Delirium

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Delirium = Acute Brain Failure

What is Delirium?

DSM V

A) Disturbed level of Attention and Awareness

B) Develops over a short period, represents an acute changes, fluctuates

C) Change in cognition

D) No better explained by pre-existing, established neurocognitive disorder

E) Evidence of an underlying cause

Phenotypes:

Hypoactive > Mixed > Hyperactive

Complications of Delirium

HOSPITAL (1)

- Falls
- Urinary incontinence
- Pressure Injuries
- Deconditioning

- ↓Independence
- ↑NH placement
- ↑LOS
- ↑mortality (2)

COGNITIVE (2)

- New cognitive impairment.
- Accelerated dementia.

$8.8 Billion year in Australia

Increased duration of delirium are associated with worse outcomes.

(1)Siddiqi. Age and Ageing. 2006;35:350-64; (2)McCusker. Arch Intern Med. 2002;162:457-63; (3)MacLullich. Int Rev Psych 2009;21:30-42.

Incidence of delirium

Delirium is common:

Population	Prevalence (%)	Incidence (%)
Geriatric Medicine	25	20-29
General Medicine	18-35	11-14
ICU	7-50	19-82
Dementia	18	56
Orthopaedic Surgery	17	12-51
Cardiac Surgery	-	11-46
Non-cardiac Surgery	-	11-46
Palliative care, cancer	-	47

Inouye SK Lancet 2014; 383: 911-22

CASE 1

- Mrs A, 87F from HLCNH, presents with delirium “calling out”
  - Mx: Dementia, IHD, HTN, visual impairment secondary to glaucoma.
  - Mobilises 2 assist 4WW, requires assistance all pADLs.
  - O/E: afebrile, HD stable, abdomen tender LLQ
  - Ix: Bloods – NAD, bladder scan 40mL, U/A clear
  - AXR – faecal loading +++

IMPRESSION: Delirium secondary to constipation.

- Discharged with post-enema with laxatives.

CASE 2

- Mrs B, 83F from home, presents with delirium – “drowsy, slurred speech, disorientated”.
  - Mx: HTN
  - High functioning, cognitively intact, independent all ADLs.
  - O/E afebrile, HD stable, hypoactive, nil focal neurology/infectious source.
  - Bloods – NAD, bladder scan 40mL, U/A 10-100WCC, - nitrites.
  - CXR clear, CTB nil acute.

IMPRESSION: Delirium secondary to UTI -> admit.

- Day 1: remains drowsy, 2 assist mobility, ?dysarthria
- Day 2: MRI -> internal capsule stroke
- 4 weeks later, post-rehabilitation discharged to RACF.

Clinical Care Standards

Delirium Clinical Care Standard

1 A patient presenting to hospital with one or more key risk factors for delirium receives cognitive screening using a validated test. In addition, the patient and their carer are asked about any recent changes (within hours or days) in the patient's behaviour or thinking.

Why do people become delirious?

Predisposing factors:

- Dementia
- Cognitive impairment
- History of delirium
- Functional impairment
- Visual impairment
- Hearing impairment
- Medical comorbidities
- Alcohol misuse
- Age >75 years

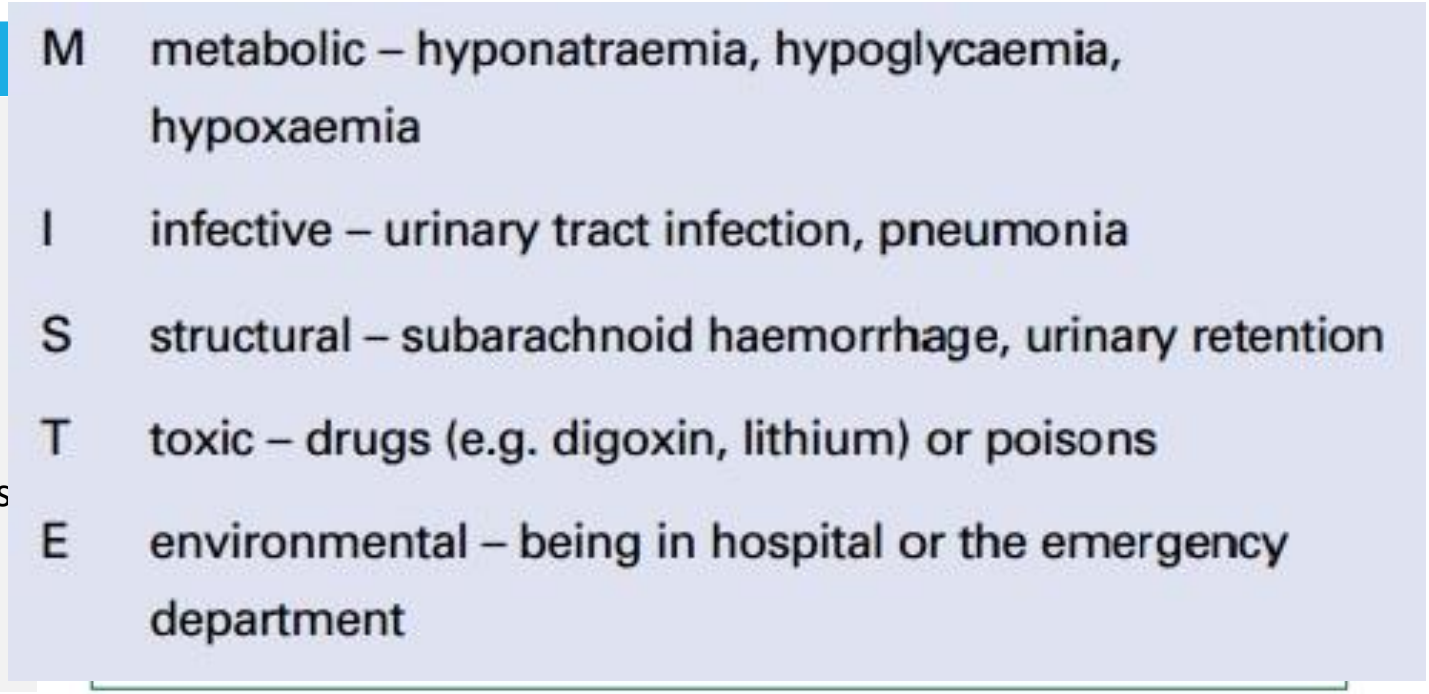


Figure: Multifactorial model of delirium in older people

Precipitating factors:

- Drugs
- Infection (bugs)
- Metabolic
- Brain disorders
- Systemic organ failure
- Urinary retention
- Constipation
- Environmental
- Surgery

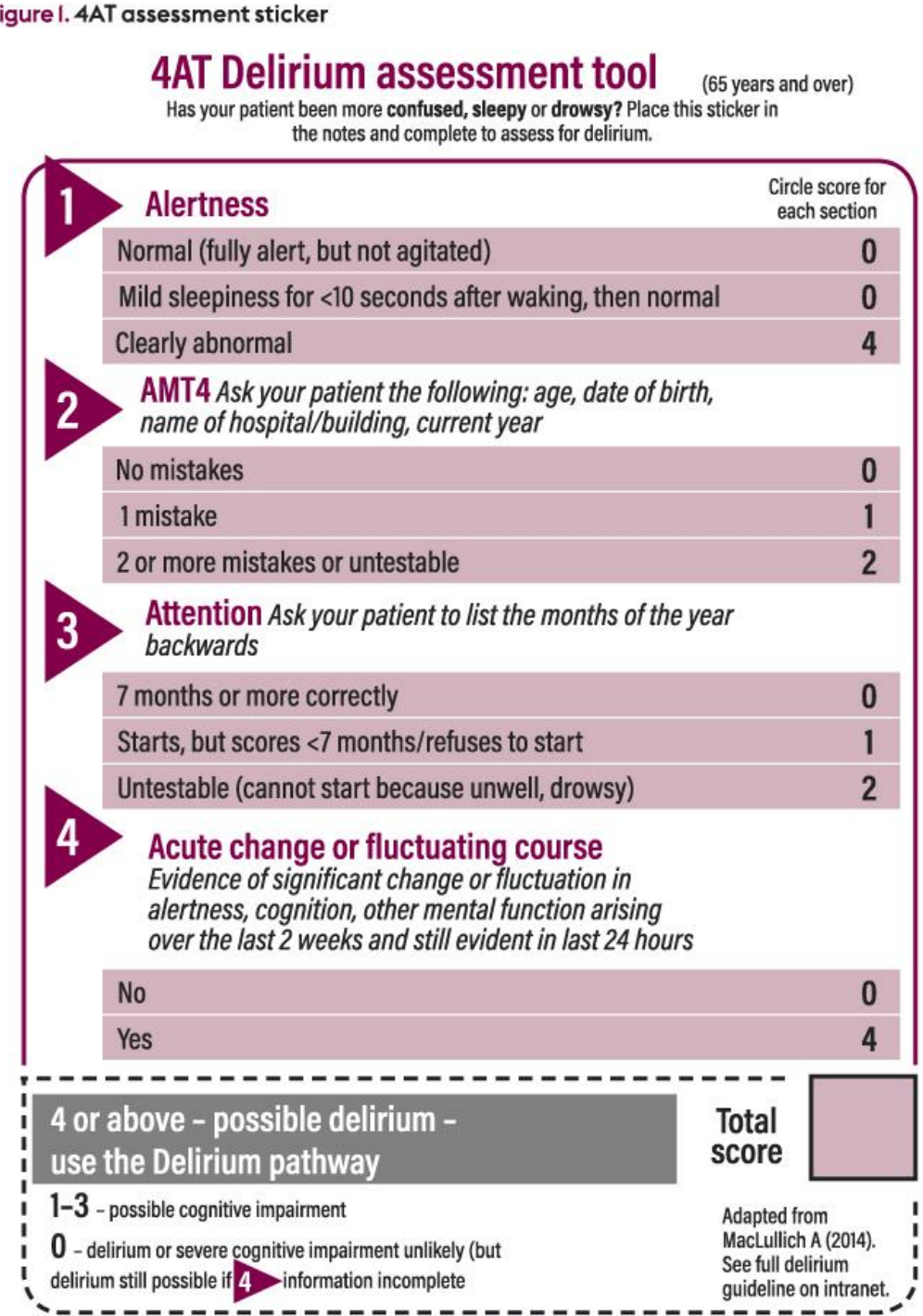
Inouye SK Lancet 2014; 383: 911-22

Delirium Detection

4AT (screening)

CAM / 3D-CAM / DSMV (screening and diagnosis)

Figure I. 4AT assessment sticker



4AT Delirium assessment tool

(65 years and over)

Has your patient been more **confused, sleepy** or **drowsy?** Place this sticker in the notes and complete to assess for delirium.

1 Alertness

Circle score for each section

Normal (fully alert, but not agitated)	0
Mild sleepiness for <10 seconds after waking, then normal	0
Clearly abnormal	4

2 AMT4 *Ask your patient the following: age, date of birth, name of hospital/building, current year*

No mistakes	0
1 mistake	1
2 or more mistakes or untestable	2

3 Attention *Ask your patient to list the months of the year backwards*

7 months or more correctly	0
Starts, but scores <7 months/refuses to start	1
Untestable (cannot start because unwell, drowsy)	2

4 Acute change or fluctuating course

Evidence of significant change or fluctuation in alertness, cognition, other mental function arising over the last 2 weeks and still evident in last 24 hours

No	0
Yes	4

4 or above – possible delirium – use the Delirium pathway

Total score

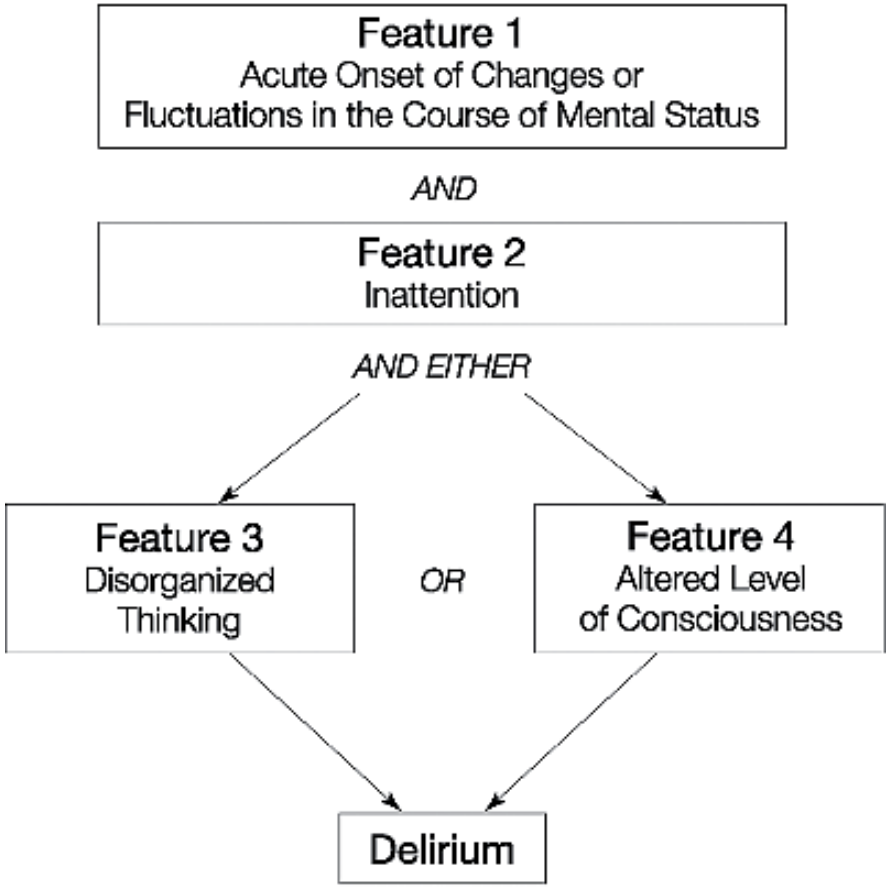
1–3 – possible cognitive impairment

0 – delirium or severe cognitive impairment unlikely (but delirium still possible if 4 information incomplete

Adapted from MacLullich A (2014). See full delirium guideline on intranet.

2 A patient with cognitive impairment on presentation to hospital, or who has an acute change in behaviour or cognitive function during a hospital stay, is promptly assessed for delirium by a clinician trained and competent in delirium diagnosis and in the use of a validated diagnostic tool. The patient and their carer are asked about any recent changes in the patient's behaviour or thinking. The patient's diagnosis is discussed with them and is documented.

CAM (Confusion Assessment Method)



3D-CAM

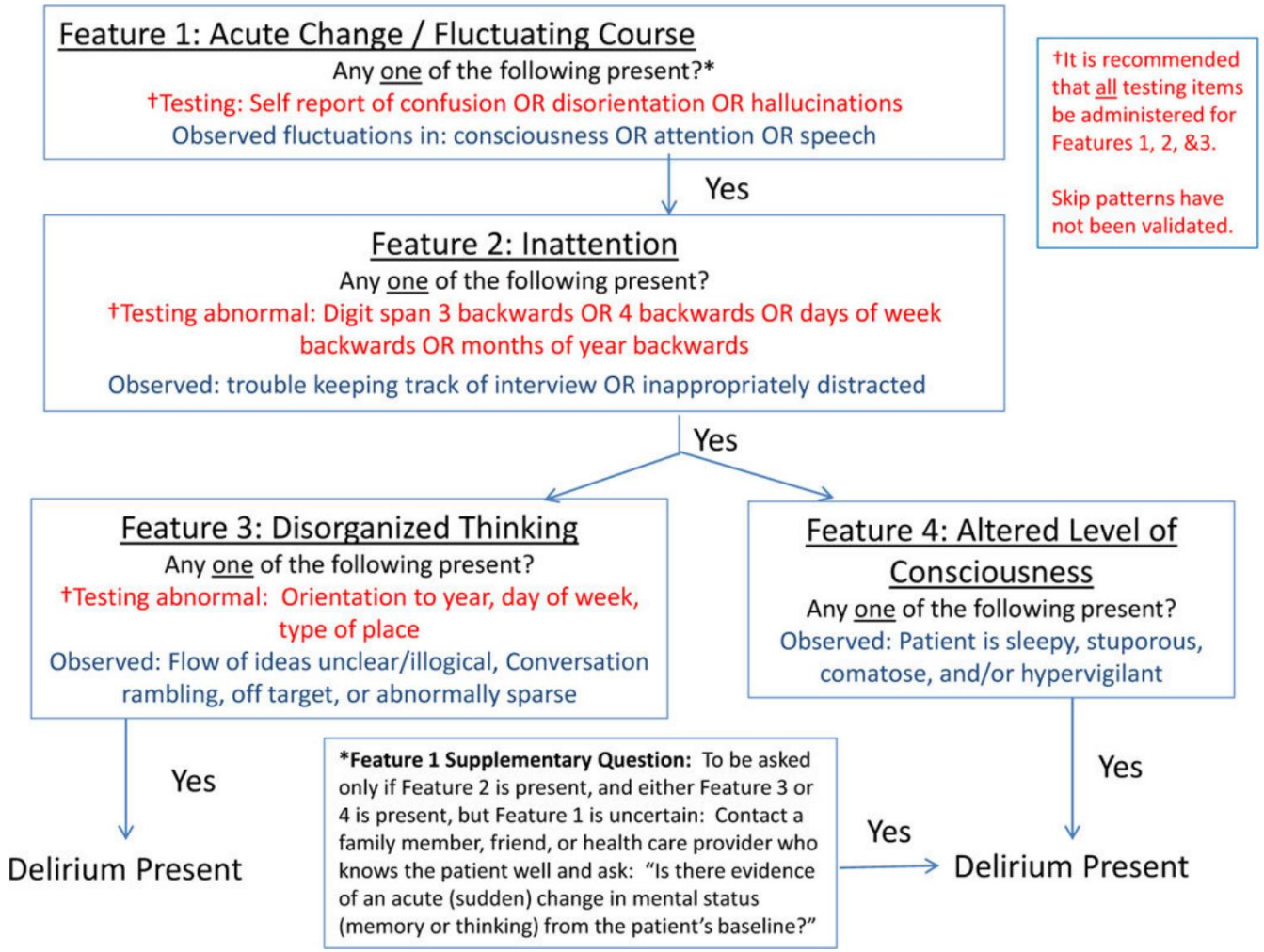


Figure 1. Overview of 3D-CAM Assessment

This figure depicts the CAM diagnostic algorithm, with the 3D-CAM items and scoring summarized under each CAM diagnostic feature.

DSM V

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Features	Delirium	Dementia
Onset	Acute	Gradual
Course	Fluctuating	Progressive
Duration	Days – weeks	Months - years
Consciousness	Altered	Clear
Attention	Impaired	Normal (unless severe)
Psychomotor changes	Increased or decreased	Often normal
Hallucinations	Common	Usually only advanced disease
Reversibility	Usually	Rarely

3 A patient at risk of delirium is offered a set of interventions to prevent delirium and regular monitoring for changes in behaviour, cognition and physical condition.

Non Pharmacological Prevention/ Management

- Personal profile (sun flower tool)
- Behaviour chart (to identify triggers)
- Family involvement
- Hydration / Nutrition (chart)
- Mobility and falls assessment
- Bladder and bowel function
- Sleep hygiene
- Sensory input
- Pain management
- Promoting cognition: reorientate, reassure

30-40% of delirium is preventable

4 A patient with delirium is offered a set of interventions to treat the causes of delirium, based on a comprehensive assessment.

Patient Assessment

History and Examination

- Medication review (especially anticholinergics / sedatives / opioids)
- Alcohol, smoking and benzodiazepine use (consider withdrawal)
- Ask about pain/discomfort (e.g. urinary retention, constipation)
- Collateral history from family / nursing staff / carers
- OE: Vitals, hydration status, infectious sources, focal neurology, urinary retention

Delirium Investigations – 1st Line

- FBC, EUC, CMP, LFTs, glucose
- TFTs, B12 level (if not recently checked)
- Drug levels if relevant (e.g. digoxin, lithium, anticonvulsants)
- Septic screen (U/A +/- MSU, blood cultures if febrile)
- CXR
- Bladder scan
- ECG / troponin (if indicated) – atypical presentation of AMI

Delirium Investigations – 2nd Line

- ABG
- AXR
- CT Brain (if focal neurology or suspected head trauma)
  - Hufschmidt 2008 – retrospective study of 294 patients:
    - No focal abnormalities **and** fever or dehydration → 96% scans normal
    - No focal abnormalities **and** baseline dementia → 98% scans normal
- EEG
  - Exclude occult seizures / non-convulsive status epilepticus
  - Almost always abnormal in delirium (diffuse slowing) – therefore can help differentiate from psychiatric conditions
- Lumbar Puncture
  - Suspected infective / inflammatory / paraneoplastic processes
- MRI

Management Principles

- Multicomponent non-pharmacologic prevention strategies
- Identify and treat underlying precipitants
- Rationalise medications
- Prevent Complications
- Education (health care professionals / family / carers)
- Refer for follow up
  - Delirium is a risk factor for cognitive decline and dementia
  - 40% of older patients presenting with delirium have an undiagnosed cognitive impairment(1)

5 A patient with delirium receives care based on their risk of falls and pressure injuries.

Pharmacotherapy in Delirium

Antipsychotics = no evidence

6 Treatment with an antipsychotic medicine is only considered if a patient with delirium is distressed and the cause of their distress cannot be addressed and non-drug strategies have failed to ease their symptoms.

Antipsychotics

- Reserve for patients with severe agitation where required for:
- Investigation & treatment of underlying conditions
- Reducing risk of harm to self or others
- Severe, distressing psychotic symptoms
- No role in hypoactive delirium
- Avoid in Parkinsons disease / LBD (risk of ESPE)
- Start low, go slow
- Oral route where possible

Antipsychotics: Side Effects

- Extrapyramidal side effects
- Both typical & atypical attach to D2 receptor
- Atypical occupy D2 receptor transiently and then rapidly dissociate → less likely to cause EPS
- QT prolongation
- Prolong duration of delirium
- Increased risk of falls & fractures
- Orthostatic hypotension, seizures, disturbed glucose & lipid metabolism
- Increased risk of stroke & death

The extremely agitated patient (chemical restraint)

1. Get help – security
2. If sedation is required – try oral first:
   - Antipsychotics:
     - Risperidone 0.25 – 0.5mg PO (tablet or liquid)
     - Haloperidol 0.25 - 0.5mg PO / SC / IM
     - Quetiapine 12.5 – 25mg PO
   - Benzodiazepines – lorazepam 0.5 – 1 mg PO
3. Parenteral sedation:
   - Haloperidol 0.5mg IM
   - Midazolam 1 - 2mg IM – with close monitoring of airway

7 Before a patient with current or resolved delirium leaves hospital, the patient and their carer are involved in the development of an individualised care plan and are provided with information about delirium. The plan is developed collaboratively with the patient's general practitioner and describes the ongoing care that the patient will require after they leave hospital. It includes a summary of any changes in medicines, strategies to help reduce the risk of delirium and prevent complications from it, and any other ongoing treatments. This plan is provided to the patient and their carer before discharge, and to their general practitioner and other ongoing clinical providers within 48 hours of discharge.

3 Steps in Delirium Management in the Older Person

1. Observation

Is the patient confused, drowsy agitated or aggressive?

↓

Is this an acute change?
If unsure ask relative, carer or nursing staff familiar with patient

↓

Suspect delirium
Is there a serious underlying medical illness?

↓

Possible Causes

M	metabolic
I	infective
S	structural
T	toxic
E	environmental

↓

What next?

2. Assessment

RMO

1. IDENTIFY AND TREAT THE UNDERLYING CAUSE

- Commence with comprehensive assessment that includes history from the patient, family/carers and nurses.
- Review medications: especially anticholinergics, sedatives and opioids.
- Consider drug withdrawal: alcohol and benzodiazepines.
- Good physical examination: assess for hydration, infections, urinary retention, constipation, neurological causes, arrhythmias and hypoxemia.
- Investigations: BGL, UEC, LFT, Calcium, MSU, CXR, BC, AXR, CT Brain, if focal neurology, head injury or recent decreased LOC or history of falls, ? subdural

THE USE OF RESTRAINTS SHOULD BE AVOIDED WHEREVER POSSIBLE

Please read the Restraint policy found on in the Clinical Procedures Manual Re: safe restraint, documentation and gaining consent

2. CONSIDER DRUG MANAGEMENT

- Only needed to manage severe agitation/aggression, as it may worsen the delirium.
- START LOW AND GO SLOW
- If medication required for restraint, follow restraint policy PD111.
- Drugs to consider for symptom management:
  - Risperidone 0.25-0.5 mg orally (wafer and liquid available) OR
  - Haloperidol 0.5 mg subcut /IM injection if unable to take oral medication.
  - Lorazepam 1mg PO
- Avoid antipsychotics in patients with a Lewy Body dementia
- Contact Aged Care or Medical Registrar to review patient.

Australian Medicines Handbook 2010
Australian Medicines Handbook: Aged Care 3rd Ed 2010

NURSING ASSESSMENT

- Observations: Vital signs including TPR, RR, BP, Oxygen saturation, Neurological status (Glasgow Coma Scale, motor assessment, pupils). Monitor intake/output Attend to observations QID
- MSU, consider BSL
- Commence behaviour chart
- History: listen to the patient, family and carers, what has changed?
- Pain
- Necessity for IDC or IVT
- Urinary retention
- Constipation
- Discomfort
- Hungry/thirsty
- Sensory impairment

KEY POINTS

- Investigate and treat the underlying cause.
- Use a behaviour chart to document and monitor behaviour
- Refer to Aged Care if concerns re assessment and management of the delirium
- Use medications as a last resort and if required – START LOW AND GO SLOW

3. Care Strategies

NURSING MANAGEMENT

ENVIRONMENTAL:

- Safe environment: the patient may need 1:1 supervision, falls prevention strategies: "lo lo" bed, alarm mats?
- Reduce noise and over stimulation
- Vision and hearing impairment: use sensory aids
- Where possible, provide visual access to an outside area
- Use soft night light
- Remove clutter from the bedside
- Consider a family member/carer to sit at bedside

SUPPORTIVE MEASURES:

- Document behaviours clearly and management strategies that are working
- Give family/carers: Delirium: Information for Family & Visitors brochure
- Attend to unmet needs e.g. providing warmth; fluids for thirst and pain management as appropriate
- Reassure the patient before the patient becomes too distressed
- Reorientate the patient to time, day, place and person frequently, ask family members to bring in familiar items of patient to assist in orientating to new environment
- Provide simple explanations of nursing care
- Psychological stress: remain calm, use gentle approach, do not argue with the patient
- Encourage nutritional intake: assist patient with meals
- Monitor intake – food/fluid charts
- Monitor bowels - stool chart
- Encourage mobilisation if possible
- Physical activity within safe environment
- Promote normal sleep/wake cycle: avoid daytime sleeping
- CALD: use interpreters, ward words, phrases, family members
- MEDICATION USE ONLY IF NON- PHARMACOLOGICAL MEASURES UNSUCCESSFUL

RESOURCES

AACE Registrar	pg 47235
Aged Care CNC	pg 46523
Mental Health Liaison	pg 47298 or 47299
Psychogeriatrics	ext 23738
Drug & Alcohol CNC	pg 45046
Neuroscience CNC	pg 43074
After hours Nurse Manager	pg 44194
Telephone Interpreter	98286088
Delirium Policy	PD209

Author: Department of Geriatric Medicine Written: Feb 2011 Effective to: Feb 2012

Management of acute behavioural disturbance in patients with dementia/delirium with confirmed or suspected COVID-19

Screen all patients ≥65 years* for cognitive impairment/delirium using AMT and CAM or 4AT

*≥45 years for Aboriginal and Torres Strait Islander peoples

Confirmed or suspected COVID-19 and cognitive impairment/delirium:

- Implement behavioural management plan[2]
- Ensure Infection Control measures in place: Isolation, contact/droplet precautions
- Refer to the Geriatrics team via the hospital switch board
- Consider ordering a RAPID PCR swab in patients who are unable to adhere to COVID-19 isolation precautions due to cognitive and behavioural issues (discuss with Infectious Diseases team).

Behavioural disturbance escalating

(unable to maintain COVID-19 isolation precautions)

Activate RAPID RESPONSE – call 2222

If staff feel personally threatened or that staff or public safety may be compromised, a CODE BLACK response should be called immediately in addition to a rapid response call (2222).

If patient not responding to non-pharmacological de-escalation strategies:

ORAL:

Risperidone 0.5mg PO, OR

For patients with Parkinson's disease or Dementia with Lewy Body:
Quetiapine 25-50mg PO

Reassess after 30 minutes and consider further sedation if required

INTRAMUSCULAR:

Haloperidol 0.5-1mg IM, OR

For patients with Parkinson's disease or Dementia with Lewy Body:
Midazolam 1-2.5mg IM

Reassess after 20 minutes and consider further sedation if required

POST-SEDATION MONITORING IS REQUIRED IF ANY SEDATIVE IS USED:
Older patients with respiratory infections are at greater risk of respiratory depression. Complete a "Patient Restrictive Practice Chart"[3] and monitor vital signs 15 minutely for the first hour and hourly for 4 hours after sedation.
(Refer to Restrictive practices with adult patients, SESLHDPR/483)

The patient's 'Person Responsible' MUST be contacted within 24 hours if chemical sedation is used to make them aware of the rationale and risks.

COVID-19 and Delirium

- COVID-19 and delirium commonly co-exist and can be challenging to manage
  - Barriers to non-pharmacological management / basic communication
  - Balancing the risks of chemical restraint and respiratory depression
- KEY POINTS:

1) Consider a RAPID swab in patients with acute behavioural disturbance who are unable to maintain COVID-19 isolation precautions.

2) Patients with cog impairment who are unable to maintain isolation precautions must be reviewed urgently

3) Prevention should be prioritised and chemical restraint is a last resort

4) Safe prescription of chemical restraint.

Summary:

1. Delirium = acute brain failure, causes dementia and is a medical emergency
2. If in doubt, assume delirium, not dementia
3. Screening, prevention and management of delirium is everyone's responsibility
4. Diagnosing delirium is just the beginning:
   - What are the precipitating factors?
   - Prevent complications
   - Communicate with care-givers plan
   - Tailored non-pharmacological management
   - Follow up (delirium and dementia commonly coexist)