



Review

Nursing responsibilities and non-pharmacological approaches in delirium management

Canan Karadaş, Leyla Özdemir

Department of Internal Medicine Nursing, Hacettepe University Faculty of Nursing, Ankara, Turkey

Abstract

Delirium is a common clinical syndrome; characterized by rapid onset and fluctuating symptoms during the day. A decrease in functional capacity, an increase in length of stay at the hospital, and an increase in mortality are negative results seen in delirious patients. Therefore, patients should be assessed at least once a day in terms of delirium that may develop due to underlying factors. Because delirium monitoring does not contribute to improvement in delirium itself, delirium prevention and treatment methods are needed. Non-pharmacological approaches include re-orientation, reduction of environmental stimuli, early mobility, providing hydration and sleep hygiene. Frequently used nonpharmacological approaches in delirium management are easy to implement, cost effective and directly related to nursing care. However, few studies document information about which approaches are used or the content and effects of these approaches. This review aims to discuss non-pharmacological approaches used in the management of delirium and the nursing responsibilities based on recent literature.

Keywords: Delirium; non-pharmacological approaches; nursing.

What is known on this subject?

- Delirium prevention and effective management require pharmacological interventions as well as non-pharmacological methods. Non-pharmacological methods could be performed independently by nurses to provide improvements in patient care.

What is the contribution of this paper?

- Current review integrates the nursing process with the use of non-pharmacological approaches based on randomized controlled trials and clinical guidelines.

What is its contribution to the practice?

- This review contributes to the approaches and discussion for delirium management in line with the nursing process and improves evidence-based care.

The word delirium originates from the Greek word “Leros” which means “nonsense talking” and Latin word “delirare” or “delirare decedere” which means “stepping outside of the track”.^[1] Delirium is a temporary, organic mental syndrome characterized by rapid onset, fluctuating symptoms during

the day, changes in levels of consciousness, attention deficits, increased or decreased psychomotor activity and irregularities in the sleep-wake cycle.^[2] This situation which can develop in a day or two leads to a worsening prognosis and results in short-and-long term negative outcomes.^[3,4] Various factors play a role in the risk factors and the etiology of the delirium. Table 1 shows the acronym “I WATCH DEATH” which lists various delirium-related etiologies.^[5] The delirium etiologies are as follows: (I) infection, (W) withdrawal, (A) acute metabolic conditions, (T) trauma, (C) central nervous system pathologies, (H) hypoxia, (D) deficiencies, (E) endocrinopathies, (A) acute vascular problems, (T) toxins, and (H) heavy metals. The incidence rate of delirium is found to be 1–2% among individuals in society,^[6] 60% among institutionalized individuals,^[7] 6–56% among hospitalized individuals, 15–53% among patients who underwent surgery,^[7] 56–87% among patients receiving treatment in the intensive care unit,^[5] and 83% among terminally ill patients.^[8] Previous studies have reported that as the length of stay in the intensive care unit increased patients’ delirium

Address for correspondence: Canan Karadaş, Hacettepe Üniversitesi Hemşirelik Fakültesi, Kat: 1, Oda No: 33-28, 06100 Ankara, Turkey

Phone: +90 312 305 15 80 **E-mail:** karadas.canan@gmail.com **ORCID:** 0000-0002-3364-6276

Submitted Date: March 24, 2017 **Accepted Date:** January 04, 2019 **Available Online Date:** June 26, 2019

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Table 1. I WATCH DEATH: The most common causes of delirium

Etiology	Types of cases in clinical environment
Infection	Pneumonia, urinary system infection, encephalitis, meningitis, syphilis
Withdrawal	Alcohol, sedative-hypnotics
Acute Metabolic Conditions	Acidosis, alkalosis, electrolyte imbalance, liver or kidney failure
Trauma	heat stroke, burns, surgical interventions
Central nervous system's pathologies	Apse, tumor, bleeding, crisis, stroke, vasculitis, normal pressure hydrocephalus
Hypoxia	Hypotension, pulmonary embolism, pulmonary or cardiac deficiencies, anemia, carbon monoxide poisoning
Deficiencies	B12 vitamin, niacin, thiamine
Endocrinopathies	Hypo-/hyperglycemia, hypo-/hyperadrenalism, hypo-/ hyperthyroidism, hypo-/ hyperparathyroidism
Acute vascular problems	Hypertensive encephalopathy, shock
Toxins	Drugs, drug abuse, pesticides, chemical solvents
Heavy metals	Lead, manganese, mercury

Irwin R, Rippe JM. (2014). Irwin and Rippe's Intensive Care Medicine (Tr. Edi. Tulunay M, Cuhruk H). Ankara: Güneş Kitabevleri, 6th Printing Volume 2 (Original publishing date 2008).

increased, dementia increased, and nosocomial infection and their need for long-term care increased.^[8,9]

The National Institute for Health and Care Excellence (NICE) guidelines emphasize that patients who have risk factors for delirium development should be assessed for delirium within the first 24 hour of admission.^[2] This fluctuating situation should be monitored by nurses and diagnosed with rapid intervention by health care providers.^[2,3,6] Using pharmacological agents in delirium management is beneficial when treating this acute situation but is not sufficient in preventing delirium. Additionally, medication can cause cardiac dysrhythmia, increase in drowsiness, and side effects such as stroke in dementia patients.^[10,11] NICE guidelines suggest the short-term use of pharmacological agents (for one week or less) on agitated patients carrying the risk of hurting themselves and others and for whom communication techniques are insufficient.^[2,12] Therefore, non-pharmacological interventions should be used to prevent and manage delirium. This review study aims to combine the non-pharmacological interventions, indicated for the prevention and improvement of delirium based on clinical studies and available guidelines, with the nursing care process and contribute to evidenced-based care.

Non-Pharmacological Approaches in Delirium Management

The management of delirium includes the prevention of delirium as a first step. Following the diagnoses of delirium, the next step is determination and elimination of the underlying causes, then treatment and prevention of delirium and the complications.^[2] Primary non-pharmacological interventions that can be initiated to prevent and manage delirium are as follows: re-orientation, decreasing environmental stimuli, early and frequent mobilization, providing hydration and sleep hygiene.^[2,13] A systematical review study stated that ad-

ministrating non-pharmacological methods decreased the risk and duration of delirium in intensive care units.^[14] Non-pharmacological interventions used in delirium management are examined below.

The scope of cognitive interventions includes providing the re-orientation of the patient and administering suitable cognitive stimuli. Colombo et al.^[15] administered cognitive stimulus protocol on patients in their study. This protocol includes addressing the patient by name and giving them information about the name of the hospital, current service and prognosis of the disease. The protocol also includes decreasing the noise and light levels during night, verbal and visual stimuli such as providing a clock and a newspaper at the bedside, and re-orientation. This prospective observational study found that the re-orientation is effective in preventing delirium and is an easily applicable intervention.^[15] Studies on cognitive interventions and delirium mostly included multiple non-pharmacological interventions^[16,17] and therefore, limited number of studies were available.

The scope of providing environmental characteristics includes lighting, noise management, using calendar and clocks, explaining the equipment (pictures, decoration, materials, alarms, paging system etc.) that are present in the patient environment.^[18] A study by Taguchi et al.^[19] stated that the radiant light therapy decreased the delirium development in patients receiving treatment in geriatric care units. A randomized controlled study which examined the effect of noise level on sleep quality and delirium development in patients in the intensive care unit found that the rate of delirium development decreased as the noise level decreased. The same study found that using ear plugs may decrease the delirium risk to 53%.^[20] Another study conducted with 272 elderly people in a nursing home reported that the severity of delirium might have been decreased by providing glasses, hearing aids, and personal belongings in their environment.^[21] Also, interven-

tions such as preventing malnutrition, minimizing physical restraints, covering catheters, providing sufficient lighting, minimizing the noise level, providing pain management, and monitoring the medication used in terms of delirium development are recommended.^[22,23]

Providing physiological support includes maintaining fluid-electrolyte balance, nutrition, body temperature, natural excretion type, oxygenation and blood sugar control, blood pressure regulation and infection control of the patient.^[24] Morita et al.^[25] stated that hydration and pain management decreased the incidence of delirium. Davies et al.^[26] reported that hydration was important for patients in the terminal period of cancer; however, there was no intergroup difference in terms of delirium. Similarly, the retrospective cohort study of Krishna et al.^[27] which was conducted with 238 patients stated that hydration maintained in the last 48 hours of life did not have an effect on delirium or survival. In parallel, previous studies on hydration reported the effect of hydration on delirium differs based on the characteristics of the patient population, severity of dehydration, and the timing and hydration methods (oral, enteral, parenteral). Therefore, providing sufficient hydration may have potential positive effects on the prevention of negative health outcomes including delirium as long as no contraindication is present.

Providing early mobility includes administration of programs starting from passive range of motion exercises in bed to independent walking based on the toleration level of the patient.^[2,18] A randomized controlled study by Schweickert et al.^[16] found that mobility significantly decreased the number of days the patient experienced delirium. A study by Needham et al.^[28] initiated physical therapy on patients based on their toleration levels and found this decreased the incidence of delirium from 53% to 21%. Balas et al.^[29] used the ABCDE bundle (ABC: Airway-Breathing Coordination, D: Delirium Monitoring and Management, E: Early Mobility) which included episodic sedation and delirium monitoring and early mobility which decreased the incidence of delirium approximately by half. A study conducted with patients aged 65 and older in intensive care units examined the effect of range of motions exercises on the prevention of delirium and found that the incidence of delirium decreased two and a half times more in the intervention group than the control group.^[30] As opposed to these studies, a study which examined the effect of an exercise program and re-orientation processes on patients and found that these interventions did not decrease the incidence of delirium.^[31] However, in this study delirium assessment was performed only once every 48 hours, therefore, the results are not reliable for this study. Studies in the literature show differing results regarding the effects of mobility on delirium. Therefore, more randomized controlled studies should be carried out to determine the effectiveness of content, duration, intensity and frequency of the mobility programs on the prevention of delirium.

In studies examining the non-pharmacological methods one by one, positive results regarding the prevention of delirium

can be seen. However, studies in the literature recommend that non-pharmacological interventions be used together.^[14,32] A study which used the established multi-component non-pharmacological interventions found that the duration of hospital stays of elderly patients in the internal medicine services decreased as well as the delirium percentage and antipsychotic drug use.^[33] A study conducted to prevent delirium after surgery found the delirium development rate as 4.9% in the intervention group on which multi-component non-pharmacological interventions were used by nurses while this rate was 20.8% in the control group.^[34] Whether one non-pharmacological intervention used to prevent delirium is more effective and valuable than another one is not proven according to results of the studies conducted.

The Nursing Process in Delirium Management

The delirium diagnosis and management require multi-dimensional nursing assessment. Using the nursing process steps in this context ensures a systematic approach in delirium assessment and establishing a mutual language.^[35] Below section defines the responsibilities of nurses regarding the non-pharmacological interventions aimed at delirium according to the NICE guidelines.

Data Collection Stage: Data collection stage can be divided into individual-related and environment-related data.

Individual-Related Data: Firstly, the patient's level of consciousness is assessed. Nurses should routinely make assessments regarding the level of consciousness of all patients receiving care.^[36] Although time orientation is distorted in mild delirium, place and time orientation can be retained.^[37] However, perception becomes distorted in almost all of the cases. The sleep/wake cycle and attention level of the patient becomes distorted and loss of short-term memory occurs. Pertinent information should be obtained from the family of the patient if they know the medical history and disease development of the patient. An oversight rate of 75% in the diagnosis of delirium might occur by not using a valid and reliable measurement tool during delirium screening.^[32] Therefore, nurses should consider the reliability of the data obtained from a patient with delirium when the patient's level of consciousness is low. Nurses should benefit from scales used for the screening of delirium. The commonly used scales in the literature are the Confusion Assessment Method for the Intensive Care Unit (CAM-ICU), the Delirium Rating Scale (DRS), the Neelon and Champagne Confusion Scale (NEECHAM), and the Intensive Care Delirium Screening Checklist (ICDSC).^[14] The Turkish validity and reliability studies of the CAM-ICU and the ICDSC were carried out and they were found suitable for use in Turkish society.^[38,39]

The psychomotor behaviors, affection and thinking processes of the patient will be better understood by maintaining a trusting relationship with the patient.^[37] The possibility of the patient becoming agitated during the delirium assessment

should be taken into consideration. Aggressive and agitated behaviors observed in patients with hyperactive delirium may cause safety issues for the patient and the nurse.^[36] Although physical restraints may be used with these behaviors, these physical restraints may increase the agitation and delirium of the patient. Conversely, hypoactive delirium which is also known as "silent delirium" is frequently overlooked.^[1] Therefore, nurses should intervene with patients having increasing symptoms such as carelessness and drowsiness in terms of delirium.

Changes in the vital signs might be associated with delirium. Assessment and notation of hypotension, hypoventilation, hypoxic states and heart rate and rhythm of the patient are critical. Occurrence of headaches, history of cerebral disease or disorders, other medical history including functional disorders of the heart, lungs, and kidneys, use of medications that may trigger delirium development, and toxic and infectious disease history should be noted.^[40] Additionally, patient's mobility level should be assessed both in and out of bed and while performing activities of daily living should be recorded.

Environment-Related Data: Environmental characteristics of the patients' surroundings or the intensive care environments should be assessed; some features may trigger the development of delirium development. Features of the environment such as temperature, lighting, noise level, day-and-night cycles etc. should be assessed and improved. Physiological assessment should also be performed. Data related to pain levels, sedation status, fluid and electrolyte balance and urinary system of the patient are documented.

Determining the Nursing Diagnoses: Nurses should establish a care plan from the data applicable to the patient using the North American Nursing Diagnosis Association- International (NANDA-I) nursing diagnoses.^[36,41] Nursing diagnoses of the patient in delirium might include changes in the thinking process, emotional-perceptive changes, distortion in interpreting the environment, distortions in the memory, distortions in verbal communication, disruption in regular sleep routine, aggression risk (towards themselves or others), anxiety, risk of trauma and risk of falling.

Planning and Intervention Stage: Physical, cognitive, environmental, and psychological interventions should be initiated for patients based on the nursing diagnoses and clinical guidelines. Nurses should aim to reduce the risk factors associated with delirium when creating the care plan. The needs of the patient and their family should be taken into consideration while establishing a care plan.^[41] In this stage, the interventions nurses make are categorized according to subtitles of the main title "Non-Pharmacological Approaches in Delirium Management".

• **Cognitive steps** are used to orient the patient. Patients should be oriented to person, place, and time each day.^[18] Patients should be in touch with their relatives and objects that are familiar and should be re-oriented every day. Moreover, a clock and a calendar should be located nearby for the patient

to easily see.^[2,18] Stimulus deprivation may increase hallucinations.^[36] Suitable therapeutic and cognitive stimuli should be provided for patient to connect with reality. However, these stimuli should not be too much or too confusing. Patients might feel frightened and defensive when delirium develops. Patients who cannot express their emotions and thoughts verbally can be overly anxious, uneasy and stressed.^[18,42] Therefore, nurses should try to gain their trusts. Discussing daily news and events with patients provides patient orientation and can prevent development of delirium.

• **Environmental interventions** include bright light therapy which was administered with cycles of bright and dim lights for patients who stay indoors without natural light which can reduce the development of delirium and sleep disorders. This therapy can regulate the circadian rhythm.^[19] Additionally, these studies recommend minimizing the noise level in the environment, maintaining sleep patterns and day/night routines, using a night light, placing a calendar and a clock where patients can easily see them, and providing the patient with their glasses or hearing aids. Bed rails should be raised to ensure patient safety. Patient's physical limitation should be minimized and tubes and catheters should be covered as much as possible.^[18,35]

• **Physiological support** includes a physical examination and closely monitored laboratory values as the primary treatment and is oriented at the underlying cause. Eliminating pain is an important measure recommended by relevant guidelines.^[29,32] Balanced nutrition, sufficient hydration, constipation prevention and fluid-electrolyte balance should be maintained.^[26,29] When the relationship between the number of medications used and the development of delirium was assessed, studies found that adding two or more medications to the treatment of the patient increased the delirium severity of the patient.^[21] Therefore, more than one medication should not be used in delirium management. Dehydration is a contributing factor and sufficient hydration may prevent development of delirium development.^[8] A clinical guideline established for delirium management in patients with cancer recommended fluid support be provided if dehydration is assessed to be a stimulus for the delirium episode or for patients in delirium with drowsiness.^[43]

• **Providing early and frequent mobility** can prevent delirium and is recommended by clinical guidelines.^[2,6,32] Nurses should assess the patient before any mobility exercise that requires teamwork.^[44] The medical team should evaluate the daily mobility session in the presence of exercise contradictions (deep vein thrombosis, serious cardiac ischemia, hematochezia etc.).^[22,45] Nurses should monitor the exercise tolerance of the patient during mobilization and should stop the session if a deterioration occurs in hemodynamic balance or respiration patterns. Wieser stated that exercise sessions should be performed for each patient at least 20 minutes a day.^[46]

Assessment Stage: In this stage, patients should be assessed as to whether the interventions with the patient eliminated

the problem.^[41] The mean recovery duration in delirium is one to two weeks; however, studies show that this duration is lengthened with elderly patients.^[40] The recovery time should be taken into consideration when assessing the success of the interventions. The problems of the patient in delirium is expected to be eliminated at the end of the nursing process. If the problem persists then the process is reinitiated, therefore, data is re-collected and a new care plan is established. Separate assessments should be performed based on all diagnoses in line with the determined objectives. Possible assessment results that are expected from patients are presented below since this compilation is a case study.

- Patient shows an improvement in orientation to person, place and time.
- Patient shows decreased agitated emotions and behaviors.
- Patient can properly express his/her thoughts and needs.
- Patient is provided with sufficient hydration, nutrition and mobility.
- Patient has a normal sleep cycle.
- Patient can perform activities of daily living by themselves.

Conclusion

Delirium is a significant syndrome that is commonly seen in elderly patients and patients in the intensive care units. It has effects which continue after discharge and increases morbidity and mortality. Nurses provide care for patients 24/7 and have a vital role in the early diagnosis of delirium. This compilation study aimed to emphasize the main non-pharmacological approaches and responsibilities of nurses regarding the prevention and the management of delirium based on current information. Re-orientation, appropriate lighting and noise levels, early mobility, providing fluid and nutrition support are some of the non-pharmacological interventions. The frequency and the duration of delirium may be decreased by initiating these interventions. However, sufficient evidence-based information related to these interventions is not available. Therefore, more studies about the causes, clinical indicators, and the effectiveness of non-pharmacological approaches of delirium should be carried out.

Conflict of interest: There are no relevant conflicts of interest to disclose.

Peer-review: Externally peer-reviewed.

Authorship contributions: Concept – C.K., L.Ö.; Design – C.K., L.Ö.; Supervision – L.Ö.; Fundings – C.K., L.Ö.; Materials – C.K., L.Ö.; Data collection &/or processing – C.K., L.Ö.; Analysis and/or interpretation – C.K., L.Ö.; Literature search – C.K.; Writing – C.K., L.Ö.; Critical review – C.K., L.Ö.

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