Recognition of Delirium

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Introduction

* Due to aging population increasing number of surgical procedures are performed on elderly patients

* In the perioperative setting, whether pre or postop, delirium contributes to high morbidity and mortality

* It is often under-recognised

* In emergency situations like hip fractures the incidence is very high

* The purpose of this talk is to help in the recognition of delirium
Outline

- Prevalence
- Outcomes of delirium
- Types of Delirium
- Definition & Pathophysiology
- Pre-op modifiable risk factors
- Tools in assessment of delirium
Prevalence of delirium

- 60% in frail elderly patients
- 33.6% in coronary artery bypass graft elderly patients
- 41% after knee replacement
- 43-61% following hip fractures
- 70 – 87% in elderly ICU pts

Nat Rev Neurol 2009
Total cases of Hip fractures:

<table>
<thead>
<tr>
<th>Hospital</th>
<th>No of Hip Fractures</th>
<th>Delirium reported</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epworth Eastern</td>
<td>64</td>
<td>10</td>
</tr>
<tr>
<td>Epworth Freemasons</td>
<td>22</td>
<td>3</td>
</tr>
<tr>
<td>Epworth Richmond</td>
<td>87</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>173</strong></td>
<td><strong>18</strong></td>
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</table>

UNDER-RECOGNISED!!
used as a medical term as early as 1st century AD to describe mental disorders occurring during fever or head trauma
Delirium

PubMed ‘Delirium’ Title Search
Outcomes of delirium:
- Death
- Unresolved delirium
- Missed diagnosis
- Complications & Prolonged hospitalization
- Full recovery
- Functional impairment
- Increased cost
- Residential care
Types of Delirium

* Hyperactive
  Most easily recognisable type, restlessness, agitation, aggressive, rapid mood changes or hallucinations

* Hypoactive
  Inactivity or reduced motor activity, sluggishness, abnormal drowsiness, withdrawn quiet and sleepy

* Mixed
  Include both hyperactive and hypoactive symptoms. The patient may quickly switch from hyperactive to hypoactive states

NICE clinical guidelines 28/7/10, Mayo Clinic Delirium
Diagnostic Criteria (DSM V)

A. **Disturbance develops over a short period of time** *(usually hours to days)* represents a change from baseline attention and awareness, and tends to fluctuate in severity during the course of a day.

B. **Disturbance in cognition** *(e.g., memory deficit, disorientation, language, visuospatial ability, or preception)*

C. **Disturbance in attention and awareness** *(reduced ability to direct, focus, sustain, and shift attention, reduced orientation to environment)*

D. The disturbance in criteria A and C are not better explained by a pre-existing, established or evolving neurocognitive disorder and do not occur in the context of a severely reduced level of arousal, such as coma.

A. There is evidence from the history, physical examination or laboratory findings that the disturbance is a direct physiological consequence of another medical condition, substance intoxication or withdrawal, or exposure to a toxin, or is due to multiple etiologies.
Pathophysiology

- Still not fully understood
- Interplay of neurotransmitters (acetylcholine, dopamine, serotonin, gamma-aminobutyric acid, cortisol and beta-endorphins)
- Cytokines such as IL-1, IL-6
- Stress reaction mechanism
- Structural mechanism
- Alteration of blood-brain barrier (BBB)
% of co-morbidities as per NICE guidelines

BMJ 2016;354:i4843B
Disability rates by age group and sex — 2009

Source: ABS Disability, Ageing and Carers, Australia: Summary of Findings, 2009 (cat. no. 4430.0)
ACS NSQIP®/AGS
BEST PRACTICE GUIDELINES:
Optimal Preoperative Assessment of the Geriatric Surgical Patient

American College of Surgeons
Innovating Quality: Highest Standards, Better Outcomes

AGS
ACS NSQIP®
Assess the following:

1. Cognitive ability & capacity
2. Depression
3. **Risk factors for developing delirium**
4. Look for alcohol & substance abuse
5. Pre-op cardiac evaluation
6. Risk factors for post op resp complications
7. Functional status & history of falls
8. Determine baseline frailty score
9. Assess patient’s nutritional status
10. Check medication and monitor polypharmacy
11. Determine patient’s treatment goals and expectations
12. Determine patient’s family and social support system
13. Order appropriate preoperative diagnostic tests
Predisposing factors

- Age >75 yrs
- Pre-existing cognitive deficits
- Dementia
- Stroke
- Parkinson’s
- H/O of delirium
- Severe or multiple medical comorbidities
- ↑ Alcohol
- Depression
- Polypharmacy
- Visual/hearing impairment
- Functional impairment
- Frailty

Precipitating factors

- Medications
- Severe or multiple medical problems, dehydration, El imbalance, poor nutrition, infection, hypoxia
- Surgery
- Anaesthesia
- Trauma/pain
- Substance withdrawal & abuse
- IDC /instrumentation
- Urinary retention
- Constipation
- Unfamiliar environment
- Physical restraint
- Sleep disorders

Delirium
Medication management

* Review patients’ complete medication lists

* Identify medications that should be discontinued or avoided prior to surgery

* Adjust doses of medications for renal function

* Monitor for polypharmacy and rationalize
Guidelines for Modifying Perioperative Medications

* Discontinue before surgery
  * Nonessential medications
  * Medications with potential for drug interactions with anesthesia
  * Refer Beers Criteria
  * Herbal medications stopped at least 7 days before surgical operation
Guidelines for Modifying Perioperative Medications

* Continue perioperatively
  * Medications with **withdrawal potential** including SSRIs, tricyclic antidepressants, benzodiazepines, antipsychotics, monoamine oxidase, MAOIs, beta blockers, clonidine, statins, and corticosteroids

* Additional considerations in patients at risk for postoperative delirium
  * Avoid starting new prescriptions for BZD and consider reducing BZD when possible
Predisposing factors

- Age >75 yrs
- Pre-existing cognitive deficits
- Dementia
- Stroke
- Parkinson’s
- H/O of delirium
- Severe or multiple medical comorbidities
- ↑ Alcohol
- Depression
- Polypharmacy
- Visual/hearing impairment
- Functional impairment
- Frailty

Precipitating factors

- Severe or multiple medical problems, infection
- Metabolic derangement-dehydration, poor nutrition, hypoxia, elec. imbalance
- Surgery
- Anaesthesia
- Trauma/pain
- IDC /instrumentation
- Urinary retention
- Constipation
- Unfamiliar environment
- Physical restraint
- Sleep disorders
Diagnosis

- It is a clinical diagnosis
- NO specific laboratory test to diagnose delirium
- Assessment Instruments commonly used:
  1. Confusion Assessment Method (CAM)
  2. 4AT
CAM provides a sensitivity of 94%, specificity of 89%

1. Acute onset and fluctuating course
2. Inattention
3. Disorganised Thinking
4. Altered level of consciousness

* 1+2 + either 3 or 4

CAM was designed to be scored based on observations made during formal cognitive assessment, such as with brief instruments like the MMSE or Short Portable Mental Status Questionnaire.

Without such formal assessment (or with very brief assessments), the sensitivity of the CAM for delirium detection is compromised.
Delirium – Screening

♦ Short Confusion Assessment Method (CAM)
  • Requires formal assessment of cognition *in addition* to CAM assessment
  • Requires formal training - 18 page manual
  • Difficult to apply in patients unable to participate in a structured interview
  • Copyright
New screening tool from UK

Has a sensitivity of 89.7% and specificity of 84.1% for delirium

Reasonable tool to use for initial assessment of delirium

Easy to apply, takes < 2 mins

Can be used even when patient not cooperating

Allows testing of patients who are unable to participate in testing (due to drowsiness or agitation)


The 4 'A's Test: screening instrument for delirium and cognitive impairment

[1] ALERTNESS
This includes patients who may be markedly drowsy (e.g. difficult to rouse and/or obviously sleepy during assessment) or agitated/hyperactive. Observe the patient. If asleep, attempt to wake with speech or gentle touch on shoulder. Ask the patient to state their name and address to assist rating.

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

[2] AMT4
Age, date of birth, place (name of the hospital or building), current year.

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

[3] ATTENTION
Ask the patient: “Please tell me the months of the year in backwards order, starting at December.”
To assist initial understanding one prompt of “what is the month before December?” is permitted.

- Months of the year backwards
  - Achieves 7 months or more correctly 0
  - Starts but scores <7 months / refuses to start 1
  - Untestable (cannot start because unwell, drowsy, inattentive) 2

[4] ACUTE CHANGE OR FLUCTUATING COURSE
Evidence of significant change or fluctuation in: alertness, cognition, other mental function (e.g. paranoia, hallucinations) arising over the last 2 weeks and still evident in last 24hrs

- No 0
- Yes 4
Questions???