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# Nursing and patients with delirium: a literature review

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## Nursing and patients with delirium: a literature review

**Objective.** This work sought to analyze the scientific production regarding delirium in patients in Intensive Care Units (ICU).

**Synthesis.** Delirium (cognitive alteration) occurs in acute and fluctuating manner in patients in ICU. It is a risk factor for mortality and prolonged stay in ICU. Its diagnosis is derived from an objective assessment with widely disseminated validated instruments, available in Spanish and other languages. Strategies to prevent delirium in ICU are documented. **Conclusion.** Implementation of these strategies to prevent, monitor, and control delirium in patients hospitalized in ICU must be a priority of nursing research in our setting.

**Key words:** central nervous system diseases; intensive care units; nursing care; review.

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## Enfermería y pacientes con delirium: Una revisión de la literatura

**Objetivo.** Analizar la producción científica acerca del delirium en los pacientes en Unidad de Cuidados Intensivos (UCI). **Síntesis.** El delirium (alteración cognitiva) se presenta de manera aguda y fluctuante en los pacientes en UCI. Es un factor de riesgo de mortalidad y estancia prolongada en la UCI. Su diagnóstico se deriva de una evaluación objetiva con instrumentos validados de amplia difusión, disponibles en español y otros idiomas. Se documentan estrategias para la prevención del delirium en la UCI. **Conclusión.** La implementación de estas estrategias para la prevención, monitoreo y control del delirium en los pacientes internados en UCI deben ser una prioridad de la investigación de enfermería en nuestro medio.

**Palabras clave:** enfermedades del sistema nervioso central; unidades de cuidados intensivos; atención de enfermería; revisión.

## Enfermagem e pacientes com delirium: Uma revisão da literatura

**Objetivo.** Analisar a produção científica a respeito do delirium nos pacientes em unidade de cuidado intensivo (UCI). **Síntese.** O delirium é a alteração cognitiva que se apresenta de maneira aguda e flutuante nos pacientes em UCI. É um fator de risco de mortalidade e estadia prolongada na UCI. Seu diagnóstico se deriva de uma avaliação objetiva com instrumentos validados de ampla difusão, disponíveis em espanhol e outros idiomas. Documentam-se estratégias para a prevenção do delirium na UCI. **Conclusão.** A implementação destas estratégias para a prevenção, monitoração e controle do delirium nos pacientes internados em UCI devem ser uma prioridade da investigação de enfermagem no nosso meio.

**Palavras chave:** doenças do sistema nervoso central; unidades de terapia intensiva; cuidados de enfermagem; revisão.

## Introduction

Delirium has been the most frequent manifestation of dysfunction of the central nervous system, cognitive area, in patients in critical state. It is defined as an acute variation in mental state with a fluctuating course, characterized by lack of attention and disorganized thought.<sup>1</sup> In patients admitted to Intensive Care Unit (ICU), delirium is an independent predictor of mortality in patients under mechanical ventilation.<sup>2-4</sup>

Often, during timely diagnosis in adult ICU, healthcare professionals overlook delirium, that is, it is not recognized or identified early within a range of 66 to 84% of the patients in ICU, in hospitalization wards or emergency services. It is only clinically evidenced when the manifestations are intense, due to agitation (hyperactive delirium) or due to depression (hypoactive delirium), added to the underlying severe and critical illness.<sup>5</sup> The purpose of this article was to review in the scientific literature the aspects related to the concept of delirium, the typology, predisposing and precipitating factors that serve as guide for nursing care in ICU.

ii) having been published in Spanish or English between 2000 and 2011, iii) being available in complete text, iv) and being original articles, as well as v) studies with patients hospitalized in adult ICU with or without mechanical ventilation. The descriptors used for the search were the following key words: delirium and intensive care. The exclusion criteria included articles where it was only possible to consult the abstract, as well as those in which the study population was in hospital areas different from ICU.

Of the 180 articles initially selected, 23 were excluded because they were only abstracts; 15 were in a language other than Spanish or English; in 42, the population was comprised by elderly adults in geriatric homes; 12, by children; and in 41, with hospitalization at home. Consequently, only 47 articles complied with the inclusion criteria. Those selected corresponded to the qualitative and quantitative methodology, authors from different disciplines, and some with clinical diagnosis and management characteristics.

## Methodology

This study conducted a critical and analytical review of the articles that complied with the following inclusion criteria: i) being indexed in EBSCO, SCIELO, MEDLINE, or CINAHL data bases,

## Results

### Concept and types of delirium

Delirium is an acute variation in mental state with fluctuating course, characterized by cognitive

failure related to lack of attention, orientation, and disorganized thought, described throughout ancient history in medical articles.<sup>6</sup> Delirium is derived from the Latin verb *delirare*, which means being insane, impaired, or dim-witted. The meaning is, literally, being outside, disconnected, in low spirits, or depressed. *DELILARE* evokes images of insanity without any discernible or organized plan or purpose.<sup>7</sup> Delirium, according to the psychomotor symptoms, is classified into three types: hyperactive,<sup>8</sup> hypoactive,<sup>9</sup> and mixed.<sup>10</sup>

One of the ways of reducing the risk of patients interned in ICU is, precisely, the early detection of delirium, as well as its due treatment, resulting in benefits for them.<sup>11,12</sup> Another way of evaluating the risk factors associated to delirium in ICU is that introduced by Inouye<sup>13</sup> who developed a prediction model. This author divided the factors into two categories: a) *predisposing*: age above 70 years, history of depression, dementia, epilepsy, prior cerebrovascular disease, treatment with psychoactive substances, alcoholism, and hypo or hypernatremia. Among the medical history antecedents that mark the relation, there are hypertension, alcoholism, history of smoking, and abnormal levels of bilirubin;<sup>14</sup> and b) *precipitating*: which are secondary to the patient's illness and occur during the stay in ICU. These include the severity of the illness, metabolic disturbances, acidosis, and hypotension; in turn, the environmental factor in ICU, use of epidural anesthesia and morphine are significantly associated to the presence of delirium,<sup>15</sup> infection,<sup>16</sup> hypoxemia, and anemia.<sup>17</sup> The risk factors are associated to various factors, among others: structural alterations (neurological), physiological alterations (effects of drugs, electrolytes), metabolic and environmental alterations (immobilization, catheters, noise) present in ICU.

Another element associated to delirium is its induction through medications that can precipitate its presence unlike the patient's age or chronic cognitive impairment. Among those, sedation agents and the opiates present an important subgroup of medications known to induce delirium.<sup>18</sup> Hence, and according to

the aforementioned, the group of sedatives used in intensive care is one of the most important precipitating factors for the presence of delirium. Sedation has been traditionally used to inhibit the respiratory center, accomplish adaptation to the ventilator, relieve and diminish pain and anxiety;<sup>19</sup> in turn, to improve general comfort by maintaining the position and increasing tolerance to the artificial airway, facilitating sleep, and executing procedures. However, Chávez<sup>20</sup> recommends that, during disconnection from mechanical ventilation, patients should be without sedation or relaxation. Nevertheless, when mechanical ventilation is prolonged over several days or patients are agitated, anxious, or display abstinence syndrome on removal, it is recommended to maintain a minimum level of sedation and be guided by protocols that permit patients conditions of comfort.

Sedation seeks to produce amnesia in mechanically ventilated patients, ensuring for them a certain degree of comfort; besides permitting the decrease of the discomfort that can be generated by the hospitalization. However, complete amnesia for extended periods of time during mechanical ventilation in ICU suggests that it can be detrimental for long-term neuro-psychic recovery of the critical illness before and after discharge.<sup>1,18,21-23</sup> Using continuous sedation in patients hospitalized in ICU interferes in their neurological evaluation; besides, it produces respiratory depression and alterations at cardiovascular level and hinders disconnecting the ventilator, which is why it is necessary to increase the days of hospitalization, given that it interacts with other drugs that can maximize its adverse effects.

Some clinical studies have been conducted to investigate the effects of sedation on continuous infusion, as well as determine the effects on interrupted infusions. Schweickert *et al.*,<sup>24</sup> described the association of the decrease in days when using the ventilator with reduced risk of nosocomial infection, which was – in turn – related to a lower number of days in ICU and lower presence of cognitive alterations. The previously discussed reasons led some authors like Hogarth and Hall<sup>25</sup> to recommend daily interruption of

sedation in mechanically ventilated patients to, thus, reduce to minimum the complications caused by its use. For Strom *et al.*,<sup>26</sup> implementing a non-sedation protocol on mechanical ventilation produced better results in patients who needed less days with ventilation than those who received interrupted sedation.

Another aspect playing an important role in the presence of delirium is the environmental factor in ICU. Although it is a place created to potentially save lives, it can cause discomfort, even displeasure, to patients, which is why it tends to become a precipitating factor for delirium to occur, given the noise of the monitors and sleep deprivation. Some authors have documented the experiences of patients under mechanical ventilation in ICU; an experience they find frightening and unpleasant.<sup>27</sup> In the study by Van de Leur,<sup>28</sup> 54% of the patients discharged from ICU recall having felt discomfort during the stay, especially, in the presence of the endotracheal tube, aspiration of secretions, and the presence of nightmares.

Other stressful factors identified have been, among others, the absence of close family members, limitations in visiting hours, difficulty sleeping, being awakened by the nurses, and having their hands tied during some moment of hospitalization.<sup>29-31</sup> Likewise, sleep deprivation is also one of the factors present in the experience, bringing serious consequences to the patient subjected to mechanical ventilation, prolonging the period for ventilator disconnection. The most important causes for sleep alteration include noise, environmental luminosity, and the need to apply nursing care procedures that are often carried out at night.<sup>32</sup> According to Van Erik and Slooter,<sup>33</sup> the setting in ICU can play a role in the development of delirium, given that patients are in a room without points of orientation, which is illuminated 24 hours a day.

## Diagnosis of delirium

The American Psychiatric Association (APA) in the Diagnostic and Statistical Manual of Mental Disorders, fourth revision (DSM-IV), includes

four essential diagnosis criteria to diagnose delirium:<sup>19</sup> a) disturbance of consciousness with reduced ability to focus, sustain, or shift attention; b) change in cognition (like memory deficit, disorientation, or altered language) or the development of a perceptual disturbance that is not better accounted for by a preexisting, established or evolving dementia; c) The disturbance develops over a short period of time (usually hours to days) and tends to fluctuate during the course of the day; and d) there is evidence from the history, physical examination or laboratory findings that the disturbance is caused by a general medical condition, the use of some drug or intoxication, syndrome of abstinence, or more than one of the preceding etiologies. Although different scales are available to evaluate the risk of delirium in ICU, like the Confusion Assessment Method for the ICU (CAM-ICU), Nursing Delirium Screening Scale (N-DESC), and Delirium Detection Score (DDS), only the first has been validated.<sup>33</sup>

The CAM-ICU was developed to detect delirium in patients with mechanical respiratory help. It uses nonverbal tasks, like image recognition, task monitoring, logical questions of simple answers (yes or no) and simple orders. To score this scale, the four key criteria of delirium are used: 1) acutely changed mental state, 2) lack of attention, 3) disorganized thought, and 4) altered level of consciousness. Consequently, delirium exists if criteria 1, 2 and 3 or 4 are present.<sup>34</sup> In fact, the CAM-ICU is one of the most-explored tools in investigations in ICUs, reporting high sensitivity and specificity in evaluating delirium.<sup>35,36</sup> Currently, there is the cultural adaptation and validation in Spanish of the scale for Colombia.<sup>37,38</sup> The use of tools for its detection by the healthcare staff should be routine in these services.<sup>39</sup>

## Differential diagnosis of delirium

Frequently, this is identified in patients as a prodrome of one or two days of irritability, restlessness, sleep disorders (insomnia or daytime drowsiness) or difficulties in the sphere of thought, which precede its full development. Generally, delirium develops in the elderly who have mental

and psychological changes determined by aging, added to situations of stress, like hospitalization, seriously deteriorated state of health, and poly medication, which in turn increases the risk of adverse reactions to medications, pharmacological interactions, and systematic and cerebral toxicity.<sup>40</sup> Various symptoms of delirium are also produced in other psychiatric disorders and, of course, these psychiatric disorders can coexist in the same patient. The main differential diagnoses are dementia and depression, although other primary psychiatric disorders, like schizophrenia, should also be considered.<sup>41</sup>

### **Delirium is different from dementia**

Dementia is its principal risk factor; hence, it has been estimated that two thirds of the cases of delirium occur in individuals with dementia, for whom it can be the first manifestation. Bearing in mind the DSM-IV criteria, if a person without antecedents of dementia presents an acute or sub-acute clinical picture that fulfills the criteria of delirium diagnosis, this last diagnosis should be adopted and not that of dementia. Although memory is altered in both conditions, in early dementia episodic memory is most often affected, while in delirium working memory is deteriorated more with variations among tests; additionally, memorization capacity and learning are impaired as a consequence of the marked dysfunction in attention and sensory matters, to the point of hindering communication and its evaluation by the healthcare staff.

### **Delirium is not depression**

Individuals with delirium often show psychological symptoms that simulate depression. Differentiating it from depression is important because; besides, the risk of delaying treatment of any of the two conditions, many antidepressants have marked cerebral anticholinergic activity, which is why they can, eventually, aggravate delirium.<sup>42</sup>

The most frequent cognitive disorders in depressive states are attention, working memory disorders, and rate of psychomotor performance.

Characteristically, there is reservation in language, spatial abilities, and perception, although these may appear altered due to failures in attention, organization, and demotivation of affective origin. A good history of the patient's cognitive state months prior to admission to ICU is more useful to differentiate between the two. Often, patients display characteristics of an acute confusional syndrome prior to admission to ICU. Because delirium can be the first sign of critical illness, it frequently occurs before systemic hypotension or of another type of evident metabolic failure. Due to this, it is important to differentiate between cognitive impairment and the acute onset of any alteration. Patients with dementia do not show signs of lack of attention and will do everything possible to answer questions and keep visual contact with the interlocutor; they are alert and do not show signs of altered conscience. Also, their discourse is coherent and, generally, do not suffer hallucinations, which can occur during delirium. Preexisting cognitive impairment is a significant risk factor for the development of this last. Patients with hypoactive delirium are more often diagnosed as depressed. This situation occurs with equal or greater frequency than hyperactive delirium, whose manifestations can be overlooked if no high degree of clinical suspicion exists and no detection tool like CAM-ICU is used.<sup>43</sup> Precise information on the date of onset of the symptoms can also be useful. Hallucinations and delirium can make the diagnosis of schizophrenia a consideration. Schizophrenic patients do not have altered levels of conscience or cognitive impairment. Also, they tend to suffer aural hallucinations rather than visual hallucinations that characterize delirium.<sup>43</sup>

### **Treatment of delirium**

The key point to managing patients with delirium is the specific treatment of the underlying process or the process considered responsible, which includes correcting metabolic and systemic alterations, eliminating drug toxicity, and treating drug-induced sleep deprivation. Borne<sup>7</sup> proposes that adequate treatment should focus on identifying the precipitation of each of the risk factors for delirium and treatment with



antipsychotic substances. However, Skrobik and Bergeron<sup>44</sup> stated that clinical management and pharmacological treatment of delirium are yet unexplored; recommendations published for its treatment in ICU are empirical, although administration of antipsychotic substances is widely accepted.

### **Nursing care in prevention of delirium**

Its prevention starts through evaluation of cognitive processes by the ICU nurse. Nurses should observe patients who present important changes in mental state or behavior. Besides, it is indispensable to evaluate every six hours if the patient is oriented in person, time, and place. According to Marshall and Soucy,<sup>45</sup> nurses should bear in mind the following non-pharmacological interventions:

- Explain to the patient and the family about the procedure carried out to detect delirium and the results expected.
- Report to the family about delirium: when it occurs it is a temporary condition, which tends to repeat; nonetheless, the person will improve after treatment.
- Offer patients tranquility through permanent communication on their state of health.
- Identify the level of anxiety.
- Inasmuch as possible, diminish noise levels, and ensure the conditions that permit helping patients get good sleep and rest.
- Diminish light intensity and try to speak softly.
- Run laboratory exams to evaluate tissue oxygenation, levels of electrolytes, monitor physical parameters, and monitor nutritional intake.
- Ensure adequate hydration and pain management.
- Once delirium has been identified, keep the patient safe; avoid using physical restraints, except as a last resort.
- Administer medications ordered.
- Likewise, Truman and Wesley<sup>46</sup> posed some interventions that nurses should keep in mind for its prevention:

- Evaluate the patient's orientation at least once per shift.
- Provide cognitive stimulation several times per day through activities.
- Have available a protocol for timely removal of catheters and probes and for pain management.
- Evaluate which patients wear prescription glasses and hearing aids so these can be provided.
- As already mentioned, delirium is a common clinical event in patients under mechanical ventilation in ICU, hence, nurses must be aware of this risk factor, given that it increases the days of duration of the mechanical ventilation, thus, impacting upon the hospital stay and cost.<sup>47</sup>

In preventing delirium, it is also important to offer individualized nursing care in which services are provided that consider personal aspects of patients, characteristics of their clinical status, their personal life situation, and their preferences in promoting their participation in the decision making.<sup>48</sup> For nursing care to be classified as individualized care, nurses should adjust their interventions for each patient in which they can express their individuality during the nurse-patient interaction.<sup>49</sup> Individualized care recognizes the person's singularity and the importance of providing care designed to satisfy the needs of each of them.<sup>50</sup>

From the nursing practice, using the CAM-ICU instrument permits the patient's cognitive evaluation from admission until discharge from ICU, identifying risk factors for the presence of delirium. Early detection through its diligent monitoring during each of the nursing shifts or when the patient shows some type of motor activity, permit timely treatment; likewise, it is important in anamnesis to detect risk factors that indicate the presence of delirium during hospitalization in this service. It is also necessary to evaluate those factors that cause stress in patients and that can be modified by the nursing personnel, like decreasing limitations on

family visits,<sup>51</sup> improving the quality of sleep, reducing the time the patients remain with their hands restrained during hospitalization,<sup>52</sup> controlling environmental noise and luminosity, and decreasing the frequency of application of nursing care offers during the night.<sup>53</sup> To achieve the aforementioned, it is necessary to carry out continuous education activities with the nursing staff, as well as interventions on the environmental risk factors present in ICU.

To conclude, the implementation of strategies to prevent, monitor, and control delirium in patients interned in ICU must be a priority of nursing research in our setting.

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