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Delirium and Dementia in Hospitalized Older Adults: Differential Diagnosis, Screening, Management, Rehabilitation and Quality of Care

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ABSTRACT

Introduction: Delirium and dementia are among the most common neurocognitive disorders in hospitalized older adults. As populations age, both conditions are becoming a major challenge for healthcare systems. Recent evidence suggests that their relationship is more complex than previously thought, with important implications for diagnosis, prevention, and long-term outcomes.

Purpose of Research: This review summarizes current knowledge on the relationship between delirium and dementia in older adults, with emphasis on risk factors, diagnostic difficulties, prevention, treatment, rehabilitation, and long-term cognitive consequences.

Material and methods: A literature review was conducted using publications identified in Google Scholar, PubMed, and Embase. The selected studies focused on delirium and dementia in hospitalized older adults, including epidemiology, diagnosis, prevention, management, and cognitive outcomes.

State of knowledge: Delirium remains one of the most common complications of hospitalization in older adults and is still underrecognized, especially in patients with pre-existing dementia. Distinguishing acute delirium from chronic cognitive decline is difficult but essential. Current evidence shows that delirium is associated with longer hospitalization, functional decline, and worse long-term cognitive outcomes. Multicomponent non-pharmacological interventions, such as orientation support, early mobilization, hydration and nutrition optimization, and medication review, appear to be the most effective preventive strategy. More attention is also being paid to rehabilitation and follow-up after discharge.

Conclusions: Delirium and dementia are closely interconnected and often coexist in hospitalized older adults. Early recognition, prevention, multidisciplinary management, rehabilitation, and appropriate follow-up are essential to improve outcomes and preserve cognitive function.

Key words: Delirium; Dementia; Older Adults; Hospitalization; Differential Diagnosis; Screening; Rehabilitation; Quality of Care

1. INTRODUCTION

Population aging has become one of the defining challenges for contemporary healthcare systems. Improvements in life expectancy have resulted in a steadily growing number of older adults requiring hospital care, often with multiple chronic illnesses, functional limitations, and varying degrees of cognitive impairment. [22,29] As a consequence, disorders affecting cognitive function have moved from being a specialist concern to an everyday reality in clinical practice. [5,22,29]

Among the conditions most frequently encountered in hospitalized older adults, delirium and dementia occupy a particularly important place. [15,22,23] Both are associated with substantial morbidity and place a considerable burden on patients, families, caregivers, and healthcare services. Yet despite their clinical relevance, distinguishing between them can be difficult, especially when acute illness occurs in individuals who already have underlying cognitive impairment. [15,16,22]

Delirium is typically described as an acute disturbance of attention, awareness, and cognition that develops over a short period and fluctuates throughout the course of the day. [1,4,23,27] In older adults, it often arises in the context of acute medical illness, infection, surgery, medication-related complications, metabolic disturbances, or other forms of physiological stress. [2,4,14,23] Depending on the clinical setting, delirium affects a substantial proportion of hospitalized patients and remains one of the most common complications observed in acute care. [14,22,24]

The way delirium is perceived has changed considerably over recent years. Historically, it was often regarded as a temporary manifestation of acute illness that would disappear once the underlying cause had been treated. [4,22] Although this view still reflects part of the clinical picture, it no longer captures the full significance of the condition. Increasing evidence suggests that the consequences of delirium may persist well beyond the acute episode itself. [5,20,22] Patients who experience delirium are more likely to face prolonged hospitalization, functional decline, institutionalization, persistent cognitive impairment, and increased mortality. [5,20,22,24] Furthermore, several studies have reported an association between delirium and a heightened risk of future dementia. [5,20,22] Delirium was previously regarded primarily as a transient manifestation of acute illness, however growing evidence indicates that its cognitive consequences may persist beyond the acute episode.[5,20,22]

Dementia presents a different set of challenges. Unlike delirium, it develops gradually and follows a progressive course, reflecting underlying neurodegenerative or vascular pathology. [3,15,29] Cognitive decline may affect memory, language, executive functioning, visuospatial abilities, and social cognition, eventually interfering with a person's ability to live independently. [3,15] As populations continue to age, dementia has become one of the leading causes of disability and dependency among older adults worldwide. [15,29] Its impact extends far beyond the individual patient, influencing family dynamics, caregiving demands, healthcare expenditure, and broader social systems. [15,29]

Research conducted over the past decade has increasingly focused on the relationship between delirium and dementia. [15,16,22] The traditional tendency to view them as entirely separate disorders has gradually been replaced by a more integrated perspective. Dementia clearly increases susceptibility to delirium, largely because neurodegenerative changes reduce cognitive reserve and limit the brain's capacity to adapt to physiological stress. [15,16] At the same time, delirium itself has repeatedly been associated with accelerated cognitive decline and less favorable long-term cognitive outcomes. [5,15,20,22] Although the mechanisms linking delirium and dementia remain incompletely understood, current evidence suggests a closer relationship between these conditions than was previously assumed. [15,22]

One of the clearest examples of this interaction is delirium superimposed on dementia (DSD), a condition in which delirium develops in an individual with pre-existing dementia. [16,17,18] In clinical practice, DSD presents a particular challenge because the sudden deterioration associated with delirium may be mistaken for progression of the underlying dementia. [16,18] Such diagnostic uncertainty can delay identification of reversible medical problems and postpone appropriate treatment. [16,17] As a result, DSD has become an increasingly important focus of both research and clinical attention. [16,17,18]

At the same time, growing recognition of the consequences associated with delirium has stimulated interest in prevention. [8,9,13,25] Evidence accumulated over the last two decades indicates that a significant proportion of delirium episodes can be prevented through targeted interventions addressing modifiable risk factors. [8,9,13] Multicomponent programs such as the Hospital Elder Life Program (HELP) have demonstrated that coordinated, multidisciplinary strategies can reduce delirium incidence while also improving broader patient outcomes. [8,10,30] These findings have reinforced the view that prevention should occupy a central place in the care of vulnerable older adults. [8,9]

Given the increasing prevalence of both delirium and dementia, together with the considerable personal and societal burden associated with these disorders, improving understanding of their diagnosis, management, and long-term consequences has become a

clinical priority. [2,5,15,22] Effective care requires not only treatment of established symptoms but also early recognition of risk factors, implementation of preventive measures, prompt identification of acute cognitive changes, and support for recovery after hospitalization. [6,19,24] As healthcare systems adapt to ageing populations, approaches aimed at preserving cognitive function, maintaining independence, and improving quality of life are likely to assume even greater importance. [6,19,29]

2. THE AIM

The aim of this review is to systematize current knowledge regarding delirium in hospitalized older adults, with particular emphasis on its relationship with dementia, diagnostic challenges, risk factors, prevention strategies, management, rehabilitation, and long-term consequences. An additional objective is to highlight the clinical importance of differentiating acute delirium from chronic cognitive decline, especially in patients with pre-existing dementia. This review also seeks to present whether contemporary evidence supports a broader approach to delirium care that extends beyond acute treatment and includes prevention, post-hospital recovery, and quality-of-care measures.

3. STATE OF KNOWLEDGE

3.1 Delirium – definition, epidemiology and pathophysiology

Delirium is a complex neurocognitive syndrome characterized by an acute and fluctuating disturbance in attention, awareness, and cognitive functioning. [4,23,27] According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5-TR), diagnosis requires evidence of impaired attention and awareness accompanied by an additional cognitive disturbance that cannot be explained solely by a pre-existing neurocognitive disorder. [27] Symptoms typically emerge over a short period—often within hours or days—and reflect the effects of an underlying medical condition, physiological disturbance, substance-related factor, or a combination of several interacting processes. [4,23,27]

Despite decades of research, delirium remains one of the most common complications affecting older adults during hospitalization. [14,22,24] Reported prevalence varies considerably depending on patient characteristics, healthcare setting, and diagnostic methodology. [22,23] In general medical wards, delirium is commonly reported in approximately 10–30% of hospitalized patients, whereas substantially higher rates have been observed among critically ill individuals, postoperative patients, and those receiving palliative care. [14,22,24] Although its clinical significance is well recognized, delirium continues to be underdiagnosed, particularly in cases where symptoms are less overt. [14,23]

The clinical presentation of delirium is remarkably heterogeneous. [4,23,24] While the disorder is unified by disturbances in attention and cognition, the outward manifestation can differ substantially from one patient to another. Traditionally, delirium is classified into hyperactive, hypoactive, and mixed subtypes. [4,23,24]

Hyperactive delirium is often the easiest form to recognize because patients may become visibly restless, agitated, emotionally labile, or experience hallucinations and delusional thoughts. [4,23] By contrast, hypoactive delirium presents with reduced activity, lethargy, diminished responsiveness, and social withdrawal. [23,24] This presentation frequently attracts less clinical attention and may be mistaken for depression, fatigue, or the natural consequences of severe illness. [23,24] Mixed delirium, which combines features of both

forms, is characterized by fluctuations between periods of agitation and reduced psychomotor activity. [4,23]

A useful way of understanding delirium is through the interaction between vulnerability and precipitating insult. [4,22] According to this model, some individuals possess a greater baseline susceptibility because of age-related physiological changes, cognitive impairment, frailty, or chronic disease. [22,23] When an acute stressor is superimposed on this vulnerability, the threshold for delirium may be exceeded, resulting in the abrupt onset of symptoms. [4,22] This framework helps explain why relatively minor physiological disturbances can trigger delirium in some patients while others remain unaffected despite experiencing more severe illness. [22,23]

Numerous factors have been identified as increasing susceptibility to delirium. Advanced age, dementia, frailty, sensory deficits, malnutrition, multimorbidity, and a history of previous delirium episodes are among the most consistently reported. [2,14,22,23] Common precipitating factors include infections, dehydration, electrolyte abnormalities, hypoxia, surgery, pain, medication-related complications, urinary retention, constipation, and sleep disruption. [2,4,14,23] In clinical practice, delirium often develops in the presence of multiple interacting factors rather than a single clearly identifiable cause. [4,22,23]

Although the clinical characteristics of delirium have been well described, its biological basis remains incompletely understood. [4,22,23] Contemporary models suggest that delirium arises from the convergence of several pathological processes affecting brain function rather than from a single mechanism. [15,22]

Among the proposed explanations, neuroinflammation has received particular attention. [15,22] Acute illness frequently triggers systemic inflammatory responses that can influence central nervous system function through a variety of pathways. Disruption of the blood–brain barrier, activation of microglial cells, and altered neuronal signaling have all been implicated in the development of delirium-related symptoms. [15,22] These processes may interfere with neural networks involved in attention, cognition, and arousal, contributing to the characteristic clinical features of the syndrome. [15,22]

Disturbances in neurotransmitter regulation represent another major area of investigation. [4,23] Reduced cholinergic activity and excessive dopaminergic signaling have long been considered central components of delirium pathophysiology. [4,23,24] However, growing evidence suggests a more complex picture involving multiple neurotransmitter systems, including serotonin, gamma-aminobutyric acid (GABA), glutamate, melatonin, and noradrenaline. [4,11,23] Rather than reflecting dysfunction within a single pathway, delirium is increasingly viewed as a state of widespread neurochemical dysregulation affecting several interconnected systems simultaneously. [15,23]

Additional mechanisms proposed in the literature include oxidative stress, mitochondrial dysfunction, impaired cerebral metabolism, abnormalities of cerebral perfusion, and disruption of large-scale neural networks. [15,22,23] Recent neurobiological models emphasize the importance of distributed brain systems responsible for attention, executive functioning, and consciousness, suggesting that delirium reflects network dysfunction rather than localized injury confined to a specific brain region. [15,22]

Interest has also grown in the possibility that delirium may be linked to longer-term neurodegenerative processes. [5,15,20] Several studies have suggested that neuroinflammation, neuronal injury, and synaptic dysfunction occurring during episodes of delirium may contribute to persistent cognitive impairment in some patients. [15,20,22] Whether delirium directly accelerates neurodegeneration or instead exposes pre-existing

vulnerability remains unresolved. [15,22] Nevertheless, the consistent association between delirium and adverse cognitive outcomes has strengthened efforts to improve prevention, early recognition, and management. [5,15,20]

From a clinical perspective, delirium should be regarded as a medical emergency rather than an expected consequence of aging or hospitalization. [2,23,24] Prompt recognition, careful assessment, and rapid identification of reversible causes remain essential components of care. [2,23] Given the potential impact of delirium on both short- and long-term outcomes, timely intervention may influence not only immediate recovery but also future cognitive and functional trajectories. [20,23,24]

3.2 Delirium superimposed on dementia

Delirium superimposed on dementia (DSD) represents one of the most challenging situations encountered in geriatric medicine. The term refers to the development of delirium in a patient with pre-existing dementia, a combination that is far more common than was once appreciated. [16,17,18] As the prevalence of dementia continues to rise, clinicians are increasingly confronted with patients whose baseline cognitive impairment complicates the recognition of acute changes in mental status. [15,16,22]

The association between dementia and delirium is well established. Numerous studies have identified dementia as one of the strongest predisposing factors for delirium, often outweighing many other recognized risks. [15,16,22] This heightened vulnerability is thought to reflect a reduction in cognitive reserve caused by progressive neurodegenerative changes. [15,16] As a result, physiological stressors that might be tolerated by cognitively intact individuals can precipitate significant cognitive deterioration in patients with dementia. [2,14,16]

In practical terms, DSD often develops in the context of common medical problems such as infection, dehydration, medication-related complications, metabolic disturbances, or surgery. [2,14,16] Hospitalization itself may further contribute to risk through sleep disruption, environmental unfamiliarity, reduced mobility, and repeated clinical interventions. [2,23] For many patients, delirium emerges not because of a single precipitating event but rather as the cumulative consequence of several interacting stressors. [4,22]

Recognizing DSD remains a major diagnostic challenge. [16,17,18] The symptoms of delirium may be incorrectly attributed to progression of dementia, particularly when healthcare professionals are unfamiliar with the patient's baseline cognitive status. [16,18] This problem becomes even more pronounced in advanced dementia, where communication difficulties and severe cognitive impairment can obscure many of the features typically used to identify delirium. [16,18]

One of the most important principles in diagnosing DSD is the distinction between gradual decline and abrupt change. Dementia generally progresses over months or years, whereas delirium develops over hours or days and tends to fluctuate. [3,4,16,18] A sudden deterioration in attention, altered awareness, marked cognitive fluctuations, psychomotor

changes, or disruption of the sleep–wake cycle should therefore raise suspicion of a superimposed delirium episode rather than simple progression of dementia. [4,16,18]

Because these distinctions are not always obvious during a single clinical encounter, collateral information frequently becomes indispensable. [16,17] Family members, caregivers, and healthcare professionals familiar with the patient often provide crucial insight into baseline functioning and recent changes. [16,17,18] In many cases, the diagnosis of DSD depends as much on understanding what has changed as on documenting the symptoms present at the time of assessment. [16,18]

The consequences of DSD are substantial. Compared with patients who have dementia alone, individuals experiencing delirium superimposed on dementia tend to have longer hospital stays, greater functional decline, increased rates of institutionalization, and higher mortality. [16,18,20] Several studies have also linked DSD to accelerated cognitive deterioration, suggesting that the impact of the episode may extend well beyond the immediate hospitalization period. [16,18,20]

These observations have prompted growing interest in the biological mechanisms that may connect delirium and dementia. [15,20,22] Neuroinflammation has emerged as one of the leading explanations, as inflammatory processes appear to play a role in both acute delirium and chronic neurodegenerative disease. [15,22] Other proposed mechanisms include oxidative stress, synaptic dysfunction, neuronal injury, and disturbances in neurotransmitter regulation. [15,20,22] Although the precise nature of these interactions remains uncertain, current evidence suggests that delirium and dementia may share at least some overlapping pathological pathways. [15,22]

From a clinical perspective, the implications are clear. Patients with dementia should be considered particularly vulnerable to delirium and monitored accordingly. [16,17,18] Routine cognitive assessment, repeated observation during hospitalization, and systematic delirium screening may facilitate earlier recognition of acute deterioration. [7,17,18,28] Early identification not only increases the likelihood of detecting reversible causes but may also reduce the risk of complications associated with delayed treatment. [2,23,24]

Beyond its diagnostic complexity, DSD highlights a broader issue within geriatric medicine: the difficulty of separating acute and chronic cognitive disorders in real-world clinical practice. [15,16,22] The growing body of evidence linking delirium and dementia suggests that these conditions should not always be viewed in isolation. A better understanding of their interaction may ultimately improve prevention strategies, clinical decision-making, and long-term outcomes for older adults at risk of cognitive decline. [15,20,22]

3.3 Screening and diagnostic tools

Accurate recognition of delirium remains one of the most persistent challenges in the care of hospitalized older adults. [6,23,24] Although awareness of the condition has improved substantially over recent decades, delirium continues to be missed in a considerable proportion of patients, particularly when symptoms are subtle or overlap with pre-existing

cognitive impairment. [14,16,23] The consequences of delayed recognition can be significant, as failure to identify delirium may postpone treatment of underlying causes and increase the risk of unfavorable outcomes. [2,23,24]

One of the difficulties clinicians face is that delirium rarely presents in a uniform manner. [4,23] While some patients exhibit obvious agitation, hallucinations, or behavioral disturbance, others develop hypoactive symptoms that may be interpreted as fatigue, depression, or a natural consequence of illness. [23,24] This variability has contributed to growing interest in structured assessment methods capable of improving detection rates in routine clinical practice. [7,23]

Current guidelines increasingly recommend systematic screening for delirium, particularly among patients known to be at increased risk. [2,23,24] Older adults with dementia, frailty, severe medical illness, sensory impairment, or a previous history of delirium represent populations in whom regular assessment may be especially valuable. [2,14,23] Rather than replacing clinical judgment, screening tools are intended to support it by providing a more consistent approach to identifying patients who require further evaluation. [7,23]

Among the available instruments, the 4AT (4 'A's Test) has become one of the most widely adopted screening tools. [7,28] Its popularity stems largely from its practicality. Unlike some cognitive assessments that require extensive training or lengthy administration, the 4AT can be completed quickly and incorporated into routine clinical workflows with minimal disruption. [7]

The assessment focuses on four domains considered central to delirium recognition: alertness, cognition, attention, and evidence of acute change or fluctuating symptoms. [7,28] By combining these elements, the tool attempts to capture both the cognitive and temporal characteristics that distinguish delirium from other causes of cognitive impairment. [7,28]

Validation studies performed in a variety of clinical settings have generally reported favorable results. [7,28] Evidence from systematic reviews and meta-analyses indicates that the 4AT demonstrates good sensitivity and specificity across medical, surgical, emergency, and geriatric populations. [7,28] These findings have contributed to its inclusion in numerous clinical guidelines and hospital care pathways. [7,26,28]

Despite the value of standardized tools, delirium remains fundamentally a clinical diagnosis. [23,27] No screening instrument is capable of capturing every aspect of the syndrome or accounting for the complexity of individual patients. [23] Assessment findings must therefore be interpreted within the broader clinical context, taking into account medical history, current illness, medication exposure, and baseline cognitive status. [3,15,23]

Attention deserves particular emphasis during the diagnostic process because impairment in this domain is one of the defining features of delirium. [4,23,27] Difficulties maintaining focus, following conversations, or completing simple cognitive tasks often provide some of

the earliest clues that acute cognitive dysfunction is present. [4,23] Bedside assessments such as reciting the months of the year backwards or digit-span testing remain useful because they can be performed quickly while providing valuable information about attentional capacity. [4,23]

Determining a patient's baseline cognitive function is equally important, especially when dementia is suspected or already diagnosed. [3,15,21,32] In many situations, the key clinical question is not whether cognitive impairment exists, but whether current symptoms represent a departure from the patient's usual level of functioning. [16,18] Without this context, distinguishing delirium from chronic cognitive decline can become extremely difficult. [16,18]

For this reason, collateral information frequently plays a central role in assessment. [16,17] Family members, caregivers, and previous healthcare records often provide information that cannot be obtained through direct examination alone. [16,17,18] Knowledge of how the patient functioned before hospitalization may reveal whether observed deficits are longstanding or represent a recent and potentially reversible change. [16,18]

When broader cognitive evaluation is required, additional instruments may be used to assess domains affected by dementia. [3,15] Tools such as the General Practitioner Assessment of Cognition (GPCOG) and the Addenbrooke's Cognitive Examination III (ACE-III) can contribute valuable information regarding the nature and extent of cognitive impairment. [21,32] However, it is important to recognize that these assessments were developed primarily for dementia evaluation and should not be considered diagnostic tools for delirium. [3,21]

The diagnosis of dementia itself extends beyond the results of any single test. [3,15,27] Cognitive performance must be interpreted alongside functional abilities, behavioral symptoms, medical history, physical examination findings, and information obtained from those who know the patient well. [3,15] This broader perspective is particularly important because cognitive test scores alone rarely capture the complexity of neurocognitive disorders encountered in older adults. [3,15]

Another frequently overlooked aspect of delirium detection is timing. [23,24] Because symptoms fluctuate, assessment performed at a single point during hospitalization may not accurately reflect the patient's condition over the course of a day. [4,23] Repeated evaluations are therefore often necessary, particularly in high-risk individuals or when clinical suspicion remains despite an initially negative assessment. [23]

Ultimately, effective screening is not simply about completing a checklist or administering a standardized tool. [6,23] Its value lies in creating opportunities for earlier recognition, more timely investigation of underlying causes, and prompt initiation of appropriate management. [2,23,24] When incorporated into a broader framework of comprehensive geriatric care, systematic assessment can contribute meaningfully to improving outcomes for older adults vulnerable to acute cognitive deterioration. [6,7,23]

3.4 Risk factors in hospitalized older adults

Understanding why delirium develops in some patients but not in others remains one of the central questions in geriatric medicine. [4,22,23] Clinical experience shows that exposure to the same illness or medical intervention does not produce identical outcomes across individuals. While one patient may remain cognitively stable despite severe physiological stress, another may develop delirium following what appears to be a relatively minor insult. [22,23] This observation has led to the widely accepted concept that delirium arises through an interaction between underlying vulnerability and acute precipitating factors. [4,22]

In older adults, vulnerability often accumulates over many years. Ageing is accompanied by gradual changes affecting multiple physiological systems, reducing the body's ability to respond to stress and maintain homeostasis. [22,23] As reserve capacity declines, the threshold for developing delirium becomes lower. For this reason, advanced age remains one of the most consistently reported risk factors across clinical studies. [2,14,22,23]

Among all recognized predisposing factors, dementia has perhaps the strongest and most consistent association with delirium. [15,16,22] Neurodegenerative disease reduces cognitive reserve, making it increasingly difficult for the brain to compensate when challenged by illness or environmental stress. [15,16] Consequently, patients with dementia may develop delirium in response to physiological disturbances that would have little cognitive impact on individuals without underlying neurocognitive impairment. [15,16] This close relationship helps explain why delirium and dementia are so frequently encountered together in hospital settings. [15,16,22]

Frailty represents another important dimension of vulnerability. [6,14,23] Although frailty and ageing are closely related, they are not synonymous. Frailty reflects a state of diminished resilience in which multiple physiological systems function closer to their limits, leaving the individual less capable of recovering from acute stressors. [6,23] Older adults who are frail often experience greater difficulty maintaining physical, cognitive, and functional stability during hospitalization, increasing their susceptibility to delirium. [6,23]

Several additional factors have repeatedly been linked to an elevated risk of delirium. Sensory impairment, malnutrition, functional dependence, depression, multimorbidity, and a previous history of delirium all contribute to baseline vulnerability. [2,6,14,23] Individually, each factor may exert only a modest influence, but together they can significantly increase the likelihood that an acute illness will trigger cognitive deterioration. [22,23]

While predisposing factors determine vulnerability, precipitating factors are responsible for initiating the acute episode itself. [4,22] Infections remain among the most common triggers encountered in clinical practice. [2,14,23] Respiratory tract infections, urinary tract infections, and systemic inflammatory conditions frequently precede the onset of delirium in hospitalized older adults. [14,23] The association is biologically plausible, as inflammatory responses are thought to play a key role in the pathophysiology of delirium. [15,22]

A wide range of other medical problems may also precipitate delirium. Dehydration, electrolyte disturbances, hypoxia, uncontrolled pain, urinary retention, constipation, and sleep deprivation are particularly common examples. [2,4,23] These conditions are encountered regularly in hospitalized patients and often coexist, making it difficult to identify a single

definitive cause. [4,23] More commonly, delirium emerges when several contributing factors act simultaneously. [22]

Medication-related factors deserve special consideration because they represent one of the most modifiable sources of risk. [2,23] Polypharmacy is highly prevalent among older adults, particularly those admitted to hospital with multiple chronic illnesses. [2] As the number of prescribed medications increases, so does the risk of adverse drug reactions, drug interactions, and exposure to agents that may impair cognitive function. [2,4] Medications with anticholinergic properties, benzodiazepines, sedative-hypnotics, corticosteroids, and certain opioid analgesics have all been associated with an increased likelihood of delirium. [4,23,24] Careful medication review should therefore be regarded as a routine element of both risk assessment and prevention. [2,23]

The environment in which care is delivered can also influence delirium risk. [2,23] Hospitalization frequently exposes older adults to unfamiliar surroundings, disrupted routines, excessive noise, sleep fragmentation, and reduced social contact. [8,23] For vulnerable individuals, these factors may contribute to disorientation and cognitive stress, particularly when combined with acute illness. [8,23] Such observations highlight the fact that delirium is not purely a biological phenomenon but often develops through the interaction of medical and environmental influences. [22,23]

An important implication of current knowledge is that many risk factors are potentially modifiable. [8,9,13,22] Although age and pre-existing dementia cannot be altered, factors such as dehydration, medication burden, immobility, sensory deprivation, and sleep disruption can often be addressed through targeted interventions. [8,9,13] This understanding forms the basis of modern prevention strategies and supports the use of comprehensive geriatric assessment to identify patients at greatest risk. [6,23]

Risk assessment should not be limited to the time of admission, as the clinical condition of hospitalized older adults may change rapidly during hospitalization. [23,24] Hospitalized older adults often experience rapid changes in clinical status, and new precipitating factors may emerge throughout their stay. [23] Ongoing reassessment is therefore essential, particularly in individuals with multiple vulnerabilities or established cognitive impairment. [16,23]

Ultimately, the development of delirium is best understood as the result of a dynamic interaction between susceptibility and stress. [4,22] A better understanding of predisposing and precipitating factors may facilitate earlier intervention and improve prevention strategies in high-risk patients. [8,22,23] By identifying vulnerable individuals and addressing modifiable risk factors whenever possible, healthcare professionals may reduce the incidence of delirium and improve outcomes for hospitalized older adults. [6,8,23]

3.5 Prevention of delirium

Over the last two decades, prevention has become a central theme in both delirium research and clinical practice. [8,9,22,23] This shift has been driven largely by the recognition that delirium is not always an unavoidable consequence of acute illness or advanced age. Although some patients remain highly vulnerable because of factors such as dementia or frailty, a substantial proportion of cases appear to be preventable when risk factors are identified early and addressed systematically. [8,9,13]

Interest in prevention has also grown because treatment options remain limited once delirium develops. [4,11,23] While managing underlying causes is essential, interventions introduced

after symptom onset may not fully reverse the cognitive and functional consequences associated with the syndrome. [20,24] Consequently, preventing delirium before it occurs has increasingly been viewed as one of the most effective ways of improving outcomes in older hospitalized adults. [8,9]

Research consistently indicates that multicomponent non-pharmacological interventions provide the greatest benefit. [8,9,13,25,26] Unlike approaches that target a single risk factor, these strategies acknowledge the multifactorial nature of delirium and attempt to reduce vulnerability across several domains simultaneously. [8,22] Their success highlights an important principle: because delirium rarely arises from one cause alone, prevention is most effective when multiple contributing factors are addressed together. [8,9,13]

Among the best-known examples is the Hospital Elder Life Program (HELP), which has become one of the most influential models of delirium prevention. [8,9,10,30] Rather than relying on medication, the program focuses on practical interventions designed to maintain cognitive and physical functioning during hospitalization. [8,30] Measures commonly include orientation support, cognitive stimulation, early mobilization, hydration management, nutritional support, sleep promotion, optimization of sensory input, and active involvement of family members in care. [8,9,30]

The effectiveness of such programs has been demonstrated across numerous studies and healthcare settings. [8,9,13] Evidence from systematic reviews and meta-analyses suggests that multicomponent interventions can significantly reduce delirium incidence while also contributing to broader improvements in patient outcomes. [8,9] These findings have strengthened support for prevention-oriented models of care and encouraged their incorporation into clinical guidelines. [8,25]

Maintaining orientation remains one of the simplest yet most valuable preventive measures. [8,23] Hospital admission often places older adults in unfamiliar surroundings, where confusion can easily develop. Regular reminders regarding time, place, and current circumstances may help patients maintain a sense of continuity and reduce cognitive stress. [8] Access to clocks, calendars, orientation boards, and familiar personal belongings can further support this process. [8,30]

Physical activity represents another key component of prevention. [8,9,13] Hospitalization frequently results in reduced mobility, particularly among frail patients or those recovering from acute illness. Prolonged inactivity can contribute to muscle weakness, functional decline, sleep disruption, and greater susceptibility to delirium. [8,9] Encouraging safe mobilization whenever clinically appropriate may therefore benefit both physical recovery and cognitive health. [8,9]

Hydration and nutrition are equally important considerations. [2,23] Older adults are particularly vulnerable to dehydration and nutritional deficiencies, both of which have been associated with an increased risk of delirium. [2,14] Ensuring adequate fluid intake, monitoring nutritional status, and addressing deficits promptly should be regarded as routine elements of preventive care rather than secondary concerns. [23]

Growing attention has also been directed toward sleep. [8,23] Disturbed sleep is common during hospitalization and may contribute to cognitive dysfunction, particularly in vulnerable individuals. [23] Prevention strategies increasingly focus on preserving normal sleep–wake patterns through environmental modifications rather than relying primarily on sedative medications. [8,9] Reducing nighttime noise, limiting unnecessary interruptions, and encouraging exposure to daylight during waking hours are examples of relatively simple measures that may support cognitive stability. [8]

Sensory impairment represents another frequently overlooked contributor to delirium risk. [8,9] Difficulties with vision or hearing can reduce environmental awareness and increase disorientation, particularly in unfamiliar surroundings. Ensuring that patients have access to eyeglasses, hearing aids, and other assistive devices may therefore improve communication and help maintain orientation throughout hospitalization. [8]

Medication management remains a critical aspect of prevention. [2,4,23] Older adults often receive numerous medications, some of which may adversely affect cognitive function. Regular review of prescribed therapies can help identify potentially inappropriate medications, reduce unnecessary pharmacological burden, and limit exposure to drugs known to increase delirium risk. [2,23] This approach is especially relevant in patients with multiple comorbidities, where polypharmacy is common. [2]

An important feature shared by successful prevention programs is their reliance on multidisciplinary collaboration. [6,8,30] Physicians, nurses, physiotherapists, occupational therapists, pharmacists, patients, and caregivers all contribute to reducing risk through coordinated care. [6,8] Prevention is therefore not the responsibility of a single professional group but a collective effort that depends on communication and continuity across the healthcare team. [6]

Current evidence indicates that preventive strategies are more effective than interventions initiated only after delirium has already developed. [8,9,22,25] Although not every episode can be prevented, many cases appear amenable to intervention when risk factors are recognized and addressed early. [8,9,13] As healthcare systems continue to care for increasing numbers of older adults with complex medical needs, effective prevention strategies are likely to remain one of the most important tools for reducing the burden associated with delirium. [6,22,29]

3.6 Management of delirium in hospitalized older adults

The management of delirium begins with a simple but crucial principle: delirium is a symptom of an underlying problem rather than a disease in isolation. [1,2,23,24] Consequently, effective treatment depends less on suppressing behavioral manifestations and more on identifying the factors responsible for the acute cognitive deterioration. [2,4,23] This perspective is particularly important in older adults, where delirium often reflects the combined effects of several interacting medical, environmental, and pharmacological influences. [4,22,23]

Once delirium is suspected, assessment should proceed without delay. [2,23,24] Early recognition creates an opportunity to identify potentially reversible causes before further deterioration occurs. In practice, this often requires a systematic search for common precipitants such as infection, dehydration, hypoxia, metabolic abnormalities, medication-related adverse effects, pain, urinary retention, or constipation. [2,4,23,24] Because multiple contributing factors frequently coexist, a broad clinical approach is generally more effective than focusing on a single suspected trigger. [4,23]

Although medication often receives considerable attention in discussions of delirium treatment, evidence consistently supports non-pharmacological interventions as the foundation of care. [4,23,24] These measures address many of the factors that contribute to symptom persistence and can be implemented regardless of the specific cause of delirium. [8,23]

A supportive environment plays a particularly important role. [8,23] Hospitalization can be disorienting, especially for older adults already coping with illness, sensory impairment, or underlying cognitive decline. Simple interventions such as providing access to clocks and

calendars, maintaining familiar routines where possible, reducing unnecessary room changes, and ensuring regular communication may help reduce confusion and anxiety. [8,30] While such measures may appear modest, their cumulative effect can be clinically meaningful. [8,23]

Family involvement often represents an underappreciated component of management. [8,19,23] Relatives and caregivers may provide reassurance, assist with orientation, and offer valuable information regarding baseline cognitive function. [16,17] The presence of family members or caregivers may reduce patient distress and provide clinicians with valuable information regarding the patient's baseline cognitive and functional status. [8,23]

Sleep disturbance frequently complicates delirium and may contribute to its persistence. [8,23] For this reason, efforts to promote normal sleep patterns are widely regarded as an important aspect of management. [8] Whenever possible, environmental strategies should be prioritized over pharmacological approaches. Reducing nighttime noise, minimizing unnecessary interruptions, and maintaining a consistent day–night routine may support recovery without exposing patients to the risks associated with sedative medications. [8,23]

Preserving mobility is another essential goal. [8,9,19] Older adults experiencing delirium are particularly vulnerable to the adverse effects of prolonged bed rest, including muscle weakness, loss of independence, and functional decline. [19,24] Encouraging early mobilization, when medically appropriate, may help limit these complications and contribute to overall recovery. [8,19]

Medication review remains a routine and indispensable element of treatment. [2,4,23] Delirium can be precipitated or exacerbated by a variety of medications, particularly those with anticholinergic properties or central nervous system effects. [4,23] Reviewing current prescriptions, reducing unnecessary therapies, and adjusting potentially harmful medications may remove important contributors to cognitive dysfunction. [2,23]

The role of pharmacological treatment continues to be debated. [4,11,24] Current evidence does not support routine drug therapy for all patients with delirium, and medication should not be viewed as the primary treatment strategy. [24,31] Instead, pharmacological interventions are generally reserved for situations in which severe agitation, psychotic symptoms, or behavioral disturbances create a risk of harm or interfere with essential medical care. [4,11]

Among the available agents, haloperidol remains one of the most frequently used medications. [4,24,31] Its use is largely based on clinical experience and familiarity rather than strong evidence demonstrating superiority over alternative approaches. [11,24] While haloperidol may be helpful in selected circumstances, clinicians must remain attentive to potential adverse effects, including extrapyramidal symptoms and cardiac conduction abnormalities. [4,11]

Atypical antipsychotics such as quetiapine, risperidone, and olanzapine are also used in some settings. [24,31] However, available studies have not consistently shown better outcomes compared with haloperidol. [24,31] As a result, decisions regarding antipsychotic therapy should be individualized and guided by the patient's overall clinical condition rather than routine practice patterns. [11]

Benzodiazepines generally occupy a limited place in delirium management. [4,23] In many cases, they may worsen confusion and contribute to symptom persistence. [4] Their principal indication remains delirium associated with alcohol withdrawal or benzodiazepine withdrawal, where they continue to play an established therapeutic role. [4,11]

Interest has also emerged in agents that influence sleep and circadian regulation, including melatonin and melatonin receptor agonists. [11,31] Although some findings have been

encouraging, particularly in preventive settings, evidence remains insufficient to support routine use for the treatment of established delirium. [26,31]

Importantly, management should not be considered complete when the acute symptoms subside. [19,20,24] Many patients continue to experience cognitive, physical, or functional difficulties after discharge, even when delirium appears clinically resolved. [19,20] This observation highlights the need for ongoing assessment and follow-up, particularly among individuals with pre-existing dementia, frailty, or prolonged episodes of delirium. [15,19,20]

Symptom control alone should not be equated with effective treatment, which requires identification of underlying causes and comprehensive supportive care. [6,19,23] Approaches that combine prompt identification of underlying causes with comprehensive supportive care are most consistent with current evidence and offer the greatest potential to improve outcomes in hospitalized older adults. [6,23,24]

3.7 Rehabilitation and recovery after delirium

For many years, delirium was viewed primarily through the lens of acute hospital care. Clinical attention focused on recognizing symptoms, identifying precipitating factors, and managing the immediate consequences of the episode. [4,23] More recently, however, researchers and clinicians have begun to appreciate that recovery from delirium often extends well beyond the point at which acute symptoms appear to resolve. [19,20,24] For a substantial proportion of patients, discharge from hospital marks the beginning rather than the end of the recovery process. [19,20]

The need for rehabilitation stems from the observation that delirium frequently leaves lasting effects on both physical and cognitive functioning. [19,20] Even when attention and awareness improve, many patients continue to experience difficulties that interfere with everyday activities. Reduced mobility, impaired balance, loss of strength, diminished endurance, and persistent cognitive deficits may all contribute to a decline in independence following hospitalization. [19,20] These challenges can be particularly pronounced in older adults who were already living with frailty or cognitive impairment before the delirium episode occurred. [6,16]

Rehabilitation should be considered an integral component of post-delirium care, as recovery frequently extends beyond the acute hospital phase. [19,20] The objective is not merely to restore physical function but to support the patient's ability to return to previous levels of activity, maintain independence, and adapt to any limitations that remain after recovery. [19] This broader perspective reflects an increasing recognition that successful outcomes cannot be measured solely by the disappearance of delirium symptoms. [19,20]

Physical rehabilitation is often a central component of this process. [19] Hospitalization frequently results in reduced activity levels, and even relatively short periods of immobility may have significant consequences in older adults. [6,19] Loss of muscle mass, reduced endurance, and impaired balance can develop rapidly, making recovery more difficult after discharge. [19] Physiotherapy therefore plays an important role in helping patients regain mobility, improve strength, and restore confidence in performing everyday tasks. [19]

The benefits of rehabilitation extend beyond physical function alone. Mobility and cognition are closely interconnected, particularly in older adults. [19,20] Reduced activity may contribute to social isolation, loss of confidence, and decreased participation in meaningful activities, all of which can influence cognitive well-being. [19] Encouraging gradual re-engagement with daily routines may therefore support recovery across multiple domains rather than addressing physical limitations in isolation. [19,20]

Occupational therapy offers another important dimension of rehabilitation. [19] While physiotherapy often focuses on movement and physical performance, occupational therapy is concerned with how patients function in their everyday environments. [19] Difficulties with dressing, bathing, meal preparation, medication management, or other activities of daily living can have a profound impact on independence after hospitalization. [19] Individualized interventions aimed at restoring these abilities or compensating for persistent deficits may facilitate a safer and more successful transition back to the community. [19]

Interest in cognitive rehabilitation has also increased in recent years. [19,20] Available evidence suggests that delirium may not resolve completely in all patients, and some individuals continue to experience persistent deficits in memory, attention, or information processing. [19,20] Although research in this area remains limited, interventions involving cognitive stimulation, orientation strategies, memory exercises, and participation in meaningful activities have been explored as potential approaches to supporting recovery. [19] At present, the optimal structure and intensity of such interventions remain uncertain, highlighting an important area for future investigation. [19,20]

Recovery following delirium is rarely identical across patients. [19,20] Some individuals return to their previous level of functioning within a relatively short period, while others experience a slower and less complete recovery. [20] Factors such as advanced age, frailty, pre-existing dementia, severity of illness, and the duration of delirium may influence the trajectory of improvement. [16,19,20] Because recovery trajectories vary considerably between patients, rehabilitation strategies should be individualized according to clinical needs and baseline functional status. [19]

Family members and caregivers often play a crucial role throughout the recovery process. [6,19] Their involvement may extend beyond practical assistance to include emotional support, reinforcement of rehabilitation goals, and monitoring for signs of persistent cognitive or functional decline. [19] Because many challenges become most apparent after discharge, caregivers are frequently among the first to recognize when additional assessment or support is needed. [6,19]

The rehabilitation needs of patients with delirium superimposed on dementia deserve particular attention. [16,18,19] These individuals often face a combination of cognitive impairment, frailty, functional limitations, and chronic disease that complicates recovery. [16,19] Effective management therefore requires close collaboration between multiple healthcare professionals, including physicians, nurses, physiotherapists, occupational therapists, psychologists, and social workers. [6,19] Such multidisciplinary approaches are often better suited to addressing the diverse challenges encountered during recovery than isolated interventions delivered by a single professional group. [6]

Despite increasing recognition of its importance, rehabilitation after delirium remains an area in which significant knowledge gaps persist. [19,20] Questions regarding the most effective interventions, optimal timing, duration of therapy, and long-term benefits have yet to be fully answered. [19] Nevertheless, the available evidence supports the view that recovery should be considered a process rather than a single event. [19,20] Integrating rehabilitation into routine care may help reduce long-term disability, preserve independence, and improve quality of life for older adults recovering from delirium. [6,19,20]

3.8 Quality of Care and Multidisciplinary Approach

Delirium and dementia present challenges that extend beyond diagnosis and treatment alone. [6,23,24] The management of delirium and dementia depends not on a single intervention but on the coordination of patient-centered, system-level care. [6,23] In practice, outcomes are

influenced not only by clinical decisions but also by how effectively healthcare systems identify risk, facilitate communication, and organize patient-centered care. [6]

In recent years, delirium has increasingly been regarded as a marker of healthcare quality. [6,8,23] The rationale is straightforward: many episodes are preventable, many cases remain undetected, and delays in recognition can lead to avoidable complications. [8,23] As a result, rates of delirium detection, implementation of preventive strategies, and adherence to evidence-based management practices are often viewed as indicators of how effectively healthcare systems care for vulnerable older adults. [6,8]

One of the foundations of high-quality care is early recognition. [7,23,28] Delirium cannot be treated if it is not identified, and underdiagnosis remains a persistent problem despite increased awareness. [14,23] Routine screening, combined with ongoing clinical observation, improves the likelihood that cognitive changes will be recognized before significant deterioration occurs. [7,23,28] This is particularly important in cases of hypoactive delirium, where symptoms may be subtle and easily overlooked. [14,23]

Education plays an equally important role. [6,23] Healthcare professionals encounter delirium in a wide variety of settings, yet confidence in recognizing and managing the condition varies considerably. [23] Educational initiatives that improve understanding of risk factors, clinical presentation, prevention strategies, and treatment principles may enhance both detection rates and overall quality of care. [6,23]

Nurses occupy a particularly important position within this process. [6,23] Because they spend more time with patients than most other members of the healthcare team, they are often the first to notice changes in behavior, attention, sleep patterns, or functional status. [23] Their observations frequently provide the earliest indication that delirium is developing. Effective communication between nursing staff and physicians is therefore essential for timely assessment and intervention. [6]

The complexity of delirium and dementia also highlights the value of multidisciplinary collaboration. [6,19,23] No single professional group can address every aspect of care required by these patients. Physicians contribute medical assessment and treatment, pharmacists assist with medication review, physiotherapists and occupational therapists support functional recovery, while psychologists, social workers, and nursing staff provide additional expertise relevant to cognitive, emotional, and social needs. [6,19] When these perspectives are integrated, care is often more comprehensive and better aligned with the realities faced by older adults. [6]

Family members and caregivers should also be viewed as important participants in the care process rather than passive observers. [16,17,23] Their familiarity with the patient's usual cognitive and functional abilities frequently provides information that cannot be obtained elsewhere. [16,18] This contribution becomes particularly valuable when clinicians are attempting to distinguish acute delirium from chronic cognitive impairment. [16,17,18]

The benefits of multidisciplinary approaches are reflected in programs such as the Hospital Elder Life Program (HELP). [8,10,30] These initiatives demonstrate that coordinated interventions targeting multiple risk factors simultaneously can reduce delirium incidence and improve broader patient outcomes. [8,9,30] Their success illustrates how organizational approaches to care may be just as important as individual clinical interventions. [8]

Attention to quality should continue beyond the hospital setting. [19,20,24] Recovery from delirium often extends into the post-discharge period, and continuity of care is essential for identifying ongoing cognitive or functional difficulties. [19,20] Effective communication

between hospital teams, primary care providers, rehabilitation services, and caregivers may reduce fragmentation and support more consistent long-term management. [6,19]

As populations age and cognitive disorders become increasingly common, healthcare systems will face growing demands in this area. [22,29] Meeting these challenges will require more than advances in diagnosis or treatment alone. Improved interdisciplinary collaboration, staff education, and continuity of care across healthcare settings are likely to play a key role in improving outcomes in clinical practice. [6,8,23,30]

4. DISCUSSION

The literature reviewed in this paper highlights the growing importance of delirium and dementia within contemporary geriatric care. [15,22,23,29] Although both conditions have been studied extensively, their relationship remains an area of ongoing discussion, particularly in the context of hospitalized older adults. What emerges most clearly from the available evidence is that delirium and dementia cannot be understood entirely independently of one another. [15,16,22] Instead, they appear to interact in ways that influence diagnosis, clinical outcomes, and long-term prognosis.

One of the most consistent findings across studies is the role of dementia as a major risk factor for delirium. [15,16,22] This observation is not surprising given the progressive loss of cognitive reserve associated with neurodegenerative disease. Patients with dementia often have a reduced capacity to tolerate physiological stress, making them particularly susceptible to acute cognitive deterioration during illness or hospitalization. [15,16] From a practical perspective, this means that clinicians caring for older adults with dementia should maintain a high level of vigilance for signs of delirium, especially when sudden changes in cognition or behavior occur. [16,17,18]

At the same time, the relationship appears to operate in the opposite direction as well. [5,15,20,22] A growing number of studies have linked delirium with accelerated cognitive decline and an increased likelihood of future dementia. [5,20,22] While the association itself is well documented, its interpretation remains more complex. Whether delirium directly contributes to neurodegeneration or simply reveals pre-existing pathological processes remains uncertain. [15,22] The answer is likely not straightforward. Delirium may act both as a marker of underlying vulnerability and as a factor capable of amplifying existing pathological changes. [15,20,22]

This uncertainty reflects one of the broader challenges within delirium research. Despite substantial advances in recent years, many biological mechanisms remain incompletely understood. [15,22] Neuroinflammation currently represents one of the most widely discussed explanations, supported by evidence suggesting that inflammatory processes influence both acute delirium and chronic neurodegenerative disease. [15,22] However, inflammation alone is unlikely to account for the full complexity of the syndrome. Neurotransmitter disturbances, oxidative stress, impaired cerebral metabolism, and disruptions in large-scale neural networks have all been implicated, indicating that delirium is probably the result of several interacting mechanisms rather than a single pathological pathway. [15,22,23]

The clinical implications of these observations are significant. If delirium is associated with lasting cognitive consequences, then its importance extends far beyond the period of acute hospitalization. [5,20,22,24] Historically, successful management was often defined by resolution of symptoms and treatment of the precipitating illness. [4,23] Contemporary evidence suggests that this perspective may be too narrow. Many patients continue to

experience cognitive, functional, or physical difficulties after discharge, highlighting the need for follow-up care that extends beyond the acute episode. [19,20]

The concept of delirium superimposed on dementia illustrates particularly well the difficulties encountered in clinical practice. [16,17,18] Distinguishing acute cognitive deterioration from progression of chronic neurodegenerative disease is rarely straightforward, especially in patients with advanced dementia. [16,18] The challenge is compounded by the fact that delirium may present in subtle ways, particularly when hypoactive symptoms predominate. [23,24] As a result, some cases are likely to remain undetected despite increased awareness among healthcare professionals. [14,23]

These diagnostic challenges strengthen the argument for routine screening and repeated assessment. [7,23,28] Delirium is inherently dynamic, and symptoms may fluctuate substantially over the course of a day. [4,23] Reliance on a single assessment may therefore fail to capture clinically relevant changes. Screening tools such as the 4AT have improved the feasibility of systematic evaluation, but their effectiveness ultimately depends on consistent implementation and appropriate clinical interpretation. [7,28]

Another theme that emerges repeatedly from the literature is the value of prevention. [8,9,13,25] Compared with pharmacological treatment, preventive strategies have generated more consistent and convincing evidence of benefit. [8,9,13] This finding is particularly important because delirium often develops through the accumulation of multiple risk factors rather than a single identifiable cause. [4,22] Multicomponent interventions are therefore well suited to addressing the complexity of the syndrome. By targeting orientation, mobility, hydration, nutrition, sleep, and sensory function simultaneously, they reflect the multifactorial nature of delirium itself. [8,9,30]

In contrast, pharmacological management continues to occupy a relatively limited position within current treatment recommendations. [4,11,24] Although antipsychotic medications remain useful in selected situations, particularly when severe agitation threatens patient safety, evidence supporting routine use remains limited. [11,24,31] This discrepancy between widespread clinical use and relatively modest supporting evidence highlights an area in which further research is needed. [11,31]

Rehabilitation represents another aspect of care that has gained increasing attention. [19,20] The traditional focus on acute management may overlook the challenges many patients face during recovery. Cognitive impairment, reduced mobility, loss of independence, and functional decline can persist long after delirium resolves. [19,20] Recognizing these consequences encourages a broader view of treatment—one that includes rehabilitation and long-term monitoring as integral components of care rather than optional additions. [19]

Several limitations within the current body of evidence should be acknowledged. [15,20,22] Studies differ substantially in methodology, patient populations, diagnostic criteria, and duration of follow-up. [15,22] Such variation makes direct comparison difficult and may explain some of the inconsistencies reported across the literature. [15,22] In addition, many proposed biological mechanisms remain hypothetical or incompletely understood, emphasizing the need for further investigation. [15,22]

Taken together, the evidence suggests that delirium should no longer be regarded solely as a transient complication of acute illness. [5,20,22] Instead, it appears to be a clinically significant event that may influence cognitive and functional trajectories long after hospitalization has ended. [20,22,24] Recognizing delirium as a condition with potentially lasting cognitive and functional consequences may influence future research priorities, prevention strategies, and models of care. [6,19,23]

5. CONCLUSIONS

Delirium and dementia are among the most important neurocognitive disorders encountered in hospitalized older adults and continue to represent major challenges for healthcare systems worldwide. [15,22,23,29] Although they differ in terms of clinical course and underlying pathology, the evidence reviewed in this paper demonstrates that they are closely interconnected and frequently coexist in everyday clinical practice. [15,16,22]

Dementia remains one of the strongest predisposing factors for delirium, while delirium itself has been associated with adverse long-term cognitive outcomes and an increased risk of future dementia. [5,15,20,22] These observations emphasize the importance of viewing acute and chronic cognitive disorders within a broader clinical framework rather than as entirely separate entities. [15,16,22]

Early recognition remains fundamental. [2,23,24] Accurate differentiation between delirium and dementia requires careful assessment of symptom onset, fluctuations in cognition, attentional deficits, level of consciousness, and baseline cognitive function. [2,3,23,27] Particular attention should be paid to delirium superimposed on dementia, where delayed diagnosis may result in missed opportunities to identify and treat reversible medical conditions. [16,17,18]

Current evidence most consistently supports prevention as a central component of delirium care. [8,9,13,25] Multicomponent non-pharmacological interventions have consistently demonstrated effectiveness in reducing delirium incidence and should remain a priority for patients at increased risk. [8,9,13,30] Pharmacological treatment, although occasionally necessary, should generally be regarded as a secondary measure reserved for selected clinical situations. [4,11,24]

The consequences of delirium often extend beyond the acute hospital stay. [19,20,24] Cognitive decline, reduced physical function, and loss of independence may persist after discharge, highlighting the importance of rehabilitation and ongoing follow-up. [19,20] Approaches that integrate acute management with long-term support are therefore likely to provide greater benefits than models focused exclusively on short-term symptom resolution. [6,19]

As populations continue to age, the number of older adults affected by delirium and dementia is expected to increase. [22,29] Meeting this challenge will require sustained emphasis on prevention, early detection, multidisciplinary collaboration, rehabilitation, and continuity of care. [6,8,19,23] Strengthening these elements of healthcare delivery offers the greatest opportunity to improve outcomes and maintain quality of life for older adults affected by cognitive disorders. [6,19,29]

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