



Editorial

## Delirium in the Elderly Patients-How can we Improve Outcomes?

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### Introduction

The Diagnostic and Statistical Manual of Mental Disorders 5 (DSM-5) describes delirium as a condition characterized by a disturbance in attention (i.e., reduced ability to direct, focus, sustain and shift attention) and awareness (reduced orientation to the environment)<sup>[1]</sup>. In addition, there is a change in cognition (such as memory deficit, disorientation, language disturbance, visuospatial ability or perception). Furthermore, these disturbances are not better accounted for by a preexisting, established or evolving neurocognitive disorder and occur due to the direct physiological consequences of another medical condition, substance intoxication or withdrawal.

Delirium is a common neuropsychiatric disorder in the elderly. The incidence of delirium varies between 11% and 42% during hospital admissions to around 70% to 87% in individuals admitted to intensive care units (ICUs)<sup>[2,3]</sup>. Postoperative delirium occurs in approximately 15% to 62% of the elderly. It is estimated that over a third of all the individuals aged  $\geq 65$  years who require hospitalization in the United States experience complications from delirium each year<sup>[4]</sup>.

Evidence indicates that delirium results in worse patient-outcomes independent of all other factors<sup>[5]</sup>. Delirium leads to greater nursing time per patient, higher per-day hospital costs and a longer length of hospital stay<sup>[3,6]</sup>. Additionally, delirium increases the risk dementia, hospitalization, institutionalization and death<sup>[7]</sup>. Furthermore, the average hospital cost per day for individuals with delirium is 2.5 times greater than the cost for individuals without delirium<sup>[5]</sup>. In the United States alone, the total healthcare cost due to delirium range from \$38 billion to \$152 billion each year.

Delirium occurs in the elderly due to the interaction between various predisposing and precipitating factors<sup>[2,3]</sup>. The commonest predisposing factors for delirium are older age and

an underlying cognitive impairment. Impairment in vision, severe comorbid illness and renal dysfunction are additional predisposing factors<sup>[8]</sup>. Precipitating factors include the use of physical restraints, malnutrition, more than three medications added to the treatment regimen, the use of bladder catheters and any iatrogenic event<sup>[9]</sup>.

It is estimated that almost a third of the cases of delirium in the elderly go undiagnosed<sup>[6]</sup>. Reasons for this under-diagnosis include an ageist attitude towards the elderly, lack of awareness of the clinical features of delirium, its comorbidity with dementia and the lack of formal cognitive screening as part of the routine assessment in the elderly<sup>[2]</sup>. The use of standardized diagnostic protocols which include a thorough history, comprehensive physical examination, appropriate laboratory investigations and standardized assessment scales like the Confusion Assessment Method (CAM) can improve the detection of delirium in the elderly<sup>[2,3,10]</sup>. A formal diagnosis of delirium can be confirmed by using standardized diagnostic criteria like the Diagnostic and Statistical Manual of Mental Disorders 5 (DSM 5)<sup>[1]</sup>.

Current data indicates that approximately a third of the cases of delirium are preventable<sup>[2]</sup>. Both non-pharmacological and pharmacological interventions have been shown to prevent delirium in the elderly<sup>[4]</sup>. Multicomponent targeted risk factor intervention (MTI) strategy, using standardized protocols for the management of risk factors for delirium: cognitive impairment, sleep deprivation, immobility, visual impairment, hearing impairment and dehydration has been shown to reduce the incidence of delirium, the length of hospital stay and mortality rates in the elderly<sup>[11]</sup>. Additionally, proactive geriatric consultation has been shown to reduce the incidence of delirium in individuals who had surgical repair for hip fracture<sup>[12]</sup>. Home rehabilitation has been shown to reduce the incidence of delirium, shorten the duration of rehabilitation and improve patient satisfaction when compared to hospital rehabilitation<sup>[13]</sup>. Antipsychotic medications have been shown to reduce the incidence of delirium

in older individuals by about 50% when compared to placebo<sup>[14]</sup>. Data from two studies for melatonin and one study of ramelteon indicates that these agents can reduce the incidence of delirium in the elderly<sup>[15]</sup>.

Non-pharmacological strategies that show benefit in the management of the symptoms of delirium include good eye contact with the individual, the use of clear verbal instructions when communicating with the individual with delirium and frequent reorientation<sup>[2,16]</sup>. Correction of visual and hearing loss, the use of a non-stimulating environment and a reduction in the use of physical restraints aid in the management of delirium<sup>[2,17]</sup>. Geriatric psychiatric consultation and nurse-led interdisciplinary intervention have been shown to reduce the duration and severity of the delirium episode<sup>[18]</sup>.

Pharmacotherapy is used for the management of symptoms of delirium when the individual's behaviors cannot be controlled by non-pharmacological strategies<sup>[2]</sup>. A meta-analysis that compared the efficacy of haloperidol to risperidone, olanzapine and quetiapine found that the reduction in delirium scores were not significantly different when comparing the effect of low dose haloperidol (<3.0 mg per day) with olanzapine and risperidone<sup>[19]</sup>. Low dose haloperidol did not have a higher incidence of adverse effects when compared to the atypical antipsychotics. High dose haloperidol (>4.5 mg per day) was associated with greater incidence of extrapyramidal adverse effects when compared with olanzapine. A double-blind, randomized controlled trial that compared quetiapine to haloperidol found that there was no difference between the two drugs in reducing the severity and duration of delirium<sup>[20]</sup>. Both the drugs were well tolerated in this study.

Recent evidence indicates that the use of antipsychotics is associated with greater risk of cerebrovascular adverse events (CVAEs) and death in the elderly with dementia<sup>[21]</sup>. Existing data indicates that the risk of CVAEs and death are similar for both atypical and typical antipsychotics agents. In light of this new information, the judicious use of these medications with careful assessment of their risk benefit ratio and close monitoring of the risk factors is needed to ensure the safety and well-being of the elderly who have been prescribed these medications. These risks should be carefully monitored in the elderly with delirium as dementia and delirium are highly comorbid conditions.

A meta-analysis evaluating the efficacy and safety of cholinesterase inhibitors in the treatment of delirium did not find any benefit for this group of medication in the elderly<sup>[22]</sup>. A meta-analysis evaluating the effectiveness of benzodiazepines could not find evidence to support the use of these agents in the treatment of non-alcohol withdrawal related delirium among hospitalized patients<sup>[23]</sup>.

The American Psychiatric Association (APA) recommends low-dose haloperidol as a first-line agent in the symptomatic management of delirium<sup>[24]</sup>. Second-generation antipsychotics may be used as an alternative in individuals who do not tolerate first-generation antipsychotics. However, there is no convincing data indicating their superiority over the first-generation antipsychotics in either efficacy or safety<sup>[25]</sup>.

In conclusion, delirium is a common geriatric syndrome characterized by concurrent impairments in cognition, behaviors and function. Delirium occurs due to the interaction between the underlying predisposing and precipitating factors. In the elderly, the diagnosis delirium is often missed or the condition may be mislabeled as depression or dementia. Without adequate treatment delirium results in significant morbidity and mortality in the elderly. Available data indicates that early detection of delirium, the use of non-pharmacological and pharmacological methods to reduce the incidence and to manage the symptoms of delirium can reduce the morbidity and mortality from this condition.

#### Factors that improve outcomes for delirium in the elderly

- Early identification of individuals at risk for delirium
- Judicious use of non-pharmacological and pharmacological strategies to prevent delirium
- Early identification of cases of delirium using standardized protocols and validated screening tools
- Appropriate use of non-pharmacological and pharmacological strategies to treat cases of delirium
- Prompt involvement of multidisciplinary teams for the prevention and management of delirium

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