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Determining the knowledge level and attitude with the prevention on hospital infections of nurses working in intensive care units

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Abstract

Purpose: This study was performed as a sectional and descriptive study with the purpose of determining the knowledge level and attitude of nurses working in intensive care units of Antalya and Afyon provincial center hospitals regarding the prevention of hospital infections. Methods: A total 160 intensive care units' nurses were included in the study working in hospitals. A questionnaire including the characteristics created by the researcher under the guidance of literature was used as data collecting tool. These questionnaires were applied to nurses by the researcher and a pollster in each shift in order to minimize the interactions. Data thus obtained related to the questions in the study were evaluated by t test. Descriptive analyses were used to describe the intensive care units nurses regarding demographic characteristics and the other variables. Results: According to the results of the evaluation, the average knowledge scores of the nurses of intensive care units were satisfactory regarding the subject. It was seen that the level of knowledge was affected from age, educational level and period spend working in the intensive care unit. Conclusion: In the light of these results we believe that arranging in job training programs for the intensive care units nurses covering special training subjects regarding their units; and in addition we also believe that works of infection control committees will reduce unnecessary occupation of hospital beds and economical losses that arise from hospital infections.

Keywords: *Hospital infection, intensive care unit, nurse, knowledge level, attitude*

1. Introduction

Nosocomial infections are infections that develop while a patient is receiving health care in the hospital or elsewhere and are not present at the time of referral to the ill health facility or

are not in the incubation period. Some of these infections can also occur after being in the hospital and after the patient is discharged from the hospital (Leblebicioğlu, 2000). Health care–associated infections from invasive medical devices in the intensive care unit are a major threat to patient safety, associated with increased morbidity, mortality, and health care costs (Akbayrak & Bağçivan, 2010). Intensive care units (ICU) are high-risk infections associated with health care (Rosenthal et al, 2006). While the incidence of these infections in the hospital is 5-10 %, this rate is 20-25 % in ICU (Yüceer & Demir, 2009;). The duration of stay in the intensive care unit is 48 up to 30 % after the hour has elapsed has been shown in some studies (Vincent, 2003). It is indicated in some studies that this rate would be up to % 30 after the duration of stay in the intensive care unit is more than 48 hours. It is a multidisciplinary team work that requires responsibility to implement infection control measures to prevent infections. In order to prevent infectıons, implementing infection control measures is a multidisciplinary team work that requires responsibility (Rosenthal et al, 2006).

Units with more staff and work intensity than other departments of the hospital, such as the ICU, are more important than any legal, administrative measures to ensure that each staff member has the greatest responsibility. Especially as ICU, units with more staff and work intensity than other departments of the hospital, each staff member's feeling the strong responsibility on himself or herself is more important than any legal, administrative measures. In this context, information, attitude and adaptation towards infection control measures of intensive care nurses who are responsible for the care and treatment of the patient are extremely necessary for safe and high quality health care (Ulutaşdemir et al, 2008).

It has been reported that infection control measures identified by the Center for Disease Control (CDC) are significantly effective in preventing healthcare-related infections and infectıons are reduced by 30% through the implementation of these measures by healthcare professionals have reduced their infections by 30 % through the implementation of these measures.(Rosenthal, Guzman & Safdar, 2005). Intensive care nurses should have up-to-date knowledge of infection control measures adopted throughout the world for the prevention and control of infections and should provide the most effective care for the illness by consolidating this information with practice. In this study, it was aimed to measure the knowledge level and attitudes of intensive care nurses who have important duties and responsibilities in the prevention of hospital infections in intensive care units. The study was conducted with the thought that the knowledge level and attitudes of the intensive care nurses who are effective in minimizing the morbidity, mortality and cost caused by nosocomial infections in intensive care units will contribute to the prevention of nosocomial infections.

2. Materials and Methods

2.1. Type of Study: This descriptive and cross-sectional study was conducted in intensive care units of two university hospitals in Turkey.

2.2. The Universe and Sampling of the Study: The study's population consisted of 211 intensive care units nurses and 160 intensive care units nurses who agreed to participate in the study. The rate of access is 79 %.

2.3. Data collection:

A questionnaire including the characteristics created by the researcher under the guidance of literature was used as data collecting tool. The data collection tool contains information about nurses' characteristics and their knowledge and attitudes about nosocomial infections. In order to test the clarity of the questions, 8 nurses who were not in the scope of the research had preliminary practice. The questionnaire consists of 36 questions including age, sex, education status, total study year, years of intensive care study, in-service training for hospital infection and knowledge and attitudes about hospital infections. These questionnaires was applied to nurses by the researcher and a pollster in each shift in order to minimize the interactions.

2.4. Statistical Analysis: In the analysis of the data obtained in the study, SPSS package program was used. Data thus obtained related to the questions in the study were evaluated by t test. Descriptive analyses were used to describe the intensive care units nurses regarding demographic characteristics and the other variables.

2.5. The Ethical Dimension of the Study: In order to be able to conduct the research, a written permission has been obtained from the Ethics Committee of the University Medical Faculty, from the Head of the University Medical Faculty Hospital and all intencive care nurses provided a written informed consent. The study was conducted in accordance with the principles of the Declaration of Helsinki.

3. Results

3.1. General Information and Nurses Characteristics

All the nurses were female and 72,5 % married. The majority of the study sample consists of undergraduate nurses. It was determined that 45,6 % of intensive care nurses participating in the study had been educated about hospital infections and 54,4 % were not educated about hospital infections. Of the nurses participating in the study, 63,75 % were in the intensive care unit for 2 years and 36,25 % were in the intensive care unit for more than 2 years.

Table 1 Demographic characteristics of the intensive care nurses (n = 160)

Nurses Characteristics	**n (%)**	**Mean±Standart Deviance**	**P**
Age area			
25 age and below	69 (43.125)	79,61±8,95	p= 0,168
26years and over	91 (56.875)	79,51±7,77	
Marital status			
Single	44 (%27,5)	79,11±8,15	p=0,156
Married	116 (%72,5)	79,21±7,57	
Education level			
Health vocational high school	73 (45,6)	80,13±8,44	p=0,421
Undergraduate educatıon	87 (54,4)	79,07±8,15	
In- service training on hospital infections			
Received in- service training	73 (45,6)	82,12±8,04	p=0,041
Unreceived in- service training	87 (54,4)	78,05±7,55	
Study time in intensive care unit			
2 years	102 (63,75)	78,31±8,19	p=0,011
more than 2 years	58 (36,25)	81,74±8,03	
Number of Patients Served			
4 patients	103(64,375)	80,17±8,54	p=0,205
More than 4 patients	57 (35,625)	78,44±7,71	

Table 2 Intensive care nurses' level of knowledge about hospital infections

Intensive care nurses information about hospital infections	Number of nurses giving right information	%
Knowing the definition of hospital infection correctly	148	92,5
Knowing compulsory vaccinations to be taken by health workers	156	97,4
Knowing where the injector and needles are thrown after using	127	79,4
Knowing the procedures to use sterile gloves	140	87,5
Knowing to do the ideal hand washing process	146	91,3
Knowing that the patient care equipment in the intensive care unit is individual	87	54,4
Knowing the prevention methods of urinary tract infections	96	60
Knowing the definition of disinfectant substance	89	55,6
Knowing the sterile technical principles	137	85,6
Knowing the sensitive patients in terms of hospital infection	150	93,8
Knowing the procedures for using gloves in intensive care unit	157	98,12
Knowing the isolation measures and application standards	73	45,6

4. Discussion

The prevention of ICU acquired infections demands knowledge of the infection rates and sources. The pathogens involved as well as the common risk factors for infection. The incidence of nosocomial infections varies according to the setting, that is, the type of hospital or ICU, the patient population and the precise definition and surveillance techniques used to identify a nosocomial infection. Intensive care units are the units in which approximately 25 % of all nosocomial infections are detected. Nosocomial infections cause economic loss, prolonged hospitalization and increased mortality. In the study conducted to measure the

level of knowledge and attitudes in order to prove that intensive care nurses also play important roles in the prevention of hospital infection, the following results were obtained. The prevention of the occurrence of hospital infections and the recognition of hospital infections for the provision of treatment in a short time is an important issue. It is an important result that 92,5 % of the intensive care nurses who play an active role in the care of patients participating in the research know exactly the definition of hospital infection (Table 2). A similar study by Aytaç and his colleagues found that 69,6 % of ICU nurses knew the definition of hospital infection correctly, 63,3 % of them had education about nosocomial infection, 84,8 % of them had seen handwashing as a necessary precautions to prevent infection (Aytaç, Naharcı & Öztunç, 2008). Handwashing is accepted as the most effective and economical method in preventing hospital infections. It is stated that it is possible to reduce infection rate from 30 % to 10 % by handwashing alone in intensive care units and other methods are not as effective as handwashing (Arıkan, 1997). 91,3 % of the nurses participating in the survey stated that they had washed their hands with ideal methods (Table 2). Being aware of the importance of hand washing by nurses is a very important result in the prevention of infections. Other studies in the world and in our country show that health professionals know the importance of handwashing and the importance of preventing hospital infections (Sodhi et al, 2013; Erasmus et al, 2010; Aytaç, Naharcı & Öztunç, 2008).

Patient care in intensive care units is important among daily routines. The fact that the materials used in patient care are separate for each patient is very important in controlling infection spread. According to Table 2, 54,4 % of the nurses who participated in the study indicated that they used the patient's own tools registrant in patient care. At a rate of 55,6 %, it is indicated that they use the materials to wipe patients' bodies commonly. Materials used in intensive care units have a large precaution in transporting infections. The common use of materials is a rather unpleasant situation. This situation is caused by lack of information and insufficient tools. Hepatitis B Virus (HBV) infection, which is common in all over the world, constitutes the most important transmission of HBV carriers. It is known that 5% of acute hepatitis due to HBV is chronic and a significant part of them are converted into liver cirrhosis and the risk of developing hepatocellular cancer is high in cirrhotic cases (Taşyaran, 1998). The most effective way to protect against hepatitis B is vaccination. It is a positive result that 97,4 % of ICU nurses, especially in a significant risk group, are aware of the need to vaccinate against Hepatitis B Virus (Table 2).

Among nosocomial infections, urinary tract infections have an important place. Because urinary system infections are at the first stage of nosocomial infections. Approximately 40 % of the infections in the hospital are infections of the urinary system. Almost all of these infections are associated with invasive procedures, with 70 % to 88 % being responsible for catheters. Urinary system infections are the major cause of sepsis and related mortality. In addition, diagnostic approaches lead to patient finance-enhancing problems such as treatment and prolonged hospital stay (Köksal, 1999). It has been reported in the various studies conducted in university hospitals in our country that the most commonly detected hospital infection is urinary tract infection, followed by wound infections, and that gram-negative bacteria are responsible for infections. 60 % of the nurses participating in the study

are aware that systemic antibiotic prophylaxis will not affect the urinary tract infection before infection. It is also an important result that they should be aware that catheters should not be inserted unless necessary, and if necessary, they should be placed on aseptic conditions and the catheter and system should be changed in a certain way.

When the knowledge levels and attitudes of the nurses participating in the research are analyzed according to their educational status in terms of level of knowledge and prevention of nosocomial infections; health vocational high school graduates got 80,13 points and undergraduate graduates got 79,07 points (Table 1). As the level of education increases, the level of comprehension, application analysis and synthesis also increases, and the level of educational attainment of the person with higher education level also increases. The difference between the level of knowledge and attitudes related to the prevention of nosocomial infections of health professions and undergraduate graduates was not statistically significant (p> 0,05). In the Durmus' study titled "Determining the level of knowledge of nurses working in hospitals about hospital infections" and Gunay's "Determination of nurses' knowledge level about nosocomial infections" , it is stated that the knowledge score increases as the education level of nurses increases (Durmuş,1990;Günay 1995). These results differ from our study findings. In addition to this,similar studies in this area have indicated that there is no relation between education status and knowledge score in the studies of Rızalar(Rızalar, 1996), Gündoğdu (Gündoğdu,1989) and Kurnaz (Kurnaz,1995). These results show similarity with our findings.

Intensive care units are areas requiring high concentration, where the most complex biomedical devices in the hospital are being monitored, where the treatment of patients with severe physical condition is monitored, life functions are supported, and special care is applied through the care team (Ünal, 2001; Demir & Dramalı, 2002).

Therefore, the orientation process of staff working in intensive care unit is longer. The knowledge and experience of the nurses working here are also increasing with the passing years. When we look at the distribution of the knowledge scores of the intensive care units of ICU nurses during the study period, those who worked over 2 years got higher scores than nurses working less than 2 years. This difference was found statistically significant (p <0,05). Erol's study, "determining the level of knowledge about prevention methods and practices of infectious nurses who graduated from healthcare profession working in hospitals", stated that there is no relationship between service duration and knowledge score (Erol, 2000).

By our study findings; when the knowledge scores of the intensive care nurses according to the numbers of the patients they cared for were examined, nurses who took care of 4 patients had 80,17 points and nurses who had more than 4 patients had 78,44 points. This situation is expected to happen. Because the nurses in the intensive care unit may have time to investigate the necessary issues when dealing with the appropriate number of patients. Intensive care nurse plays a key role in providing the coordinatıon between team members. Intensive care nurse is selected among those who know emotional, rehabilitative aspects of nursing care, therapeutic interventions, and are skilled in this area. The intensive care nurse should be able to independently plan, implement and evaluate nursing patient care. In

addition, the ICU is responsible for the 24-hour monitoring and follow-up of the nursing patient. He is obliged to recognize the physical and emotional changes in the patients he / she watches and to inform the related person when necessary. They are more organized and systematic when they look at the appropriate number of patients for their specific duties and responsibilities, such as deliberate administration of medicines, respiratory physiology, oxygen therapy, pressure air application principles and respiratory techniques and adequate practice, and institutional emergency diagnosis (Kaçar, 2001; Kutlay & Esen, 2002).

5. Conclusion:

As a result, hospital infections are important problems in our hospitals like they are in the whole World. The level of knowledge and attitudes of ICU nurses is very important in controlling these infections. In line with these results, it is necessary to prepare in-service training programs for intensive care units, ensure continuity and inspect them. It should be ensured that intensive care nurses follow the intensive care nursing publications more frequently.

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Conflict of interest

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