

Altered level of consciousness

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James talks to Dr Rob Hislop about managing a patient with altered level of consciousness on the wards.

Dr Robert Hislop is the Intensive Care Head of Department at the Mater Hospital and Staff Specialist Intensivist at the Royal Prince Alfred Hospital, Sydney. Rob is a Clinical Lecturer at the University of Sydney and has a strong interest in Echocardiography, Clinical Governance and Quality, Healthcare in the developing world and medical education.

Rob is also an active volunteer at Open Heart International.

Altered level of consciousness

With Dr Rob Hislop, Intensivist at Royal Prince Alfred and Mater Hospital, New South Wales, Australia

Case 1 – You are the JMO covering the ward and you are asked to see a 70 year old patient following a hip replacement who has become agitated/confused.

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1. Initial questions over the phone?

- *Assess how dangerous the situation is*
- How agitated is the patient? Are they ripping lines out/hitting staff/climbing out of bed etc?
- Assess patient at the bedside ASAP
- Patients can behave differently when delirious (hypoactive delirium versus extreme agitation/aggression which may pose great danger to themselves and staff)

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2. Outline your assessment approach by the bedside.

- **Examination:**

- How alert and awake is the patient?
- Assess ABCs: Signs of hypoxia/airway compromise? Hypotension
- **Manage the situation:**
 - Get help from several staff to physically restrain patient if they are very agitated (but only as a way of getting IV access for pharmacological management – should not rely on restraint alone)
 - Establish IV access
 - Administer sedative agents intravenously
 - NB: culturally doctors are hesitant to treat agitated delirium aggressively enough – if unmanaged can leave patients in elevated state and ongoing patient/staff risks
 - Investigate to find the underlying cause of delirium

3. Common causes of post-operative delirium?

- Infections – e.g. sepsis
- Inflammation – can be very common. A large operation itself can cause delirium
- Metabolic
- Endocrine
- Electrolyte – Na, Ca
- Drug withdrawal or intoxication – alcohol (but don't assume alcohol withdrawal in patients just because they consume alcohol)
- Sleep deprivation
- Brain reserve – what was the patient's mental capacity prior to presentation and could delirium be an exacerbation of a gradual mental decline in an elderly patient?

4. Pharmacological management of agitated delirium?

- Haloperidol – geriatricians tend to 'start low go slow' with 0.5mg, as too high a dose can oversedate the patient (and they sleep for the next 24hrs)
- Olanzapine
- Chlorpromazine
- DrHislop is an advocate of using IV pharmacotherapies, in intervals, standing by bedside observing the patient's response until adequate levels received.
- In patients who are particularly elevated/violent/delirious it is not unreasonable for ICU to be asked to review with a view of managing in the ICU if airway needs to be secured or cardiorespiratory depression may arise from sedation
- Can be difficult to titrate the level of sedation safely on the wards

Case 2 – You are on night shift reviewing a 70 year old patient post-op who is difficult to rouse.

1. How would you approach this case?

- Assess ABCs: airway patent, breathing adequately, pulse and BP
- Assess GCS:
 - Eyes
 - Verbal response
 - Motor response
- Are they in deep coma (GCS <8) or moderately drowsy (9-12)
- NB: motor score is particularly important. Can the patient obey commands?

2. What is your diagnostic approach to a patient who has altered LOC and is drowsy rather than agitated?

1. Altered LOC with focal neurological signs: e.g. fixed dilated pupil or abnormal posturing one side – suggestive of structural lesion in brain mandating urgent imaging
2. Meningism with absence of focal signs: ?meningitis
3. Absence of focal signs but no meningism: drug intoxication, post-ictal state, encephalopathy, electrolyte/endocrine disorders

3. What is the intensivist's approach to examining an unconscious patient

- In medical school we are taught to examine conscious/cooperative patients but there is a lot of examination that can be completed on unconscious patients
- Assess GCS
- Examine cranial nerves: pupil response to light, corneal reflexes, oculocephalic reflexes
- Focal neurological signs: upper and lower limbs
- Examine for meningism
- Look for toxidromes:
 - Opioid overdose: pinpoint pupils, slow respiratory rate, hypotension
 - Serotonin syndrome: dilated pupils, clonus in lower limbs greater than upper limbs.
 - Consider appropriate antidotes

4. Which of the 3 categories of patients need a CT scan?

- Examine patient thoroughly looking for signs of focal neurology - if present mandates imaging
- If **new** focal neurological signs needs CT scan
- In absence of meningism or focal neurology, the yield of CT imaging is very low
- Presence of meningism: evidence of subarachnoid hemorrhage and assess whether safe to do lumbar puncture

5. Any other investigations?

- If meningism present and CT rules out raised ICP: blood cultures, antibiotics
- No focal signs, no meningism: EUC (Na, Ca, Mg), BSL, paracetamol level, ABG (metabolic acidosis), serum osmolality (if a difference between calculated and expected osmolality consider exogenous osmol e.g. toxic alcohols)
- EEG at some stage if seizures a differential

6. Management strategies for patients with LOC? Who needs intubation?

- Common rule of thumb: GCS<8 intubate
- Intubate if any risk the patient will not protect their airway - e.g. inadequate gag reflex
- If patient's LOC is falling rapidly consider intubation
- Refer adequately experienced staff for intubation eg intensivists/ED
- Opioid intoxication: intubation and moving the patient to ICU to support them while opioids wearing off may be safer than giving naloxone immediately causing agitation or extreme pain Naloxone is short lived and patient may drop GCS in 30min again. Consider admitting narcotised patients to ICU for naloxone infusion. Intermittent naloxone is a bad plan. Reversing methadone is also not safe.

7. Reduced LOC. When should JMO discuss with medical or surgical registrar?

- If a patient has GCS 13-14 with known cause may not be too concerning
- If new GCS change in absence of diagnosis or ongoing deterioration JMO should discuss with senior staff

Take home messages

- Inflammation alone can be the cause of delirium
- Be cautious about assigning alcohol withdrawal alone as the cause of delirium
- Agitated delirium is a medical emergency and consider referring to ICU
- Much of the neurological examination can be done on unconscious patients
- Approach to assessment can be divided into 3 groups of patients: focal neurology, meningism but no focal neurology, no meningism and no focal neurology

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