duration of twelve months. All personnel in the intensive care unit and at least 10% of ward personnel were included in the study. Repeated assessments were performed in the same individuals with a total of 643 assessments performed throughout a total duration of 107 hours (6420 minutes). Each assessment took approximately 10 minutes and 58%, 8%, 3%, 19%, and 12% of the participants were nurses, physicians, ward personnel, cleaning personnel, and other health personnel, respectively.

In accordance with the CDC Hand Hygiene Guidelines for Healthcare Settings, a total of five parameters or indications for good hand hygiene were assessed, as follows:

1. Prior to contact with the patient
2. Prior to aseptic procedures
3. After contact with body fluids
4. After contact with patients
5. After contact with the surroundings of the patient

The form was completed via direct observations, which encompassed a duration of 10 minutes during which the actions at the indicated time-

points were recorded. In the context of 5-moments rule, one of the choices, i.e. rubbing, washing, or absent, was recorded. A total of 4 lines are provided for the professional category in the form. The surveyed individuals were and their profession were noted in these lines, with selection of the one of the choices for hand hygiene, i.e. rubbing, washing, none. For each service, an individual form was prepared, and the Basic Calculation Formula stated in the WHO Hand Hygiene Practice Guidelines was used for the assessment of adherence to hand hygiene as follows:

$$\text{Adherence \%} = \frac{\text{Hand Hygiene Practices}}{\text{Appropriate Moments}} \times 100$$

The observations performed within the survey were performed with prior notification of the individual due to the standard practices regarding healthcare systems. The collected data were entered into the hand hygiene adherence form of the hospital infection surveillance system and reports were retrieved through this system.

RESULTS

During the 6420 minutes of observations, 58%, 8%, 2.9%, 19.28%, and 11.9% of the forms were completed for nurses (n= 372), physicians (n= 19), ward personnel, cleaning personnel (n= 124), and other health personnel.

With regard to the indications arising during patient care, appropriate hand hygiene was practiced prior to patient contact in 17% (n= 319), after contact with patient in 31% (n= 586), prior to aseptic procedures in 11% (n= 199), after risk of exposure to body fluids in 17% (n= 314), and after contact with the surroundings of the patient in 24% (n= 451).

The actions taken by the health personnel with regard to hand hygiene indications, rubbing, washing, and absence of hand hygiene were recorded in 34.8% (n= 928), 35.3% (n= 941), and 29.7% (n= 791) of the incidences, respectively.

Examination of adherence to hand hygiene practices according to the health personnel category revealed an adherence rate of 61%, 75%, 64%, 61%, and 68% among physicians, nurses, ward personnel, cleaning personnel, and other hand personnel, respectively.

A comparison between different units showed adherence rates of 68.54%, 68.14%, and 74.37% in the emergency room, other patient wards, and in the intensive care unit.

DISCUSSION

Previous studies have shown that approximately 30% of nosocomial infections can be prevented with adherence to hand hygiene^[1]. However, the reported adherence rates among health personnel is around 50%. The cited causes of low adherence included time constraints, inadequate infrastructure, busy practice, inadequate number of personnel, absence of written guidelines, low quality of the material, and skin irritation^[4]. In a study by Karabey et al. the reported causes for inadequate adherence to hand hygiene were inadequate number of health personnel per patient, false sense of confidence due to the use of gloves, and inadequate infrastructure particularly in the intensive care unit^[5].

While nurses emerged as the health personnel group with highest rate of adherence (75%), physicians and cleaning personnel alike represented the groups with lowest adherence (61%). Similarly, in a 2010 study by Erasmus et al. physicians were reported to have a lower adherence to hand hygiene than nurses^[6]. Again, in a study by Yüceer et al. in a surgical intensive care setting, 48% of nurses were found to adhere with hand hygiene practices as compared to 28% in physicians^[7]. Güçlü et al. in a study encompassing a period between 2010 and 2011, doctors represented the healthcare personnel with lowest adherence to hand hygiene^[8]. In the same study, an intervention resulted in an increase in hand washing practices among nurses and other health personnel, while no change occurred among physicians. The potential explanations for these lower adherence rates in physicians in our study may include lower attendance rates among physicians to the periodic educational activities in our healthcare facility, work requirements with simultaneous practice in the patient ward as well as in the outpatient unit, and a busy practice.

In our study, the adherence rate was 68% in the emergency room and other patient wards, while it was highest, i.e. 74.37% in the intensive care. The corresponding figures in the study by Erasmus et al. were 30-40% in the intensive care unit and 50 to 60% in other units^[6]. A higher adherence in our intensive care unit may be associated with the fact that the patient capacity of our intensive care was relatively low, also with a lower patient circulation as compared to general intensive care units, since our facility is a specialty hospital.

Another observation of our study was the highest adherence to hand hygiene practices after patient contact (31%) followed by contact with the surroundings of the patient (24%), while lowest adherence was prior to aseptic procedures (11%). Similarly in a 2013 study by Demir et al. the adherence after patient contact was 24.6% and 84% after exposure to body fluids, while it was 14% prior to patient contact and 11% prior to aseptic procedures^[9]. In the study by Toraman et al. the adherence rates were 70% after patient contact, 81% after contact with body fluids, and 70% prior to contact with patient^[10]. In the study by Güçlü et al. all health personnel categories exhibited the lowest adherence to hand hygiene practices at the moment prior to patient contact^[8]. These results suggest that the primary motivation for hand hygiene practice was self-protection, consistent with the conclusion of the study by Köse et al^[11].

Improved hand hygiene throughout hospitals can be achieved through periodic and ongoing education provided in a modified form appropriate for each category of healthcare personnel, with adequate follow-up and feedback. Further measures may include technical arrangements rendering hand hygiene practical, accessible, and feasible; placing memory enhancing attention notes at appropriate locations within the facility; and implementation of administrative incentives and sanctions^[12]. We designated monthly educational sessions and described the importance of hand hygiene and how to actualize it. Hand hygiene

equipment (gloves, washbasin, disinfectants etc.) was organized as easily accessible. Collaboration to hand hygiene protocol was closely monitored and motivated within the scope of in hospital quality controller practices.

Most of the measures targeted at increasing the adherence rates to hand hygiene practices have short-lived results, necessitating long-term campaigns^[2]. Also role-models have been found to have a significant impact on behavior modifications, as supported by studies suggesting a positive influence on the professional development of intensive care personnel by the positive attitudes of the consultant physician^[13,14]. In all healthcare facilities, the causes of adherence and non-adherence should be actively searched in order to form a base, on which preventative measures can be established, in addition to the implementation of long-term multi-disciplinary approaches^[4].

REFERENCES

1. Güner R. Öncelik hangisinde? El hijyeni. *Hastane İnfeksiyoları Dergisi* 2011;15:110-2.
2. Arman D. El yıkama ve el dezenfeksiyonu. In: Doğanay M, Ünal S (ed). *Hastane enfeksiyonları kitabı*. Ankara: Bilimsel Tıp Yayınevi, 2003:91-7.
3. Centers for Disease Control and Prevention. *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*. *MMWR* 2002;51(No. RR-16).
4. Pittet D. Improving compliance with hand hygiene in hospitals. *Infect Control Hosp Epidemiol* 2000;21:381-6.
5. Karabey S, Ay P, Derbentli S, Nakipoglu Y, Esen F. Handwashing frequencies in an intensive care unit. *J Hosp Infect* 2002;50:36-41.
6. Erasmus V, Daha TJ, Brug H, Richardus JH, Behrendt MD, Vos MC, et al. Systematic review of studies on compliance with hand hygiene guidelines in hospital care. *Infect Control Hosp Epidemiol* 2010;31:283-94.
7. Yüceer S, Demir SG. Yoğun bakım ünitesinde nazokomial enfeksiyonların önlenmesi ve hemşirelik uygulamaları. *Dicle Tıp Dergisi* 2009;36:226-33.
8. Güçlü E, Tuna N, Yahyaoğlu M, Çalıcı Utku A, Özcan Ö, Ceylan S ve ark. Eğitimin ve alkol bazlı el antiseptiklerinin hastanede yaygınlaştırılmasının el hijyeni uyumuna etkisi. *FLORA* 2012;17:118-25.

9. Demir NA, Kölgeliler S, Küçük A, Özçimen S, Sönmez B, Demir LS ve ark. Sağlık çalışanlarının el hijyeni hakkındaki bilgi düzeyi ve el hijyenine uyumu. *Nobel Med* 2013;9:104-9.
10. Toraman AR, Battal F, Çaşkurulu F, Gürel A, Korkmaz F. Yoğun bakım ünitesinde sağlık personelinin el yıkama alışkanlıkları. *Yeni Tıp Dergisi* 2009;26:85-9.
11. Köse Ş, Ulu Y, Senger SS, Ersan G, Atalay S, Tokgöz H. Hastanemiz infeksiyon kontrol komitesinin anestezi ve yenidoğan yoğun bakım ünitelerinde el hijyeni kurallarına uyum gözlemlerinin değerlendirilmesi. *Hastane İnfeksiyonları Dergisi* 2012;16:132-6.
12. Karabey S, Çetinkaya Şardan Y, Alp E, Ergönül Ö, Esen Ş, Kaymakçı H. El hijyeni kılavuzu. *Hastane İnfeksiyonları Dergisi* 2008;12:Ek 1.
13. Nobile CGA, Montuori P, Diaco E, Villari P. Healthcare personel and hand decontamination in intensive care units: Knowledge, attitudes and behaviour in Italy. *J Hosp Infect* 2002;51:226-32.
14. Muto CA, Sistrom MG, Farr BM. Hand hygiene rates unaffected by installation of dispensers of a rapidly acting hand antiseptic. *Am J Infect Control* 2000;28:273-6.

Yazışma Adresi/Address for Correspondence

Yrd. Doç. Dr. Özlem ERGEN DİKEN

Hitit Üniversitesi Tıp Fakültesi
Göğüs Hastalıkları Anabilim Dalı
Çorum-Türkiye

E-posta: oercen@hotmail.com