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Delirium

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Abstract

Delirium is a common neuropsychiatric syndrome and can occur in various clinical settings. It has a multi-factorial aetiology. It is associated with increased morbidity and mortality. Tools and strategies to screen and assess the severity of delirium can be used for an early intervention. Proactive screening for delirium has the potential to allow more optimal management, and thereby reduce morbidity and mortality significantly. Appropriate drug therapy may form part of multi-component interventions in the prevention and treatment of delirium. Further research is warranted in the systematic identification of high-risk patients undergoing major procedures as well as in the prophylactic or pre-emptive use of appropriate drugs and dosages.

Keywords acute confusion; antipsychotics; delirium; delirium management; delirium management guidelines; delirium treatment

Definition

Delirium is an acute neuropsychiatric syndrome but is chiefly a reversible change in consciousness with change in cognition, such as memory deficit, disorientation and language disturbance, with such perceptual impairments as illusions and hallucinations. In contrast dementia is a progressive, irreversible and chronic alteration in cognition.

Epidemiology

Delirium is a complex and understudied neuropsychiatric syndrome that occurs in 11–42% of general medical inpatients[1] and up to 50% of the hospitalized elderly.[2] Milder forms of delirium with impaired consciousness are likely to be missed in busy inpatient settings. Recent studies have identified high incidence and prevalence of delirium in various clinical samples including general medicine (24.9%),[3] cardiothoracic surgery (21%),[4] general surgery (24%),[5] orthopaedic surgery (20%),[6] critical care (30%)[7] and the emergency unit.

Aetiology

Delirium has a multi-factorial aetiology, so establishing the cause of delirium is an important and challenging process. The Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)[8] classifies delirium depending on aetiology and divides it into four different types: delirium due to general medical condition; substance-induced delirium; delirium due to multiple aetiologies; and delirium not otherwise specified. The International Classification of Diseases (ICD-10)[9] classifies delirium under two separate categories: mainly substance-induced; and organic (non-substance) mental disorder.

The presence of certain risk factors increases the risk of developing delirium.[10,11] Several predisposing or precipitating aetiological factors have been considered and are shown in Table 1. Development of delirium has also been described in light of these vulnerability factors and noxious insults.[12] For example, an elderly person with pre-existing cognitive impairment and poor physical health can be considered vulnerable to the development of delirium in association with, say, a urinary tract infection. Similarly, a high-risk noxious insult, such as major surgery, in a relatively healthy person can assist in precipitating delirium.

Key predisposing and precipitating factors for delirium

Predisposing factors	Precipitating factors
• Advanced age	• Acute illness
• Male sex	• Severity of physical illness
• Visual impairment	• Infection, especially urinary tract
• Presence of dementia	• Hyponatremia
• Severity of dementia	• Shock
• Depression	• Immobilization and physical restraint
• Immobility	• Bladder catheterization
• Dehydration	• Surgery
• Metabolic abnormalities	• Intensive care unit admission
• Alcohol misuse	• Medication, changes and additions
• Narcotics, sedatives	
• Anaemia	
• Pain	
• Malnutrition	

Table 1

Clinical features

In a patient presenting with a neuropsychiatric syndrome, the diagnosis of delirium is suggested by an acute onset, a fluctuating

Screening tools and severity scales for delirium

Delirium screening tools	Severity scales for delirium
• Confusion Assessment Method – CAM[15]	• The Delirium Index – DI[19]
• Delirium Symptom Interview – DSI[16]	• Memorial Delirium Assessment Scale – MDAS[20]
• Cognitive Test for Delirium – CTD[17]	• Delirium-O-Metre – DOM[21]
• Delirium Observation Scale – DOS[18]	• Delirium Rating Scale Revised 98 – DRS-R-98[22]

Table 2

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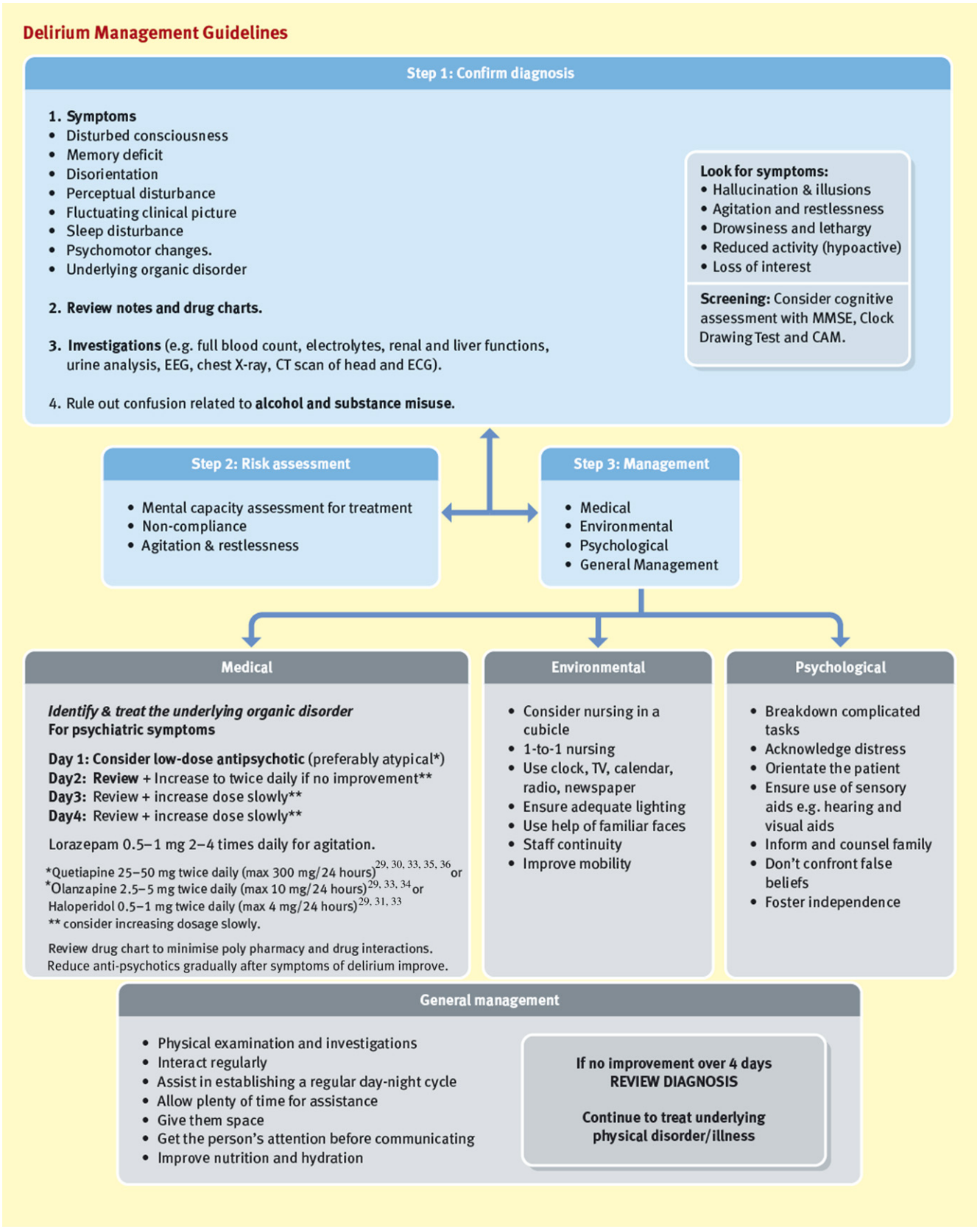

Figure 1

Mean doses for antipsychotics used in delirium

	Medication	Range of mean dose (mg)
1	Olanzapine	4.52–4.54
2	Quetiapine	40–113
3	Risperidone	1.02–1.19
4	Haloperidol	1.71–7.06

Evidence for values provided by RCT data.

Table 3

course and an underlying physical aetiology. There are three motor subtypes: hypoactive (apathetic and withdrawn); hyperactive (agitated and distractible); and mixed (shifting between hypoactive and hyperactive states).[13] Core diagnostic features include attention deficits (97–100%) and thought-process abnormalities (54–79%). Other core symptoms include disorientation (76–96%), memory deficits (88–96%), sleep–wake cycle disruptions (92–97%), changes in motor behaviour (24–94%) and language disturbances (57–67%). Non-core symptoms include perceptual disturbances including hallucinations (50–63%), changes in mood (43–86%) and delusions (21–31%).[14]

Screening tools for delirium exist and other tools can ascertain severity (Table 2). Tools designed to assess cognitive impairment, although helpful in establishing the diagnosis of delirium, are of limited value in the assessment of severity.

Natural history and prognosis

In a systematic review of the occurrence and outcome of delirium, the death rate at discharge was reported to be 14.5–37%.[1] Several risk factors for a poor outcome have been identified. Medical causes such as stroke, Parkinson's disease and hypertension, along with demographic factors like female sex and living alone, are independent risk factors of poor outcome for activities of daily living in those who suffer from dementia and develop delirium.[23] Hypoactive delirium was reported to be associated with a poorer prognosis.

Management

Assessment

A detailed medical history including information from a collateral source should aim to evaluate underlying physical disorders. A thorough review of prescribed medication, or any recent changes, is integral to this assessment. Full physical examination should be undertaken and monitoring of vital signs initiated. Further baseline investigations should always be considered, including full blood count, electrolytes, renal and liver function, urine analysis, chest X-ray and ECG. Additional investigations should also be considered based on the history and examination (Figure 1).

Guidelines

The National Institute for Health and Clinical Excellence (NICE) guideline[24] highlights the gap in evidence-based pharmacological treatment of delirium. Standard management and prevention of delirium includes specific environmental interventions, and physical and psychological management aimed at preventing or correcting the underlying cause.[25–28] However, there is limited evidence from systematic studies, controlled trials or randomized controlled trials for the treatment and management of delirium.[29] A one-page evidence-based clinical management guideline was developed as an ethical requirement for a randomized control trial[30] of treatment (Figure 1).

Prevention

Prophylactic effects of haloperidol[31] and donepezil[32] in delirium have been studied in placebo-controlled studies. The evidence for the use of medication to prevent delirium, and its ethics, are debatable. Addressing the predisposing and precipitating aetiological factors may guide certain non-pharmacological preventative strategies and protect high-risk groups from developing delirium.

Treatment of symptoms

With detection and correction of the underlying cause, the standard management of delirium includes non-pharmacological and pharmacological treatment, but when and what drugs to use remains uncertain, reflecting a lack of well-designed efficacy studies.[33] If non-pharmacological strategies do not work, the NICE guideline recommends use of a low-dose antipsychotic (olanzapine or haloperidol).[34] Quetiapine may also be used.[30,35,36] It is noteworthy that there is no placebo-controlled RCT evidence to support the use of haloperidol.[29] To date there are only three published placebo-controlled RCTs for treatment of delirium using antipsychotics,[30,35,36] only one of which took place in a general hospital setting.[37] Appropriate dosages, based on information from various RCTs, are presented in Table 3. A daily review for the first week is required to monitor progress (Figure 1). If there is limited or no improvement the antipsychotic dosage can be increased slowly. ◆

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Practice points

- A detailed medical history including information from a collateral source, physical examination and investigations should aim to evaluate co-morbid physical disorders
- Aetiological and risk factors, including predisposing features and precipitating factors, guide a clinician in the management of delirium
- Non-pharmacological strategies, including educating nursing staff, early medical consultation, mobilizing patients, monitoring their medication and making environmental and sensory modifications, play an important role in reducing the chances of developing delirium
- A judicious use of a low-dose antipsychotic such as quetiapine, olanzapine or haloperidol should be considered