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Delirium In The Elderly Hospitalized: A Literature Review.

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ABSTRACT

Delirium is a condition described for over 2500 years, characterized as a disorder of attention and cognition, floating and acute character. Is a pathology of high prevalence in the elderly and difficult to diagnose. It happens due to the small need of precipitating factors to trigger delirium in the elderly when compared to a young adult. The risk factors to develop delirium are the modifiable factors, non-modifiable and persistence-related. Modifiable Factors include drugs, surgical procedures, and anesthesia, severe pain, anemia, and infections. Modifiable Factors include drugs, surgical procedures, and anesthesia, severe pain, anemia, and infections. Old age, dementia (not recognized clinically), functional disability and associated Comorbidities are common no modifiable factors. Male, visual and auditory impairment, depressive symptoms, cognitive impairment mild, alcohol abuse and laboratory abnormalities are factors associated with persistence of *delirium*. The prevention of *delirium* is possible by pharmacological means. Pharmacological treatment is not well defined, but some studies point to the benefit of the use of atypical antipsychotics always associated with non-pharmacological measures. The present study is a review of the literature on the subject, to demonstrate new advances in prevention, diagnosis, and treatment of this pathology of high prevalence among elderly inmates in hospitals.

Keywords: delirium, nervous system diseases, neurologic disorder, elderly, hospital.

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INTRODUCTION

The *delirium* corresponds to one of the first mental illness described in medical literature for more than 2500 years [1]. Remained as pathology in nosological category independent until mid-1890, when emphasized the disorganization of the cognitive processes and thought, having the basis of temporo-spatial disorientation and in reducing attention [2-4]. Delirium is a state of acute confusion, altered mental status, and toxic metabolites encephalopathy [5, 6]. According to the DSM Manual V (Diagnostic and Statistical Manual of Mental Disorders), is an "*organic brain syndrome," without specific etiology, characterized by a disturbance of consciousness and cognition that develops in a short space of time*."

This study was necessary due to the high rates of incidence and prevalence in elderly patients, especially those hospitalized, in addition to being a misdiagnosed condition and associated with significant morbidity and mortality [5].

METHODS

This work consists of a literature review in the databases PubMed, Scielo, Scopus and Web of Science. Data was collected on case reports, cohort studies and literary reviews, using the keywords "*delirium, nervous system diseases, neurologic disorder, elderly, hospital*". The method used the following guiding question: "*what are the main results and scientific evidence identified in national and international bibliographic production, over the last years, concerning the diagnosis and therapeutic management of Delirium in the elderly hospitalized*?". During an initial survey, we identified 178 articles, which were evaluated by all the authors, according to the following inclusion criteria: articles published in Portuguese, English or Spanish that presented combinations of the selected keywords in the title or abstract, published between January 1998 and June 2018. After this initial selection, all the abstracts were read and repeated articles from different databases and those that did not cover the theme proposed were excluded. Although articles were selected based on effective updates in treatment, therapeutic failure was not used as a criterion for exclusion. The particularities of the disease presentation in each case were considered, according to the methodology of each study. The final material featured 37 scientific articles.

Risk factors

The risk factors are non-modifiable and modifiable. Among the non-modifiable, are old age (> 70 years), pre-existing dementia and the presence of comorbidities. A recent cross-sectional study examined hospitalized patients with delirium, 21.2% of them were in general medical wards, 24.7% in geriatric wards, 20.6% in orthopedic wards and 14% in rehabilitation beds [2]. This happens due to the small need of precipitating factors to trigger delirium in the elderly when compared to an adult younger [3]. Due to the potential for intervention, the modifiable risk factors have greater clinical significance, particularly in those patients with a higher predisposition to delirium. These factors include drugs (hypnotic sedative, anticholinergics, tricyclic antidepressants), surgery, anesthesia procedures, severe pain, anemia, infections, acute diseases or exacerbations of chronic medical conditions and hospitalization in intensive care units [3, 7-10]. The typical environment of an Intensive Care Unit (ICU) represents a risk factor because of the absence of natural light, the lack of clocks, change of patterns of sleep and wakefulness, and for keeping the patient away from family. Tsuruta et al. demonstrated that mechanical ventilation, the value of C-reactive protein (CRP) and the time of hospitalization are independent factors for the development of delirium [11].

Other factors are those related to the persistence of delirium, which includes the unmodified risk factors and the severity of *delirium*. Besides male sex are related to delirium hearing loss and reduction in visual acuity, sleep deprivation, depressive symptoms, and changes in laboratory tests, alcohol abuse, and physical restraint. The latter may be related to both the severity of *delirium* as regards your etiology and it´s considered a predisposing factor [12, 13].

Although identified all of these risk factors, the mechanism underlying the *delirium* is not fully clarified. This knowledge would contribute substantially to the critical patient care, through prevention and specific treatment interventions.

Epidemiology

Delirium affects a third of patients with more than 70 years undergoing hospitalization. Half of these patients have delirium in the hospital, and the other half develops in the course of admission [14]. Occurs in 15 to 53% of elderly patients who undergo surgical procedures and in 70-87% of those who are admitted to intensive care units [15]. Is the surgical complication more common in the elderly and may affect up to 50% of patients undergoing high-risk procedures, such as cardiac surgery or correction of fractures, and in 15-25% of those patients undergoing elective procedures [16]. Has essential implications for patients under palliative care, and may occur in up to 85% of them [7].

Among the general population, the prevalence of *delirium* in the hospital environment is 14-24 percent of patients admitted, and your incidence during the hospitalization varies around 6 to 56% [17, 18]. The mortality of patients with *delirium* during hospitalization ranges from 22-76%, proving as necessary as that of patients with acute myocardial infarction or sepsis [19]. The 1-year mortality for those patients varies between 35-40% [12].

Clinical Manifestations

The *delirium* manifests as an acute ability to change focus, hold, divert or direct the attention associated with changes in other cognitive domains, such as loss of memory, language and perception disorders, which tend to float to them during the day, the clinical picture is variable for each patient as well as the volatility of the demonstrations. Can be classified into delirium hyperactive, hypoactive or mixed, according to the psychomotor manifestations [20].

In the framework, hyperactive is agitated, aggressive, hyper alert, with incoherent speech, repeated behavior, hallucinations (mainly visual, but also AIDS), emotional lability and changing the sleep-wake cycle [6]. This form has 20-30% prevalence of *delirium* and is usually associated with the adverse effects of drugs, abuse or abstinence from substances. The worsening of the clinical picture occurs by use of benzodiazepines and physical restraint. In these cases, the prognosis is better [9, 10].

In the form of underactive thyroid, patients are apathetic, lethargic, sleepy and bradykinetic, making it difficult to identify them as delirium, resulting in a more extended hospitalization period and excessive follow-up examinations, in addition to being associated with misdiagnosis of dementia or depressive disorders [13]. In 20-30% of patients, most frequently affecting the elderly. Has a worse prognosis and is associated with high rates of morbidity and mortality, with worsening functional and risk of complications. Is generally related to metabolic disorders and electrolytic or infections [8, 20].

The delirium mixed is the most common form, affecting 40-60% of patients with clinical manifestations of interspersed hypervigilance with periods of drowsiness or dullness [20].

Diagnosis

Diagnostic criteria for delirium are multidimensional and vary according to the source. According to the diagnostic and statistical manual of the American Psychiatric Association in its 5th Edition (DSM-5), four criteria are needed to characterize the confusing State as Delirium [19]:

- The presence of alterations in attention (reduced ability to focus, keep, deflect or divert attention) and guidance for the environment;
- Acute onset (hours to days) of the disturbance, with a tendency to fluctuate during the day, without association with other neurocognitive condition;
- Association with changes in other cognitive domains (language, memory, perception), unrelated to previous neurocognitive diseases;
- Changes reported in items I-III should not occur in a context of severe downgrading of the level of consciousness (Glasgow Coma Scale = 4).

Some professionals are based on the *Confusion Assessment Method* (CAM) [20, 21], establishing the diagnosis of *delirium* from the presence of four characteristics: (1) acute change in mental state with floating course; (2) inattention; (3) a victim of disorganized thinking and (4) alteration of consciousness level [22]. This method is used for the detection and monitoring of the evolution of the *delirium*, featuring 94% sensitivity and specificity greater than 90%. However, it is recommended if adequate training before your routine application [12].

No additional examination to provide a definitive diagnosis of *delirium*, so conducting other diagnostic tests to assist in the identification of precipitating factors individually according to the clinical picture of the patient [19]. Must be carried out detailed history, to associate the clinical manifestations with other symptoms, with changes in medication, alcohol consumption, and ingestion of drugs not prescribed or dietary supplements. The assessment should include vital signs and physical examination, including neurological evaluation, to identify signs of intracranial causes, as a cerebrovascular accident. Laboratory tests and imaging are relevant to the clinical suspicion [7, 16, 23]. Generally, are requested complete blood count, electrolytes, kidney and liver function, contents of urine with urine culture, electrocardiogram and chest x-ray.

Differential diagnosis

The differential diagnosis includes situations related to confusion, mental status change, and most frequently dementia, depression and psychotic changes not organic.

Some clinical conditions to be considered as differential diagnosis include focal syndromes (Wernicke's aphasia, Anton's syndrome, frontal lobe lesions) [24], non-convulsive *status epilepticus*, Lewy´s dementia, primary psychiatric conditions (bipolar disorder, manic syndromes, depression, psychotic syndrome) [25], *the windshield of my van* phenomenon (agitated behavior by nightfall associated with Alzheimer's disease), among other pathologies [26].

In most cases, the clinical history is weak and thus painful to establish the diagnosis. Therefore, due to the high prevalence and incidence in the elderly, we should assume and handle the case as being of *delirium*, performing the search of reversible causes until some additional information can be obtained from [13, 25].

Prognosis

The *delirium* causes an undesirable impact on the health of the elderly. These patients tend to have a more extended hospitalization, greater functional and cognitive decline, high mortality and a higher risk of new admissions, even with regular treatment of their pre-existing dementia or comorbidities [27].

The signs of *delirium* can persist for 12 months or more, especially in those who present prior dementia, and may even increase the cognitive deficit in up to two times in the five years period compared to patients with the same degree of cognitive impairment before the hospitalization [28, 29].

The mortality of patients with delirium on hospitalization to be 14-22% in the first six months, mainly when associated with pre-existing dementia or severe medical conditions such as sepsis. However, when it assesses other factors of confusion, *delirium* is an independent risk factor for increased mortality in 6-12 months after hospitalization [30].

Treatment and Prevention

Non-pharmacological therapy

Primary prevention is the best strategy because it reduces by up to 40% the risk of *delirium* in the elderly hospitalized [31]. Reduce immobility, avoid psychotropic drugs, deploy protocol of sleep, sensory deficit, dehydration, commitment and multidisciplinary team and family education are some of the measures to be adopted. It is essential to pay attention to the modifiable risk factors, among them; the control of the environment seems to be the most important: the beds should be exposed to sunlight during the day, and the wards should be calmer and dark at night; use of clocks and calendars must be established [31-33].

In the presence of *delirium*, you can make use of reorientation and behavioral intervention strategies, to allow the presence of family members as escorts; guidance to the patient concerning time and space; patient transfer to a private room, calmer or more near the nursing staff for better supervision and support. Personal contact and communication are fundamental, using simple verbal instructions, guidelines and eye contact. Use of accessories for hearing and vision must be encouraged [31]. Stimulate mobility and ambulation, self-care and independence for activities are essential, besides preventing physical constraint, as restraint in bed, since worsening unrest and is a potential cause of trauma [32].

It is essential to use these measures, associated or not with pharmacological treatment.

Pharmacological therapy

As far as pharmacological medication most widely used in recent years for the treatment of delirium is haloperidol, the first-generation antipsychotic. However, the *Clinical Practice Guidelines for the Management of Pain*, Agitation and Delirium in Adult Patients in the Intensive Care Unit (2013) describes that there is no published scientific evidence that haloperidol reduces the duration of *delirium* in adult patients admitted to the intensive care unit [33-36].

Several papers seek to clarify the role of atypical antipsychotics in the treatment of *delirium*, many of them summarized in a meta-analysis of the 2009 Cochrane Library [33], having failed to compare only risperidone versus haloperidol and olanzapine versus haloperidol. The results showed no clinically significant differences in the effect on the *delirium* or concerning its adverse effects, however, managed to prove the benefit of atypical antipsychotics on placebo [34, 35].

According to a randomized trial published in 2017, the addition of lorazepam to haloperidol, compared to haloperidol alone resulted in a significantly higher reduction of unrest in 8 hours, in addition to increasing the comfort in patients with advanced cancer under hospice care. Of 90 patients randomized, 58 were given the medication under study, and 52 (90%) completed the protocol. There was a significant reduction in the RASS score in 8 hours (-4.1 points) of patients receiving lorazepam association plus haloperidol compared to those receiving placebo plus haloperidol (-2.3 points). Participated in the study nurses and caregivers, double-blind study, you get more comfortable in the Group of patients that received the Association. Was not perceived a difference in outcome related to mortality. The most common adverse effect was the hypokinesia, observed in 19% of patients receiving the association against 27% of patients receiving placebo + haloperidol. The study concluded that the association of lorazepam + haloperidol was more effective in controlling unrest, but acknowledged the need for further studies to evaluate the adverse effects [36].

Then concluded that, while there is a medicine officially indicated for the treatment of *delirium*, the most experienced suggest the use of haloperidol (oral or intravenous) as the drug of choice. The recommended starting dose is 5mg orally or intravenously twice/day. Other antipsychotics such as risperidone at a dose of 0.5 mg by mouth twice per day may also be used [37].

In addition to the specific treatment for *delirium*, must be treated other conditions that contribute or willingness for confusion. Among these, the following cardiac failure, hypoxia, hypercapnia, thyroid disease, anemia, nutritional disorders, infections, kidney failure, liver failure, and psychiatric conditions such as depression. The correction of these abnormalities improves brain function.

CONCLUSION

Often, the *delirium* is the only or primary atypical manifestation of potentially dangerous physical ailments, especially in frail older people. Often still neglect, which affects the prognosis. The identification of modifiable risk factors is essential for surveillance of the disease. Preventive measures related to modifiable risk factors reduces incidence by up to 40% of the frame. These are critical care in intensive care units.

The multidisciplinary team has a vital role in the prevention of delirium, actively, trying to identify and assess neurological conditions, to establish the treatment quickly and efficiently, since in the pharmacological

measures must be prioritized. Antipsychotic agents are intended for refractory frames and haloperidol remains the drug of choice.

The importance of prevention, identification and early diagnosis have a long-term impact because it is seen that the *delirium* has an independent role in increased morbidity and mortality. Besides, it becomes less expensive economically, because it depends on attitudes of easy implementation and low cost, which may influence certain the incidence of *delirium* and the prognosis of the patient.

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