

Delirium

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ABSTRACT

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Delirium is an acute, potentially reversible brain dysfunction manifested by a syndromal array of neuropsychiatric symptoms. It is often under diagnosed, under recognized and preventable. Non-detection in emergency departments is associated with a sevenfold hazard for increased mortality,

It is a syndrome of acute onset, fluctuating course and brief duration (usually days to weeks). The severity of symptoms fluctuates over 24 hour period with lucid intervals in between.

Pharmacological management is based on the notion of a relative dopamine excess and cholinergic deficiency as the principal neurochemical aberrations underlying delirium. Haloperidol remains the standard agent used to treat delirium.

Though delirium is a medical emergency, more than 50% of cases are missed, misdiagnosed or diagnosed late. Therefore increased awareness about the condition among health care professionals is needed.

Keywords: Delirium, Clinical features, Management, Haloperidol, Delirium tremens.

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Delirium is an acute, potentially reversible brain dysfunction manifested by a syndromal array of neuropsychiatric symptoms. It is often under diagnosed, under recognized and preventable. It is also known by various other names, for example, metabolic encephalopathy, acute confusional state, acute brain failure, acute brain syndrome and ICU psychosis.

Non-detection in emergency departments is associated with a sevenfold hazard for increased mortality (O'Keeffe ST, Lavan JN. 1999)

Epidemiology and outcomes

Delirium is a common disorder.

Prevalence of delirium

Hospitalised medically ill patients	10 - 30%
Hospitalised elderly patients	10 - 40%
Hospitalised cancer patients	25%
Hospitalised AIDS patients	30 - 40% T
Terminally ill patients	80%

Risk factors

- Extremes of age
- Preexisting brain damage - e.g.: dementia
- Alcohol dependence
- Diabetes

- Cancer
- Sensory impairment e.g.:- blindness
- Malnutrition
- Severe illness
- Multiple diseases
- Polypharmacy
- History of delirium

Delirium episodes are associated with elevated morbidity, longer hospital stays and higher frequency of complications. Delirium carries an associated increased mortality risk during the year following an episode.

Etiology

The etiology can be remembered by the acronym '**I watch death**'

- Infections
- Withdrawal of alcohol, sedatives
- Acute metabolic
- Trauma-head injury, surgery, burns
- CNS pathology-IC SOL, epilepsy (status, ictal states), Wernicke's encephalopathy
- Hypoxia
- Deficiency -vitamins b1, b12, folate
- Endocrine-thyroid, parathyroid, adrenal dysfunction

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- Acute vascular- TIA, stroke, hypertensive encephalopathy, shock
- Toxins, drugs (polypharmacy, anticholinergic drugs)
- Heavy metals (lead, mercury)

CLINICAL FEATURES

- It is a syndrome of acute onset, fluctuating course and brief duration (usually days to weeks). The severity of symptoms fluctuates over 24 hour period with lucid intervals in between. The symptoms may be worse at night (sun downing).
- Inattention is the cardinal symptom required to diagnose delirium .When interviewed, the patient is distractible and unable to sustain attention. He has difficulty in maintaining conversation or following commands of the examiner.

The other symptoms are

- Disturbance in alertness (level of wakefulness)& reduced clarity of awareness of the environment
- Cognitive deficits (Multiple) .The patient is disoriented to time, place and/or person. There is impairment in memory. Immediate and recent memory is mainly affected. There may be language impairment e.g.:- word finding difficulty, irrelevant and incoherent speech. The patient's speech may appear meaningless.
- Motor activity alterations. The patients may be restless and agitated(hyperactive) or lethargic (hypoactive).There may be complex, repetitive movements and purposeless behaviour like picking at the bed clothes and pulling at the tubes and catheters
- Psychotic symptoms. Illusions (false interpretation of stimuli:-eg a rope is mistaken for a snake) and hallucinations (perception in the absence of a stimulus, eg: - seeing a snake when actually it does not exist). Hallucinations and illusions are primarily seen in the visual modality though they can occur in the tactile and auditory modality also. The patient may be become suspicious and deluded. The delusions may relate to persecutory themes of impending danger or threat. The delusions are generally poorly formed and short-lived.
- Disruption of the sleep wake cycle-It is often manifested as disrupted sleep at night with or without day time drowsiness.

Subsyndromal delirium

One or more symptoms may be seen without having the

full syndrome. It is more common in elderly patients. The symptoms may precede or follow an episode of delirium or may never progress to delirium.

DIAGNOSIS

Diagnostic criteria for delirium, adapted from Diagnostic and Statistical Manual of Mental Disorders (DSM IV-TR)

Delirium has many causes. DSM IV-TR gives separate diagnostic criteria for each type of delirium. The syndrome however is the same regardless of the cause.

- A. Disturbance of consciousness (i.e. reduced clarity of awareness of the environment) with reduced ability to focus, sustain, or shift attention
- B. Change in cognition (such as memory deficit, disorientation, language disturbance or the development of a perceptual disturbance that is not due to a preexisting, established or evolving dementia.
- C. Disturbance develops in a short period of time and fluctuates over the course of the day
- D. There is evidence from history, physical examination, and laboratory findings that the disturbance is caused by a general medical condition; or by substance intoxication; or withdrawal; or by medication; or caused by more than one etiology.

Differential diagnosis

1. Dementia-It is gradual in onset, progressive and not usually reversible. The cardinal feature is memory impairment along with other multiple cognitive deficits. Except in end stage illness, the patient is alert and attention is not impaired. There is no fluctuation in the level of consciousness
2. Depression-The cardinal feature is depressed mood with loss of interest and easy fatigability. There is no fluctuation in the level of consciousness

Course & prognosis

- Symptoms persist as long as the cause remains
- Symptoms recede over a 3-7 day period after removal of cause
- Older the patient and longer the period of delirium - longer the time for recovery

Delirium tremens (Alcohol withdrawal delirium)

- Delirium with anxiety, tremulousness & autonomic hyperactivity(fever, tachycardia, flushing, sweating)
- Begins within 72 hours of stopping alcohol, in an

alcohol dependent patient

- Associated with 20% mortality

Management of delirium

The four main principles of management are

- Identify and treat the precipitating causes.
- Provide environmental and supportive measures.
- Prescribe drugs aimed at managing symptoms.
- Regular clinical review and follow up.

Environmental and supportive measures

1. Education of all who interact with the patient (doctors, nurses, family, environmental and supportive measures etc.)
2. Reality orientation techniques.-Firm, clear communication-preferably by the same staff member; use of clocks and calendars and repeatedly and reassuringly orienting the patient to the environment.
3. Create an environment that optimizes stimulation (e.g.:-adequate lighting)reduce unnecessary noise: mobilize patient whenever possible.
4. Correct sensory impairments, (e.g.:-hearing aids, glasses)
5. Optimize patient's condition- attention to hydration, nutrition, constipation, urinary retention, pain control.
6. Make environment safe (remove objects with which patient could harm self or others).

Pharmacological management

Pharmacological management is based on the notion of a relative dopamine excess and cholinergic deficiency as the principal neurochemical aberrations underlying delirium. Haloperidol remains the standard agent used to treat delirium. Low doses are recommended. Suggested dose are 1-2 mg every four hours as needed, but with lower dose (eg 0.25-0.5mg every four hours) in the elderly and very frail. In our experience, it is preferable to start with 0.25-0.5mg every 8 hours and then increase the dose if required. Accumulating evidence supports the use of atypical antipsychotics such as risperidone, olanzapine, and quetiapine in the management of delirium. Haloperidol (<3.5 mg/d), risperidone, and olanzapine were equally effective in treating delirium, with few adverse effects (Cochrane Database of Systematic Reviews 2007). At this time, benzodiazepines cannot be recommended for the treatment of non-alcohol related delirium (Cochrane

Database of Systematic Reviews 2009)

Management of alcohol withdrawal delirium

1. Adequate supportive and nursing care is needed. The medical and surgical complications like electrolyte imbalance, diabetes, hypoglycemia, pneumonia, head injury, etc has to be promptly detected and treated.
2. Benzodiazepines (eg:-lorazepam, chlordiazepoxide, diazepam) are the main stay of management
Diazepam 10mg i/v, then 5mg every 5-10mts, until calm but awake, then every hour as needed or
Lorazepam 1-4 mg i/v every 5-10mts or 1-40mg i/m, every 30-60 mts then every hour as needed, until calm but awake.
Dosing should be individualized; can be tapered and stopped, usually over a period of 5 days to oneweek. In elderly patients and patients with serious medical complications a short acting benzodiazepine like lorazepam is preferable in the management of alcohol withdrawal delirium
Antipsychotics are preferably avoided, in the management of alcohol withdrawal delirium.
3. Thiamine should be given routinely.
4. It reduces the risk of Wernicke's encephalopathy. Give 100 mg IV/IM for 3 days and thereafter oral. If intravenous glucose is given to the patient, thiamine should always be given prior to that in order to prevent Wernicke's encephalopathy.

Table 1. Dose of Benzodiazepines

	Chlordiazepoxide	Diazepam	Lorazepam
Equipotent dose	25 mg	5 mg	1 mg
Half-life	50-100 hours	20-50 hours	10-18 hours
IM absorption	Erratic	Erratic	Complete

Steps to prevent delirium

- Careful attention to hydration and nutritional status
- Sleep enhancement
- Pain relief
- Early mobilization
- Correction of vision / hearing
- Reorientation strategies, cognitive stimulation
- Elimination of unnecessary medication
- Optimal level of environmental stimulation (eg- natural levels of diurnal lighting) (Yale delirium Prevention Trial, S K. Inouye et al (1999) NEJM)

CONCLUSION

Though delirium is a medical emergency, more than 50% of cases are missed, misdiagnosed or diagnosed late. Therefore increased awareness about the condition among health care professionals is needed. In an individual, the causes of delirium can be multiple; addressing each cause is necessary. Delirium may be the first and at times the only indicator of a serious physical morbidity. (e.g.:- UTI in an elderly). Multiple evaluations over 24 hour period, coupled with a good history is required for diagnosis, because of the fluctuating nature of the syndrome. Optimal management requires the collaborative efforts of careers and health care staff.

END NOTE

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