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Investigation of Intensive Care Nurses' Awareness about Delirium and its Management

Yoğun Bakım Hemşirelerinin Deliryum Hakkındaki Farkındalıkları ve Deliryum Yönetimlerinin İncelenmesi

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Abstract

Objective: Delirium is a syndrome characterised by acute onset and fluctuating progress. The known risk factors for delirium are fluid-electrolyte imbalance, hypoxia, malnutrition, infections and polypharmacy. Patients in intensive care unit generally have more than one of these risk factors. This study aimed to investigate the intensive care nurses' awareness ofdelirium management, given its frequent occurrence in critically ill patients.

Methods: This descriptive study was conducted in a Health Sciences University Istanbul Mehmet Akif Ersoy Chest Cardiovascular Surgery Training and Research Hospital. The sample consisted of intensive care nurses working in adult intensive care units who agreed to participate. Data were collected using a questionnaire consisting of 76 questions under four main headings: "Demographic Information Form", "Nurses' Knowledge Levels on Delirium Risk Factors", and "Nurses' Views on Delirium Management and Nursing Interventions".

Results: Of the 125 participating nurses, 20.8% reported having received training in delirium, and 9.1% had conducted research on the topic. 56.9% of the nurses expressed confidence in their ability to manage delirium. Nurses demonstrated good knowledge of delirium risk factors, although cardiac-related factors were the least known. Almost all nurses (99.2%) considered delirium to be an important condition affecting the treatment process, and 96.8% believed that nurses were more effective in managing delirium due to their continuous observation of the patient. However, 47.2% of nurses reported challenges in delirium management, 88% of these nurses stated safetyy issues due to "the patient pulling the medical equipment".

Conclusion: Participating ICU nurses demonstrated a moderate level of knowledge about delirium. It is thought that nurses need to conduct more research and receive training to improve their awareness and management skills about delirium, which is frequently encountered in intensive care units.

Keywords: Delirium, intensive care unit, nursing

Öz

Amaç: Deliryum, ani başlangıçlı dalgalı seyirle karakterize bir sendromdur. Sıvı-elektrolit dengesizliği, hipoksi, beslenme bozukluğu, enfeksiyonlar, çoklu ilaç kullanımı gibi birçok risk faktörünün deliryum gelişimine neden olduğu bilinmektedir. Yoğun bakımlar ise; birden fazla risk faktörünün bir arada bulunduğu hastalara hizmet veren özel birimlerdir. Bu çalışma, deliryumun, özellikle yoğun bakım hastalarında görülmesi nedeni ile yoğun bakım hemşirelerinin deliryum hakkındaki farkındalıkları ve deliryum yönetimlerinin incelenmesi amacıyla yapıldı.

Yöntemler: Araştırma, tanımlayıcı nitelikte olup, Sağlık Bilimleri Üniversitesi İstanbul Mehmet Akif Ersoy Göğüs Kalp ve Damar Cerrahisi Eğitim ve Araştırma Hastanesi'nde yürütüldü. Araştırmanın örneklemini, araştırmanın yapıldığı hastanenin yetişkin yoğun bakım ünitelerinde görev yapan ve araştırmaya katılmayı kabul eden 125 yoğun bakım hemşiresi oluşturdu. Veriler, "Hemşire Bilgi Formu", "Hemşirelerin Deliryum Risk Faktörlerine İlişkin Bilgi Düzeyleri", "Hemşirelerin Deliryum Yönetimi ve Hemşirelik Girişimleri Hakkındaki Görüşleri" şeklinde dört ana başlıkta ve 76 sorudan oluşan anket formu ile toplandı.

Bulgular: Çalışmaya katılan 125 yoğun bakım hemşiresinden, %20,8'i deliryum konusunda eğitim aldığını, %9,1'i deliryum konusunda araştırma yaptığını belirtti. Hemşirelerin %56,9'u deliryum yönetimi konusunda kendilerine güvendiklerini ifade etti. Çalışmaya katılan hemşirelerin, deliryuma ait risk faktörlerini bilme düzeyleri iyi durumdaydı. Fakat en az bilinen risk faktörleri kardiyak durumlarla ilgili olan risk faktörleriydi. Bunun dışında yoğun bakım hemşirelerinin %99,2'si deliryumu tedavi sürecini etkileyecek önemli bir tablo olarak görmekteydi. Ayrıca hemşirelerin %96,8'i deliryum yönetimini hastayı daha fazla gözlemledikleri için hemşirelerin daha iyi yapabildiklerini düşündüğünü bildirdi. Deliryum yönetimine dair sorun yaşadığını belirten hemşirelerin oranı %47,2 olarak belirlenirken, bu hemşirelerin %88'i "hastanın tıbbi ekipmanı çekmesi" nedeniyle sorun yaşadığını belirtti.

Sonuç: Çalışmaya katılan yoğun bakım hemşirelerinin deliryuma ait bilgi düzeyleri orta düzeydeydi. Hemşirelerin, yoğun bakımlarda sık karşılaşılan deliryum hakkında farkındalık ve yönetim becerilerini geliştirebilmeleri için daha fazla araştırma yapıp, eğitim almaları gerektiği düşünülmektedir.

Anahtar Kelimeler: Deliryum, hemşire, yoğun bakım ünitesi

INTRODUCTION

Intensive care units (ICU) are highly equipped specialized units established to provide advanced support, treatment and care for impaired vital functions.[1] Delirium, which develops in intensive care patients with the influence of triggering environmental risk factors, is a clinical condition that is difficult to cope with.[2] Delirium is a clinical syndrome with acute onset and behavioral and cognitive changes.[2,3] While delirium can occur with any hospital patient, it is particularly prevelant in ICU that host many risk factors together.[4] As the care of patients in ICU involve a complicated process of maintaining vital signs, delirium, a syndrome which is associated with high mortality, may be perceived as being normal and thus ignored, often due to an inability to distinguish the signs and symptoms of delirium.[5] Another reason for ignoring delirium is that ICU staff are used to diagnosing the hyperactive form of delirium as a symptom of depression.[6-8]

In contrast to hyperactive type delirium, which causes delusions, hallucinations or and agitation, the more common hypoactive type delirium is difficult to recognize in the clinic, and can be easily misdiagnosed as depression, due to it typically only causing latergia and confusion. In addition to hyperactive and hypoactive, additional forms of delirium are 'mixed' and 'delirium without motor symptoms'. However, it would be an inaccurate to say that delirium can easily be differentiated by type[9-11], as it is often confused with depression, agitation, psychosis, aggression, and especially, dementia12. In summary, there are many ways that delirium can be missed, including confusion of delirium with dementia and depression by healthcare professionals and the failure to notice and understand delirium.[4,5,12]

In order to avoid ignoring delirium, it is vital to be fully aware of the risk factors. These include the physical condition of an intensive care unit, as well as many patient charateristics such as advanced age, male gender, loss of vision and hearing, presence of catheterization of cerebrovascular disease, general physical condition, multiple drug use, influence of surgical procedure, ischemic hospitalisation, change in laboratory values, sleep-wake imbalance, and length of time spent in intensive care units.[13,14] There are also studies which report that physical restraint, which is frequently performed in ICU to ensure patient safety, has an important place among delirium risk factors as it causes an increase in the degree of delirium.[15,16]

The many risk factors in intensive care units and the high incidence of delirium emphazises the importance of adequate training and effective management of physicians and nurses working in these units. One issue is complacency. Nurses working in intensive care units may assume that they can correctly diagnose delirium because its occurrence is so frequent in the units where they work. In a related study, despite 67.6% of intensive care nurses stating that they knew what delirium was, only 28 nurses out of the 85 nurses participating in the study were able to define delirium correctly.[12] On the other hand, in another study in which the sample consisted of both physicians and nurses, it was observed that health professionals had a good level of awareness of the risk factors of delirium.[17] The disparity between the two studies may be due education received about delirium. In a study conducted in internal and surgical intensive care units, 84% of intensive care nurses reported that they had received training on delirium, in which the necessity of physician support in the management of patients with delirium was reported and teamwork was underlined.[18] In short, the evidence strongly suggests that both intensive care nurses and all health professionals would benefit from additional training on delirium.

The purpose of this study was to guage the level of awareness of intensive care nurses on delirium and the adequacy of their delirium management.

METHODS

Type of Study: The study is a single-center, descriptive study.

Place and Time of the Study: The study was conducted in the adult intensive care units of a training and research hospital in Istanbul between December 2018 and May 2019.

Study Population and Sample: The study population consisted of a total of 216 intensive care nurses working in the intensive care units of the University of Health Sciences, Mehmet Akif Ersoy Chest Heart and Vascular Surgery Training and Research Hospital in Istanbul. Pediatric cardiovascular surgery intensive care nurses were

not included in the sample due to the monitoring of pediatric delirium cases being different. 125 intensive care nurses working in coronary ICU and cardiovascular surgery ICU were included in the study.

Data Collection Tool: The questionnaire form used as the data collection tool of this study consisted of 4 sections: "Nurse Information Form", "Nurses'Level of Knowledge on Delirium Risk Factors", "Nurses' Opinions on Delirium Management" and "Opinions on Nursing Interventions". The form comprised of a total of 76 questions created in line with the literature.[2,4,5,7,12,15] Expert psychiatrist opinion was obtained to determine the suitability of the data collection form for the purpose of the study.

Data Analysis and Evaluation Techniques: SPSS (Version: 23) program (IBM SPSS Corp., Armonk, NY, USA) was used for biostatistical analysis in which the criteria were defined according to percentages, medians, minimum and maximum values. A 'Student's T Test' was used to compare the means of normally distributed variables between two groups. When nonparametric analysis was required, a 'Mann-Whitney U' was used for two group comparisons, while Spearman correlation analysis was used for correlation analysis. The significance limit was set as P= .05 in interpretations.

Ethics of the Study: Study permission was obtained from the Health Sciences University Istanbul Mehmet Akif Ersoy Chest Heart and Vascular Surgery Training and Research Hospital Clinical Research Ethics Committee on 27/11/2018 (Decision numbered 2018-58). Informed voluntary consent was obtained from the nurses participating in the study.

RESULTS

The mean age of the nurses participating in the study was 25.95 ± 4.01 years. 80.8% of the nurses were female, and 72% had been educated to undergraduate and graduate levels. 52% of the nurses who participated in the study were coronary ICU nurses, while 48% were cardiovascular surgery ICU nurses. The number of nurses who could be considered experienced was quite low. There were 90 nurses who cared for more patients than they should in one shift and who worked overtime (Table 1).

Table 1: Sociodemographic and Working Characteristics of Intensive Care Nurses

Features		n	%	Trust Score Median (min - max)	*P**
Gender	Female	101	80.8	6 (2-10)	.026
	Male	24	19.2	7 (3-10)	
Educational Status	Secondary Education - Associate Degree	35	28.0	7 (2-10)	.051
	Undergraduate - Graduate	90	72.0	6 (2-10)	
Worked Unit	Coronary ICU	65	52.0	6 (2-10)	.592
	Cardiovascular Surgery ICU	60	48.0	6 (2-10)	
Number of Patients Cared for	1 or 2 patients	35	28.0	6 (2-10)	.644
	3 or more patients	90	72.0	6 (2-10)	
Working Time in ICU	0-5 years	103	82.4	6 (2-10)	.270
	6 years and over	22	17.6	6.5 (2-10)	
Overtime Work Status	Available	35	28.0	6 (2-10)	.270
	None	90	72.0	6 (2-10)	

**Mann-Whitney U testi*

The data relating to the nurses participating in the delirium study is shown in Table 2. 79.2% of intensive care nurses reported that they had not received training on delirium, and 90.9% reported that they had not done research on delirium. Despite these results, 56.9% of nurses claimed that they were confident in delirium management, 71% knew the risk factors for delirium, 86.4% could distinguish delirium symptoms, 68% knew what interventions should be done to prevent delirium, and 76.6% knew how to implement prevention interventions. However, 39.8% of intensive care nurses reported that they encountered barriers in delirium management. When the nurses who stated that they had encountered obstacles were asked what these obstacles were: 9 nurses stated that they experienced obstacles due to the difficulty of communicating with the

patient, poor time management, and aggressive patient behavior; 6 nurses stated that patient agitation was a problem; 5 nurses blamed the physical conditions of intensive care unit (especially being an isolated area); and 5 nurses blamed a lack of physician cooperation and late consideration of medical methods as being obstacles; while 4 nurses blamed a lack of relevant training and knowledge as obstacles. 4 nurses felt that the number of patients and having to work intensity were obstacles in the implementation of relevant nursing interventions. For two nurses, the obstacle in implementing the interventions was patient relatives. There was one nurse who stated that team incompatibility, long-term hospitalization history, the patient's psychiatric illness and the nurse's own mood as prevented nursers from intervening appropriately in cases of delirium.

Table 2: The Relationship between Intensive Care Nurses' Confidence in Delirium Management and Delirium Characteristics

Categories	n (%)	Trust Score Median (min - max)	*P**
Training on delirium			
Yes	26 (20.8)	7 (5-10)	
No	99 (79.2)	6 (2-10)	<.001
Conducting research on delirium			
Yes	11 (9.1)	8 (5-10)	
No	114 (90.9)	6 (2-10)	.007
Confidence in managing delirium			
Yes	70 (56.9)	7 (5-10)	
No	55 (46.9)	4.5 (2-10)	<.001
Knowing the risk factors of delirium			
Yes	88 (71.0)	7 (2-10)	
No	37 (29.0)	4.5 (2-10)	<.001
To be able to distinguish the symptoms of delirium			
Yes	108 (86.4)	6 (2-10)	
No	17 (13.6)	4 (2-7)	<.001
Knowing interventions to prevent delirium			
Yes	85 (68.0)	7 (3-10)	
No	40 (32.0)	4 (2-10)	<.001
Implementing interventions to prevent delirium			
Yes	95 (76.6)	7 (3-10)	
No	30 (23.4)	4 (2-10)	<.001
Facing obstacles in venture implementation			
Yes	45 (39.8)	6 (2-8)	
No	80 (60.2)	6 (2-10)	.803

**Mann-Whitney U testi*

The median self-confidence score of intensive care nurses in delirium management was 6 (2-10). There was no significant correlation between age and confidence score in delirium management (r= 0.121, *P*= .191). The distribution of intensive care nurses' confidence score data on delirium management, according to sociodemographic and study characteristics, is shown in Table 2. Among the sociodemographic characteristics, self-confidence score in delirium management was different in terms of gender, as it was determined that males had a higher median score (*P*< .05). There was no difference in self-confidence score in delirium management in terms of other sociodemographic and disease characteristics (*P*> .05). However, it was determined that the nurses' self-confidence score in delirium management varied according to how much they knew about delirium (Table 3). It was found that the self-confidence score in delirium management was higher in nurses who received education on delirium (*P*< .001), conducted research on delirium (*P*= .007), knew the risk factors of delirium (*P*< .001), could distinguish the symptoms of delirium (*P*< .001), knew the interventions to prevent delirium (*P*< .001) and who practiced these interventions (*P*< .001). It was determined that the status of encountering obstacles in implementing interventions to prevent delirium did not affect the self-confidence score in delirium management (*P*> .05).

In this study, a total of 27 risk factors were included in the study by compiling the risk factors of delirium most frequently mentioned in the literature. Intensive care nurses were asked whether they considered each item as a risk factor for delirium, and their responses are shown in Table 3. Considering that the study was conducted in a thoracic cardiovascular

surgery hospital, 33.1% of intensive care nurses did not consider lidocaine use, 41.9% did not consider that the patient had a heart attack, 52.8% did not consider increased left ventricular pressure, 53.2% did not consider an enlarged heart, while 40.3% did not consider being hypotensive as risk factors for delirium. The median score of intensive care nurses' knowledge of total risk factors was 22 (5-27). There was no correlation between nurses' confidence score in delirium management and their risk factor knowledge score (P> .05). There was also no difference between the risk factor scores in terms of the characteristics of the nurses (P> .05).

Table 3: Knowledge Levels of Intensive Care Nurses Regarding Delirium Risk Factors

Delirium Risk Factors	Known n (%)	Don't know n (%)
Age	115 (92.0)	10 (8.0)
Gender is male	38 (31.1)	87 (68.9)
Surgical and invasive procedures	115 (92.7)	10 (7.3)
Prolonged hospitalization in intensive care unit	124 (99.2)	1 (.8)
The patient has a psychiatric or neurological problem	124 (99.2)	1 (.8)
Presence of a chronic disease	102 (82.3)	23 (17.7)
Physical conditions of the intensive care unit	121 (96.8)	4 (3.2)
Fluid electrolyte imbalance	101 (80.8)	24 (19.2)
Dehydration	102 (81.6)	23 (18.4)
Lidocaine use	83 (66.9)	42 (33.1)
Intensive use of medication	115 (92.0)	10 (8.0)
Neuroleptic and narcotic drug use	121 (96.8)	4 (3.2)
Social isolation	116 (93.5)	9 (6.5)
Disruption of sleep patterns	121 (96.8)	4 (3.2)
Frequent change of the patient's location	104 (84.6)	21 (15.4)
Loss of vision	91 (73.4)	34 (26.6)
Malnutrition	92 (75.4)	33 (24.6)
Foley catheterization or other catheter applications	86 (69.9)	39 (30.1)
Presence of infection	94 (76.4)	31 (23.6)
Detection implementation	115 (92.0)	10 (8.0)
Having had a heart attack	72 (58.1)	53 (41.9)
Increased left ventricular pressure	58 (47.2)	67 (52.8)
Alcohol - substance addiction	119 (96.7)	6 (3.3)
Heart enlargement	58 (46.8)	67 (53.2)
Blood loss	88 (70.4)	37 (29.6)
Hypotensive	74 (59.7)	51 (40.3)
Hypoxia	101 (81.5)	24 (18.5)

In the study, intensive care nurses were asked about their views on the concept of delirium and delirium management and the problems experienced in delirium management (Table 4). It was found that all participants, except one nurse, saw delirium as an important factor in the treatment process. 51.2% of the nurses claimed that they could easily define delirium, while 54.4% felt that they could distinguish delirium symptoms from dementia and depression. In addition, it was concluded that 13.6% of intensive care nurses did not see delirium as a condition to be avoided, but that it was more a factor in the treatment process. 60.0% of nurses saw delirium as a severe enough picture that the patient could lose his/her life.

While 96.8% of intensive care nurses thought that nurses were better able to manage delirium better as they observed the patient more, 52.0% of nurses thought that effective delirium management could not be realized without physician support.

88.8% of intensive care nurses stated that they had to exert their self-control due to thinking about the possibility that they or their loved ones might be hospitalized in intensive care.

While 47.2% of the nurses stated that they did not have any problems in delirium management, 79.2% of the nurses who reported having problems said it was due to poor communication with the patient, 77.6% because of physical and verbal assault by the patient, 84.8% because the patient was agitated, 72.0% because the patient wanted to leave the intensive care unit or refused treatment, and 88.0% because the patient withdrew medical equipment.

Table 4: Intensive Care Nurses' Views on the Concept of Delirium, Delirium Management and Problems in Delirium Management

	I agree n (%)	**Disagree** n (%)	**No opinion** n (%)
Views on the Concept of Delirium			
Delirium as an important factor in the treatment process.	124 (99.2)	1 (.8)	-
I can easily define delirium.	64 (51.2)	57 (45.6)	4 (3.2)
I can easily distinguish the symptoms of delirium from those of dementia and depression.	68 (54.4)	53 (42.4)	4 (3.2)
Delirium can be prevented, but it is not a major condition that can negatively affect the treatment process.	17 (13.6)	102 (81.6)	6 (4.8)
Delirium is a condition so severe that the patient's life may be lost.	75 (60.0)	47 (37.6)	3 (2.4)
Views on the Concept of Delirium Management			
I think nurses can manage delirium better because they observe the patient more.	121 (96,8)	4 (3,2)	-
I believe that effective delirium management cannot be realized without physician support.	65 (52.0)	56 (44.8)	4 (3.2)
When I provide care to a patient with delirium, I think about the possibility of me or my loved ones being admitted to intensive care and restrain myself so as not to lose my self-control.	111 (88.8)	12 (9,6)	2 (1.6)
I think that I do not have problems in delirium management.	59 (47.2)	62 (49.2)	4 (3.2)
Views on the Concept of Problems in Delirium Management			
I have problems because it is difficult to communicate with the patient.	99 (79.2)	24 (19.2)	2 (1.6)
I have problems because I have experienced physical and verbal assault by the patient.	97 (77.6)	26 (20.8)	2 (1.6)
I have problems because the patient is agitated.	106 (84.8)	17 (13,6)	2 (1.6)
I would have problems if the patient wanted to go to intensive care and refused treatment.	90 (72.0)	32 (25.6)	3 (2.4)
I have problems with the patient withdrew on medical equipment.	110 (88.0)	22 (17.6)	3 (2.4)

Table 5 is a compilation of the most frequently mentioned in the literature nursing interventions taken to prevent delirium. A total of 19 nursing interventions were included in the study. Intensive care nurses participating in the study were asked which intervention was effective in delirium management. The most striking results of the finding were that 80.8% of the nurses did not not use appropriate communication techniques, while 32.0% of the nurses found it meaningless to communicate with unconscious patients to explain the interventions made through touching or verbally. All of the nurses agreed with the statement that the orientation of the patients should be questioned during each shift change. 87.2% of the nurses stated that it was important to ensure the independence of the patients in terms of daily activities. While 5.6% of the nurses thought that monitoring the patient's fluid electrolyte imbalance and dehydration was not a nurse’s duty, 52%

agreed that pharmacologic interventions should be applied with the support of a physician at the first signs of delirium.

Table 5: The Opinions of Intensive Care Nurses Regarding Nursing Interventions to Prevent Delirium

Opinions about Nursing Interventions	I agree n (%)	Disagree n (%)	No opinion n (%)
The lack of information needs to be addressed and every action taken needs to be explained.	123 (98.4)	2 (1.6)	- -
Any intervention by a nurse who does not use correct communication techniques is in vain.	101 (80.8)	23 (18.4)	1 (.8)
It is pointless to communicate with unconscious patients by touch or verbally to explain interventions.	40 (32.0)	84 (67.2)	1 (.8)
Nurses should use long sentences when making verbal interventions.	14 (11.2)	110 (88.0)	1 (.8)
Nurses should prepare a sleep-friendly environment for patients (reducing lights, reducing the noise of medical devices, etc.).	119 (95.2)	5 (4.0)	1 (.8)
At each shift change, patients' orientation to place, time, person and situation should be questioned.	125 (100)	- -	- -
Noise conditions need to be controlled as far as possible.	124 (99.2)	1 (0.8)	- -
For a patient with delirium, family visits should be avoided as they may agitate the patient further.	24 (19.2)	101 (80.8)	- -
It is ensured that the patient always has his/her personal belongings with him/her.	99 (79.2)	26 (20.8)	- -
Patients' belongings should not be moved.	94 (75.2)	31 (24.8)	- -
Having a photograph with the patient is useful for person orientation.	72 (57.6)	52 (41.6)	1 (.8)
A calendar and clock showing the correct date should be kept in a place visible to the patient.	116 (92.8)	9 (7.2)	- -
The relatives of patients contributing to care during visiting hours only agitates the patient more.	30 (24.0)	95 (76.0)	- -
It is important to ensure the patient's independence in activities of daily living as much as possible.	109 (87.2)	13 (10.4)	3 (2.4)
Patients should be allowed to rest as much as possible and mobilization should be minimalized.	25 (20.0)	100 (80.0)	- -
Monitoring the patient's fluid-electrolyte imbalance and dehydration status is a nurse’s duty.	118 (94.4)	7 (5.6)	- -
Physical restraint is be useful in preventing delirium.	43 (34.4)	82 (65.6)	- -
Pharmacologic interventions with physician support should be applied as soon as the symptoms of delirium are observed.	65 (52.0)	60 (48.0)	- -
It is very important for the patient to be able to express his/her emotions freely to prevent delirium.	124 (99.2)	1 (.8)	- -

DISCUSSION

When the sociodemographic characteristics of intensive care nurses were analyzed, the most striking result was that 80.8% of the nurses in the intensive care units where the study was conducted were female, while 60% were aged between 18 and 24 years. When the studies conducted with intensive care nurses were examined, it was seen that the demographic characteristics of the nurses were similar to other studies in the literature.[12,19-21] While it is well known that the female gender is dominant in the nursing profession, our study showed that intensive care nurses were primarily young and lack experience. One of the main reasons why intensive care nurses are young or less experienced is institutional policies. Institutions want to employ newly recruited nurses in areas such as intensive care in order to gain experience in complicated units. In our study, the fact that 82.4% of the nurses had 0-5 years of intensive care work experience supports this idea. However, it can also be said that this result is a disadvantage in terms of recognizing and managing delirium in intensive care. The fact that intensive care nurses have little experience of working in intensive care, generally take care of more patients than the number of patients specified by the standards, and that they work more than the usual weekly working hours, is confirmed by other studies in the literature.[22,23] It is clear that this situation will both cause various health problems (fatigue, sleep disorders, chronic diseases etc.) in intensive care nurses and reduce the efficiency in patient care and management.[24,25] Therefore, it is of great importance for nurses to care for an appropriate number of patients in line with the standards, and to establish a work schedule that does not exceed the weekly working hours. The taking of such measures would be clearly beneficial for improving the quality of patient care.

In order to recognize or manage delirium, nurses must first have knowledge and be fully aware of the subject. In our study, it was determined that the education received and the conducting of research on delirium was inadequate. However, this was in contrast with the high rates of belief of nurses that they knew the risk factors of delirium, could differentiate symptoms, and both knew the interventions to prevent delirium and how to implement them. It was observed that there was a relationship between self-confidence in delirium management and the receiving of education on delirium, conducting research, knowing risk factors, distinguishing symptoms, and knowing and implementing interventions to prevent delirium ($P \leq .05$). When the studies conducted with a similar purpose were examined, it was striking that the status of receiving education and conducting research differed in the literature. In the study conducted by Zeki, 97.2% of the nurses stated that they had not attended a conference on delirium and 88.7% stated that they had not read an article on the subject.[26] In a study conducted by Sarı, it was reported that 66.3% of nurses had not received training on the subject and 85.3% had not received information on the subject.[17] In a study conducted by Çetin, 55% of the participants stated that they had received training on delirium in nursing courses, and 22.4% stated that they had been provided with information about delirium during in-service training.[27] In a study by Temiz and Sayılan Aydın, it was determined that 50% of the nurses received training on delirium and the nurses who had received training and used a delirium diagnostic tool knew more about delirium.[21] This result shows that there are strong links between educational attainment and disease management.

However, our study included the 27 most common risk factors in the literature and measured the level of knowledge of the subject nurses. It was determined that the majority of intensive care nurses considered the following to be risk factors: advanced age, surgical and invasive procedures, prolonged hospitalization in the intensive care unit, physical conditions in the intensive care unit, the presence of a psychiatric or neurological problem, intensive drug use, neuroleptic and narcotic drug use, social isolation, disruption of sleep patterns, fixation, and alcohol-substance dependence. Although the rate of awareness was lower, it was determined that the nurses who participated in the study considered the presence of chronic disease, fluid-electrolyte imbalance, dehydration, frequent changes in the patient's location and hypoxia as risk factors. In addition, visual loss, malnutrition, catheterization and infection were less known than other risk factors. Although these results suggest that intensive care nurses are aware of the risk factors for delirium, considering that the study was conducted in a cardiology and thoracic cardiovascular surgery hospital, it was striking that nurses did not consider lidocaine use, heart attack, increased left ventricular pressure, enlarged heart, hypotension, blood loss and hypoxia as risk factors. Another remarkable finding was that male gender was not seen as a risk factor. Erel's study can be cited as an example of also not considering male gender as a risk factor. According to this study, it

was concluded that there was no significant difference between gender and the occurrence of delirium, while the same study also concluded that smoking and alcohol addiction do not pose a risk for delirium.[28] In our study, there were 119 nurses who considered alcohol-substance abuse as a risk factor and this was similar to the findings obtained by Ateş in his study. These findings were that the participants considered psychiatric or neurologic problems, alcohol-substance abuse, age, fluid-electrolyte imbalance, visual loss and infection as risk factors for delirium.[20] In a study by Aslan et al., 45% of hypomagnesemic patients developed delirium, while the rate of delirium development in the normomagnesemic group was found to be 25%. This data supports that electrolyte imbalance is a risk factor for delirium.[29]

It is common for physicians and nurses, especially in intensive care units, to have various interpretions of any case developing in the field. These different interpretations may lead to delirium being easily overlooked. In line with these determinations, the nurses participating in our study were asked about their ideas and interpretations regarding the concept of delirium. One very important result was that 99.2% of the nurses saw delirium as an important factor in the treatment process. Accordingly, the fact that there were 40% of nurses who did not consider delirium as a life-threatening condition was a contrast in the study. In a study by Çevik et al. 50% of the nurses considered delirium as an important life-threatening problem[18], while in a study by Sar, 69.7% of nurses considered delirium as a disease that increases mortality, which was similar to our study.[17] Of the nurses who participated in our study, 96.8% of the nurses thought that nurses were better able to manage delirium because they observed the patient more. However, 52% of the nurses thought that delirium management could not be realized without physician support. In a similar study, 25% of nurses stated that they would like to receive physician support in delirium management.[18] The nurses' reasons for requesting physician support were the concern that nonpharmacologic methods would be inadequate and so there was the need for a supporting team member in delirium management. However, it is obvious that the main difficulty in delirium management is the inability to communicate correctly with the patient. In the study by Bayrak Kahraman and Bostanoğlu, 9.1% of the participants stated that they had problems in verbal communication[30], In Zeki's study, nurses agreed that the most important intervention to prevent delirium was to communicate correctly.[26] The nurses who thought that physical conditions, which are among the most frequently encountered and exposed risk factors, should be improved and brought to appropriate conditions constituted 96% of our sample. Considering the interventions in which nurses participated, our study was similar to the studies in the literature. There were 67.7% nurses who supported the idea of “explain every intervention to the patient”, which is based on correct communication, but can be ignored when the patient is unconscious. The importance of this intervention can also be seen in a case study by Efil et al. The study shows that unconscious patients hear what is being said when they wake up and that effective communication increases treatment compliance and confidence.[31] It was important that 94.4% of the nurses in our study stated that monitoring fluid-electrolyte imbalance and dehydration status was one of their duties. This result can be accepted as a sign that the nursing profession is aware of the interventions that can be carried out independently, despite having minimal experience. In Baran's study, fluid support and blood gas evaluation for electrolyte monitoring to prevent dehydration were similar to our study. However, in Baran's study, patients were not allowed to be near their personal belongings due to the possibility of self-harm, and family and friend visits were not supported, considering that visitors should be restricted.[32] In our study, 79.2% of nurses thought that patients should always have their personal belongings with them. In fact, 75.2% of the nurses supported the idea that the location of these belongings should not change. The same contrast occurred with the idea that it would be good for visitors to participate in care. In our study, there were 76% nurses who thought it was right for families to participate in the process, while 80.8% of intensive care nurses thought that family visits would not agitate a patient with delirium. When the results related to nursing interventions related to delirium are analyzed, it can be said that while our study is similar to the literature, the rate of participation in positive interventions was higher in our study.

CONCLUSION

While the intensive care nurses who participated in our study could a moderate level of knowledge about delirium, it is suggested that knowledge would increase with training which would, in turn, lead to nurses wishing to access more information as a result of the training given. As a result of their efforts to access information and

research, it is predicted that nurses will gain more awareness and management skills on the subject and will be more self-confident professionally. However, it is known that not only the organization of training and participation is insufficient, but that also the audits in the use of this information learned are also valuable. In accordance with the results of the studies, delirium screening in intensive care units should become a protocol with audits and regulations. It is therefore thought that it is important for each unit to use the most appropriate delirium diagnostic tool for the clinic of the patients they care for in order to recognize delirium with early diagnosis. However, while it is insufficient for nurses to know only delirium diagnostic tools for early diagnosis, it is important for patients and staff to be familiar with all types of delirium and risk factors of delirium. The fact is that the agitated behavior of a patient with delirium has a negative effect on the nurse's motivation to work, and a nurse also has other patients to care for. The nurse should therefore approach the management of a delirium patient at the appropriate time and with the appropriate intervention, especially in order to provide care to other patients who have different circumstances and may not be receiving the same levels of care. As a matter of fact, it is thought that all nonpharmacologic interventions recommended for use in the management of delirium are standard interventions that a qualified nurse should be able to perform. Furthermore, it is also very valuable for nurses to maintain these interventions, add new ones and thus improve team spirit.

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