

**ACUTE DELIRIUM IN THE ELDERLY**



*“Dickens’ Dream”, unfinished, oil on canvas, Robert W. Buss (1804-1875)*

*Robert W. Buss’s poignant unfinished work depicts Charles Dickens in his later years. He rests asleep in his study, no longer able to continue the physical effort of writing late into the night. Though his physical body is weakening his mind remains as active as it ever was. He recalls in his dreams characters long past, hundreds of them, and many who would serve as the prototypes or stereotypes in the eyes of future generations of the collective psyche of the Nineteenth century - his greatest bequest to posterity. When Dickens died, Sir Luke Fildes would capture the world’s sense of sad loss, in his work, “The Empty Chair.”*

*We should recall that though the elderly grow frail and immobile - their minds can yet remain very active, even though no longer retaining the ability to distinguish reality from imagination. In many cases, not numbing drugs, but simple reassurance and emotional support will be all that is required, to alleviate their lonely anxieties.*

## ACUTE DELIRIUM IN THE ELDERLY

### Introduction

Acute delirium (or confusion) in the elderly is a very common presenting problem in the Emergency Department.

The challenge of management will lie in controlling the symptoms whilst at the same time determining and treating the underlying cause.

In patients who have pre-existing dementia, especially if severely so, delirium may simply appear as the patient being “unwell” or “not normal”, with very little else to go on.

### Pathophysiology

Acute delirium may result from multiple different pathologies that can have an effect of the frontal lobe systems, which are largely the “behavioral and executive” parts of the brain. This results in disruption of multiple integrated cognitive pathways to the rest of the brain.

The end result is to diminish attention and concentration and disconnect that patient from his/her environment.

### Risk Factors:

The primary risk factors for developing an acute delirium include: <sup>3</sup>

- Advancing age.
- Pre-existing dementia.
- Multiple co-morbidities
- Psychoactive medication use
- Sleep deprivation
- Dehydration
- Immobility
- Pain
- Sensory impairment
- Hospitalisation.

### Causes

*The most common precipitants include:*

1. **Infection**, (including fever in its own right)

Most commonly the source will be:

- Chest
- Urine
- Cellulitis

*Less commonly*

- Septicemia
- CNS
- Occult surgical infection, (eg: cholecystitis, diverticulitis)

2. **Drug or Toxin effects:**

Drug effects are a very common cause of acute delirium and altered conscious states in the elderly

Causes include:

**Sedative and analgesic drugs:**

- Excessive dosing of sedative or sedating drugs, such as benzodiazepines, opioids, codeine, oxycodone, antipsychotic agents.

Included in this group are also the effects of the abrupt withdrawal of benzodiazepines.

**Drugs that have anticholinergic properties:**

- Drugs which have prominent **anticholinergic properties**, should be avoided in older patients.
- Antipsychotic agents, Antihistamines, Antiparkinsonian (e.g., bztropine).

**Drugs which can accumulate in the elderly with renal failure and result in chronic toxicity:**

- Lithium, theophylline, digoxin, metformin, salicylates.

**Hyperthermic drug reactions:**

- Rarely hyperthermic drug reactions, (neuroleptic malignant syndrome, serotonin syndrome) may be cause of acute delirium

### Alcohol related:

- **Alcohol**, acute intoxication or withdrawal syndromes in chronic abusers.

### Steroids:

- Prolonged use of higher doses.

### Beta Blockers:

- In particular, sotalol and propranolol.

3. Stroke.

4. Dehydration

- This may be a cause of acute delirium, but also a consequence of it when a patient refuses food and drink due to their confused state.

5. Hypoxia or hypotension in general, (from any cause)

6. Environmental Factors

These may include:

- Pain
- Impaired sensory input, especially reduced visual input at nightfall or malfunctioning hearing devices.
- Sleep deprivation.
- Sudden changes in usual environment.

In hospitalized elderly patients the prevalence of delirium is 5-10% on admission to an ED and this increased to around 30% in medial patients one or more days after admission. The incidence post operatively is around 50%.<sup>1</sup>

7. Urinary retention or fecal impaction.

8. Metabolic causes:

- **Hypoglycemia.**
- **Hyponatremia/ hypernatremia**
- **Hypercalcemia.**
- Hepatic encephalopathy.

- Wernicke's encephalopathy, (thiamine deficiency) is an important cause in alcoholics.
9. Acute Coronary syndromes.
  10. Thyroid disease.
  11. Seizures and post-ictal states.

### Clinical Features

General features of an acute delirium include:

*Main features:*

1. Acute onset of disorganized thinking.
2. Symptoms typically fluctuate.
3. Unable to maintain attention, with consequent poor short-term memory.
4. Variable alterations in the level of consciousness

*Additionally:*

5. Disorientation to variable degree with respect to "time, place or person"
6. Hallucinations:
  - Visual more commonly than auditory.
7. Delusions:
  - Particularly of a persecutory nature.
  - These are usually only fleeting.
8. Alterations in usual behavior.

With demented patients assessment will be more problematic and the patient may simply appear to be "not their usual selves"

Manifestations of this may include:

- Refusal to eat or drink.
- Altered sleeping patterns.
- Reductions in a patient's usual mobility.

Important points on history include:

1. The nature and rapidity of onset of symptoms.
  - Note that this will usually require a careful history from a family member or caregiver who *knows the patient well*. This is especially important in patients who have pre-existing dementia.
  - This will often mean that the family member, caregiver or residential supervisor (hostel or nursing home) will need to be *contacted by phone* if they do not present with the patient, in order to elucidate the history.
  - Again this can be problematic in those with pre-existing dementia, and the question will need to be asked, “How different from normal is the patient?”
2. What medications is the patient taking, including any recent alterations in dosage.

*Especially consider:*

- Sedative or analgesic agents.
  - Warfarin, or other NOACs (causing an intra-cerebral bleeds)
3. It is *essential* to establish the patient’s normal level of function, again family members or caregiver will need to be consulted.
  4. Social supports available to the patient.
  5. Current or past history of alcohol abuse.
  6. Has there been any history of recent trauma?

Important points on examination include:

1. All patients must have vital signs checked, including pulse oximetry.
  - It is important to note that absence of fever does not rule out the possibility of sepsis in the elderly patient.
2. A BSL should be done.
3. Hydration status.
4. Any evidence of trauma, especially of head injury.
5. Neurological examination:
  - Are there any focal neurological signs?
  - Are there any signs of Wernicke’s encephalopathy?

6. Check for urinary retention:
  - Clinical assessment may be problematic in a confused/ agitated patient, and so an **ultrasound bladder scan** examination will be useful in this regard.
7. General examination for any obvious source of sepsis.

Screening tool:

The **CAM** screen:

The **Confusion Assessment Method (CAM)** is probably the most widely recognised of all clinical **delirium screens**.<sup>2</sup>

The CAM was developed for non-psychiatrists and is based on the DSM-III-R criteria.

It consists of 4 components: an acute and fluctuating course, inattention, disorganized thinking and an altered level of conscious state.

For a diagnosis of **delirium by CAM**, the patient must display:

- Acute onset mental changes with a fluctuating course.

*AND*

- Inattention

*AND EITHER ONE OF:*

- Disorganized thinking

*OR*

- Altered level of consciousness

Differential Diagnosis:

The most important will include dementia and major depression.

<b>Clinical Feature</b>	<b>Delirium</b>	<b>Dementia</b>	<b>Major Depression</b>
<b>Onset of confusion</b>	Acute and incoherent.	Chronic, may or may not be incoherent.	Acute, impoverished rather than incoherent.

<b>Consciousness</b>	Fluctuates	Alert	Alert
<b>Memory</b>	Poor short term.	Poor short term.	Intact or selectively impaired
<b>Attention</b>	Inattentive and easily Distracted.	Attentive	May have difficulty in concentrating.
<b>Psychosis</b>	Common, but fleeting and simple.	Usually absent	Frequent and sustained, complex often paranoid.

### Investigations

Not all the following will be need in all cases - investigations will be tailored to the degree of index of suspicion for ant particular cause, as determined by history and examinations findings.

*The following may need to be considered:*

1. Blood tests:
  - FBE
  - CRP
  - U&Es and glucose
  - LFTs
  - Calcium level.
  - Folate and B12 levels.
  - CK, (rhabdomyolysis from trauma or hyperthermic drug reaction)
  - Troponin I, (recent myocardial infarction)

*Others as clinically indicated:*

- Blood cultures.
- Thyroid function tests.

- If there appears to be abdominal pain, LFTs/ lipase/ lactate levels should also be considered.
  - Blood alcohol.
  - Urine drug screens.
2. Urine collection for micro and culture.
- In elderly confused patients, this may require “in/out” catheterization to obtain a sample.
3. CXR
4. ECG
5. **CT brain**
- This may be problematic in the acutely confused elderly patient.
- The risks of sedation versus the possible benefits of the scan will need to be considered on an individual case by case basis.

*Pathologies to be sought in particular will include:*

- Stroke, (infarction or hemorrhage)
  - Unrecognized trauma (especially subdural hematomas).
  - Space occupying lesions.
6. EEG:
- The above investigations may diagnose the cause of a delirium but only an EEG is *sensitive* in making an objective diagnosis of delirium, though in practice this is never done.
  - An EEG will show generalized slowing.
  - In cases where alcohol or sedative withdrawal is causing delirium, an EEG can show fast low-voltage activity.
  - In hepatic encephalopathy, an EEG characteristically displays triphasic delta waves.
  - EEG findings typically remain normal early in the course of Alzheimer's disease.

## Management

### Non-pharmacological strategies

Frequently no medication will be required if careful attention is paid to environmental management as well as treatment of the underlying cause.

Verbal reassurance and constant reorientation by staff and family members if present.

Engaging the help of relatives or carers is often very helpful in the acutely agitated elderly patients.

Ensure glasses are readily available if required and hearing aids are functioning normally.

Environmental factors also play an important role in the management of elderly patients with an acute delirium.

- A calm environment should be provided, by keeping noise to a minimum.
- Lights should be dimmed where possible.
- Television or music may be useful calming distracters.

### Anti-psychotics

Anti-psychotic agents are useful when there are significant psychotic/ delusional symptoms.

A number of small trials have shown that typical (particularly haloperidol) and atypical antipsychotics improve hyperactive symptoms, such as agitation, restlessness, thought and perceptual disturbance, and shorten the duration of delirium.<sup>3</sup>

Hypoactive symptoms however such as drowsiness and sedation may be exacerbated.

### Oral medication:

For less agitated patients, oral medications may be used

An essential aphorism of geriatric pharmacology is to “start low and go slow”.

Suggested initial doses are:

- **Haloperidol 0.5 mg**
- **Risperidone 0.5 mg**
- **Olanzapine 2.5 mg.**

Depending on the response additional doses can be given after 2 - 4 hours, otherwise daily.

However for the more frequent dosing, the patient should be closely monitored for over-sedation.

### Parenteral medication:

More severely agitated patients may require parenteral antipsychotic medication.

**The doses of antipsychotic agents used for delirium in elderly patients are usually much less than those that are required to control acute behavioral emergencies in younger patients, who really constitute a different and clinically distinct problem.**

For acute severe agitation and aggressiveness in the **elderly** especially when associated with acute psychosis **haloperidol** and **olanzapine** are the most commonly used agents:

Not that these antipsychotics are sedative, but not strongly so. They are eliminated only slowly and so repeat doses may have cumulative effects. As their onset of action can be delayed from 30 to 60 minutes after administration, second doses should not be given for at least 30 minutes.

### Haloperidol:

- **Intramuscular** administration is preferred over IV, (to lessen the chance of cardiac toxicity or excessive sedation).
- Dosages for this agent can range from 2.5 to 10 mg intramuscularly titrated to effect - but in the setting of delirium in the elderly, doses as little as **0.5 mg IM** may suffice.
- The exact amount however will depend on the patient's age, physical status and severity of symptoms.

Note that the **newer atypical antipsychotics** like **risperidone**, **olanzapine**, **quetiapine** and **aripiprazole** are possibly more effective for acute delirium in the elderly but they are but not significantly so.

They do however appear to have fewer extrapyramidal adverse effects.

### Olanzapine:

This may be used as an alternative to haloperidol.

- **Use 2.5 mg IM olanzapine.**

### Sedation

Additional sedation with benzodiazepines may be required when a patient becomes a risk to themselves or others due to extreme agitation or aggression, though in the elderly these are not usually required.

**In general, the benzodiazepines should be avoided in the elderly patient with delirium (especially in patients with significant respiratory depression).**

Situations where benzodiazepine use may be required include:

- Alcohol withdrawal
- Seizures
- Sedation of urgent investigation (such as CT scan) or management.

IV diazepam or IV/ IM midazolam are the best agents to use.

- Caution must be used with these agents in the elderly. Smaller doses should be used initially and carefully titrated to effect.

### Physical Restraint

On occasions some physical restraint may also be required in addition to chemical sedation.

In general, however physical restraints should be avoided, as these will tend to aggravate the symptoms of delirium.

### Underlying illness or precipitating factors

**Where any underlying illness or causative factor can be identified, this must be treated.**

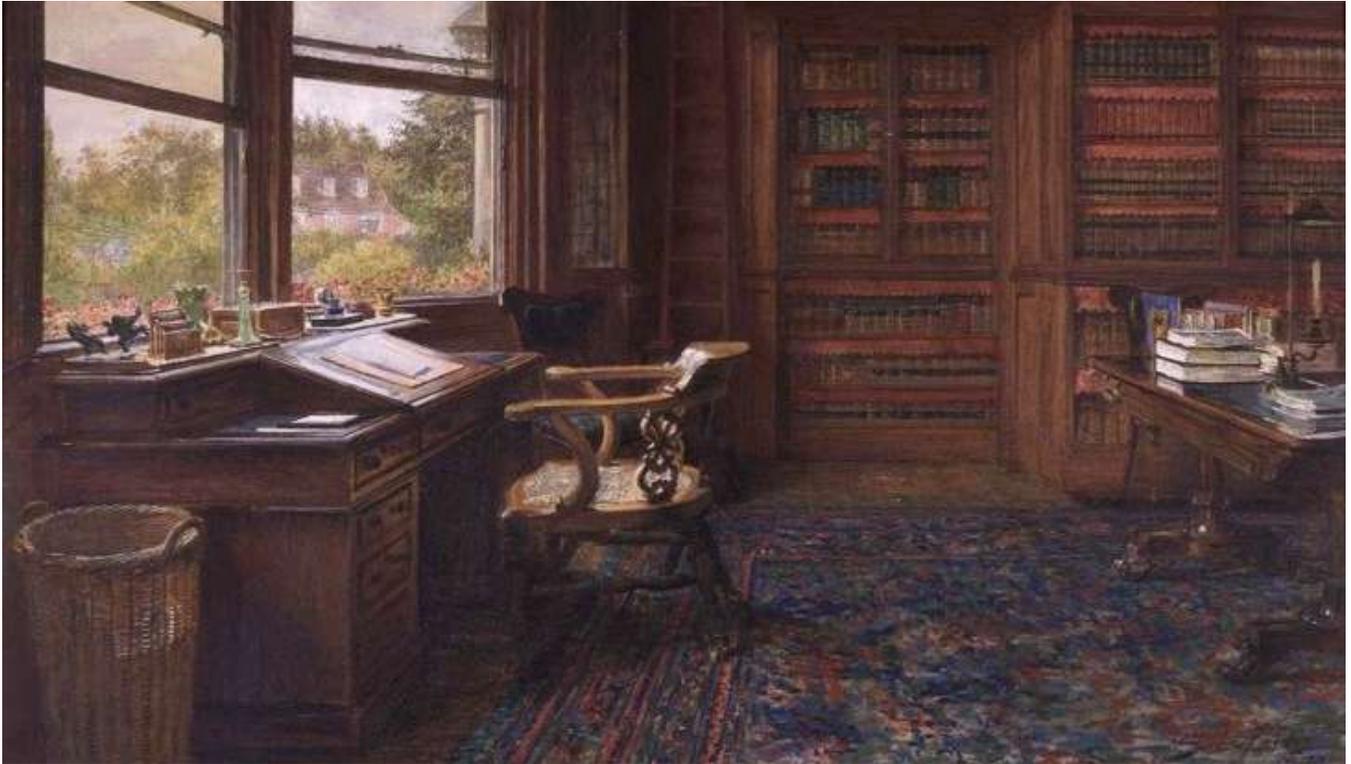
This will commonly include rehydration, antibiotics, analgesia and review of medications.

### Disposition

Admission to hospital is required for both management and possible further investigation.

Specialized acute care units for Care of the elderly patient are ideal, when available. These provide comprehensive geriatric assessment with multidisciplinary care and 24 hour close nursing supervision, (which will also play a part in reducing the number of falls in these patients).

Where these units are available, patients can generally be managed with less resort to physical restraint or sedation.



*“The Empty Chair”, water color on Paper, 1870, Sir Luke Fildes.*

### References

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Dr J Hayes

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