

Evaluation of the Knowledge of Hospital Cleaning Staff about Prevention of Nosocomial Infections

Tansu YAMAZHAN
Meltem IŞIKGÖZ TAŞBAKAN
Şebnem ÇALIK
Hüsnü PULLUKÇU
Oğuz Reşat SİPAHİ
Sercan ULUSOY

Department of Infectious Diseases
and Clinical Microbiology,
Faculty of Medicine,
Ege University, Bornova,
İzmir - TURKEY

Aims: Detection of risk groups and infection sources and awareness of the routes of transmission of infections are important for prevention of hospital infections. In this study, we aimed to evaluate the knowledge level and the behavior models of hospital cleaning staff about nosocomial infections.

Materials and Methods: A 21-item questionnaire about nosocomial infections was administered to the hospital cleaning staff.

Results: Out of 290 hospital cleaning staff, 240 (82.7%, 122 male, 118 female, aged 36.2±8.7) were included in the study. When evaluated according to their educational status, 55.4% had graduated from primary school. Fifty-four percent of the staff had been working in the hospital for more than three years. Mean knowledge level was 18.15±3.97 (maximum 24). Their knowledge level was not associated with gender, educational status, duration of employment or receipt of formal education about hospital-acquired infections before starting their jobs ($P > 0.05$); however, mean knowledge level of the staff working in the clinics was found higher than that of the staff working in administrative sections ($P < 0.05$).

Conclusions: Education of the hospital staff and improvement of their knowledge may be a beneficial strategy for prevention of nosocomial infections.

Key Words: Hospital cleaning staff, nosocomial infection, knowledge level, questionnaire

Hastanemizde Çalışan Temizlik Elemanlarının Hastane Enfeksiyonlarından Korunmaya Yönelik Bilgi Düzeylerinin Değerlendirilmesi

Amaç: Hastane kaynaklı enfeksiyonları önlemede risk gruplarının ve enfeksiyon kaynaklarının belirlenmesi ve enfeksiyonun bulaşma yollarının bilinmesi önemlidir. Bu çalışmada hastanede çalışan temizlik elemanlarının hastane enfeksiyonları konusunda bilgi düzeylerini ve davranış modellerini belirlemeye yönelik bir anket yapılması planlanmıştır.

Yöntemler: Bu çalışma hastanemizde çalışan temizlik elemanlarına, hastane enfeksiyonları konusunda bilgi düzeylerinin ve davranış modelinin belirlenmesine yönelik 21 sorulu bir anket uygulanmıştır.

Bulgular: Hastanemizdeki 290 temizlik personelinin 240 (% 82.7, 122 erkek, 118 kadın, yaş ortalaması 36.2±8.7) çalışmaya dahil edilmiştir. Öğrenim düzeyine göre değerlendirildiğinde % 55.4'ü ilkokul mezunuydu. Çalışanların % 54.1'i hastanemizde üç yıldan uzun bir süredir görev yapmakta idi. Bilgi puanı ortalaması (en yüksek 24) 18.15±3.97 idi. Bilgi puanı ortalaması cinsiyet, öğrenim durumu ve çalışma süresi ve işe başlamadan önce verilen hastane enfeksiyonları eğitimi ile ilişkili değildi ($P > 0.05$) Kliniklerde çalışan personelin ortalama bilgi puanı idari bölümlerde çalışanlardan daha yüksek bulundu ($P < 0.05$).

Sonuç: Hastanede çalışan temizlik elemanlarının eğitimi ve bilgilerinin artırılması hastane enfeksiyonu oranlarının azaltılmasında faydalı bir strateji olabilir.

Anahtar Sözcükler: Temizlik personeli, hastane enfeksiyonları, bilgi düzeyi, anket

Received: September 24, 2007
Accepted: September 03, 2008

Introduction

Nosocomial infections (NI) cause serious morbidity, mortality and increase health costs throughout the world. This global problem necessitates a more stringent implementation of infection control measures (1). Detection of risk groups and infection sources, knowing the routes of transmission of infections, and educating patients and the staff in the hospital who are responsible for their care are important for the prevention of NI (2). In this study, we aimed to evaluate the knowledge level and behavior models of the cleaning staff in our hospital about NI.

Correspondence
Meltem IŞIKGÖZ TAŞBAKAN
Department of Infectious
Diseases and
Clinical Microbiology,
Faculty of Medicine,
Ege University,
Bornova, İzmir - TURKEY
tasbakan@yahoo.com

Materials and Methods

Setting

The study setting was a tertiary-care educational hospital of a state university with 1811 beds and 49450 inpatients in 2006. The hospital is located in Izmir, which is the third most crowded city in Turkey, with a population of 3,709,000 in 2006.

The hospital cleaning staff are not employed by the hospital administration; they are provided by a private sector firm. The employer is ISO 9001-certified. Employees were chosen by the hospital administration among candidates with more than one year of experience after interviews. Each employee received an orientation education program before starting their assignment. Additionally, all workers receive a one-hour educational program each month. The education program, including knowledge about the cleaning process, is planned using the available references and applications (3). A total of 290 employees work as hospital cleaning staff.

Questionnaire

The questionnaire was composed of two parts. The first part contained parameters for determination of sociodemographic properties. The second part contained 21 questions to evaluate their knowledge level about the prevention of NI. There were a total of two open-ended and 19 multiple-choice questions. Questions were prepared by using the relevant references on the subject and with the help of the executives of the cleaning staff firm and statistics unit (2,4).

All hospital cleaning staff who volunteered to enter the study were included in the study group. One to one interview method was used for completing the questionnaires. Data were collected between 1 and 14 June 2006.

Each accurate response of the staff was marked with one point (maximum: 24 points).

Statistics

Data were evaluated by SPSS 13.0 program using chi-square and Student's t tests.

Results

Of the 290 hospital cleaning staff, 240 (82.7% of total, 122 male, 118 female, aged 36.2 ± 8.7 years) volunteered to enter the study. When their educational

status was evaluated, it was seen that more than half of the study population had graduated from primary school and only two had a university degree (Table 1). Duration of employment in the firm was more than three years in 54.1% and less than six months in 7.6% (Table 1).

Mean knowledge level of the study population was 18.1 ± 3.9 points. Knowledge level was not associated with gender, educational status or duration of employment as cleaning staff, but mean knowledge level of the staff working in the clinics was found significantly higher than that of the staff working in the administrative sections (Table 1). Of 240 volunteers, 71.3% had received a formal education about prevention of NI before starting their assignment, but no statistically significant difference was determined in their mean knowledge level when compared with the others (18.3 ± 4.2 vs 17.7 ± 3.2 , $P=0.294$).

Responses to questions about hospital-acquired infections and the cleaning process are summarized in Table 2.

Table 1. Association of knowledge level with gender, educational status, duration of employment and the work assignment area.

	n	Mean	P
Gender			
Female	118	18.6 ± 3.5	0.077
Male	122	17.7 ± 4.3	
Educational status			
No education	7	17.1 ± 4.9	
Primary school*	132	18.2 ± 4.1	0.885
Secondary school**	50	18.2 ± 4.0	
High school***	51	17.9 ± 3.4	
Duration of work			
<6 months	19	18.3 ± 4.4	0.655
6-12 months	32	17.8 ± 3.4	
1-3 years	59	18.6 ± 3.3	
>3 years	130	17.9 ± 4.2	
Area of work assignment			
Administrative section	66	16.0 ± 4.5	
Clinics	110	19.7 ± 2.9	<0.05
Supporting services	64	17.5 ± 3.7	
Total	240	18.1 ± 3.9	

*5 years, **8 years, ***11 years; the two workers with university diploma were included in the high school graduates.

Table 2. Rate of correct responses to questions about hospital acquired infections and the cleaning process.

Statement	%
I can carry microbes without developing disease and can infect other people with these microbes.	82.1
Hospital cleaning staff are the group most vulnerable to infection by microbes from the hospital environment.	54.2
The correct starting point during the ground cleaning process is the corridor.	48
The correct finishing point during the ground cleaning process is the toilet.	50
We can protect ourselves against NI by hand washing before and after the cleaning process.	58.8
I obey handwashing rules.	80.8
I use gloves.	90.4
I dry my hands with paper towels.	48.3
I first collect the waste during the cleaning process.	69.3
I clean the toilets at the end of the cleaning process.	56.3

Discussion

Hospitals are complex structures presenting several factors hazardous for the health care personnel. Exposure to radiation, toxic chemicals, infections, musculoskeletal problems, physical risks (heat, noise, dust, etc.), penetrating injuries, and stress may be considered as the main occupational risks for health care workers (5, 6). Among these, infections and penetrating injuries are the most important (7). Infections in particular may be deleterious for other health care workers, patients, and the people with whom they are in contact (8). Keskiner et al. (9) reported a tuberculosis skin test positivity rate of 83% in 493 health care workers (doctors, nurses, laboratory and radiology technicians, other staff, etc.) in a tertiary-care hospital in Ankara. Health care workers may also carry their community-acquired infections to the patients in the hospital. For these reasons, hospital staff should be educated about prevention of diseases that can be transmitted patient to patient. In our setting, each hospital cleaning staff receives an orientation education program before starting their work assignment and all receive one-hour educational (theoretical and practical)

programs each month. The education program about the cleaning process is planned using the available references and applications (3).

In our study, the mean knowledge level of the cleaning staff was 18.1 ± 3.9 points despite the education program performed before they began their employment. Although the limited number of studies about this subject makes any comparison difficult, it may be considered as low. More than half of the hospital cleaning staff (54.1%) had been working for more than three years, but there was no relation between duration of employment and knowledge level. In addition, no relation was found between education level and knowledge level, which may be due to the fact that more than 75% had an education of eight years or less.

In our study, the knowledge level of the personnel working in the clinics was found higher than that of the staff working in the administrative sections, most likely because the questions generally pertained to the cleaning process in the clinics.

More than half of the hospital cleaning staff (54.2%) thought that they were the group most vulnerable to acquire microbial infections from the hospital environment. Since this situation may affect their working performance negatively, more efficient educational programs seem necessary. Interestingly, 17.9% did not know that they could carry microbes without developing disease and possibly infect other people.

Of the study population, 80.8% stated that they obeyed hand washing rules and 90.4% stated that they used gloves. In an observational study performed in 2004, compliance to hand washing or alcohol-based disinfectant usage rules among hospital cleaning staff working in the intensive care units of our hospital was reported to be 0%. In addition, unnecessary or inappropriate glove usage was found to be commonplace (10). The discrepancy between the results of these two studies may be due to the fact that knowledge is not sufficient for behavioral change. In addition, the time difference between the studies might have affected the situation. Considerable efforts have been given since 2004 to increase the hand hygiene rates.

Medical doctors, nurses and hospital cleaning staff comprise the target community for control of hospital-acquired infections. To increase the adaptation of the

hospital cleaning staff to their job, comprehensive orientation programs and continuous structured educational courses regarding environmental hazards in the hospital and the importance of hospital-acquired infections, hand hygiene, prevention of hospital infections and conformance to hygiene rules by competent health professionals are necessary (10). Akgun et al. (7) reported an increase in the knowledge and attitude points of nurses after a one-year educational program in another Turkish tertiary-care educational hospital. In another study performed in a tertiary-care hospital in Turkey, knowledge points were reported to be correlated with behavior points (4). In our study, 71.3% of the hospital cleaning staff stated that they had received a formal education regarding hospital-acquired infections, but knowledge level was not significantly higher in this group, which is probably due to the insufficiency or discontinuity of the program.

Our study has several limitations, among them our inability to reach 17.3% of the cleaning staff.

References

1. Çetinkaya-Sardan Y, Ünal S. İnfeksiyon Kontrolünde Organizasyon ve İnfeksiyon Kontrol Programlarının Geliştirilmesi. Hastane İnfeksiyonları. In: Doğanay M, Ünal S, editors. Hastane İnfeksiyonları Kitabı Bilimsel Tıp Yayınevi; 2003. pp. 59-67.
2. Anonymous authors. Yataklı Tedavi Kurumları Kontrol Yönetmeliği. Turk J Hosp Infect 2005; 9: 123-8.
3. Safak S. Kurumlarda Ev İdaresi Kitabı. Ankara, Turkey: Damla Matbaacılık; 1997.
4. Tabak RS, Ulutasdemir N. The cognitive behavior characteristics of cleaning staff toward the prevention of hospital infections - an example in adult hospital of Faculty of Medicine, Hacettepe University. Sağlık ve Toplum Dergisi 2005; 15: 59-68.
5. Falagas ME, Karydis I, Kostogiannou I. Percutaneous exposure incidents of the health care personnel in a newly founded tertiary hospital: a prospective study. PLOS One 2007; 2: e194.
6. McAlonan GM, Lee AM, Cheung V, Cheung C, Tsang KW, Sham PC et al. Immediate and sustained psychological impact of an emerging infectious disease outbreak on health care workers. Can J Psychiatry 2007; 52: 241-7.
7. Akgün S, Azap A, Timurkaynak F, Arslan H. Bir üniversite hastanesinde görev yapan hemşirelerin hastane infeksiyonları konusunda bilgi, tutum ve davranışları üzerine hizmet-içi eğitimlerin rolü. Klinik Bilimler ve Doktor Dergisi 2003; 9: 396-400.
8. Dokuzoguz B. Yogun bakım personelinin sagligi ve korunmasi. In: Köksal İ, Çakar N, Arman D, editors. Yoğun Bakım İnfeksiyonlar Kitabı. Bilimsel Tıp Yayınevi; 2005. pp. 893-916.
9. Keskiner R, Ergonul O, Demiroglu Z, Eren S, Baykam N, Dokuzoguz B. Risk of tuberculous infection among healthcare workers in a tertiary-care hospital in Ankara. Turkey Infect Control Hosp Epidemiol 2004; 25: 1067-71.
10. Arda B, Senol S, Tasbakan MI, Yamazhan T, Sipahi OR, Arsu G et al. Evaluation of compliance with hand hygiene rules in Ege University intensive care units. Turk J Intens Care 2005; 5: 182-6.

Furthermore, our results cannot be considered a profile of all of Turkey, but only of our hospital's cleaning staff.

In conclusion, determination of the level of knowledge and attitude of the hospital cleaning staff toward prevention of infections may be beneficial for determination of the existing problems. Periodic well-established educational programs to correct wrong implementations should be started to improve the current situation.

Acknowledgement

The authors thank Assistant Professor Melda Ozbek, Anıl Yuksek and Assistant Professor Timur Kose (Ege University Faculty of Medicine, Department of Medical Statistics, İzmir), Işın Ayşe Kaymaz (Lecturer, Ege University, Faculty of Foreign Languages Department, İzmir) and Ebru Akyol (English teacher, Behcet Uz Anadolu Lisesi-İzmir).