Detecting delirium in the Medical Admissions Unit

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Medical admissions over 70

- 9% delirium alone

- 19% delirium complicating dementia

- 23% dementia alone

- Total delirium   28%

- Total dementia   41%

- Previously diagnosed dementia 28%

Whittamore et al, 2013

Why does delirium matter?

- Common

- Non-specific presentation of illness

- Serious consequences

- Causes distress

- Influences decision making

- Its on the health policy agenda

Delirium

Full blown episodes are usually easy to diagnose;
but it is not so easy to define neatly and
comprehensively in a few words …

Its prodrome, subclinical presentation, and potential
persistence present unresolved dilemmas
regarding the diagnostic boundaries of delirium

Meager and Trzepacz, Oxford Textbook of Psychiatry

Diagnosis: DSM IV definition

- A disturbance of consciousness
  - reduced clarity of awareness of the environment
  - reduced ability to focus, sustain, or shift attention
- Change in cognition
  - memory deficit, disorientation, language or perceptual disturbance
  - that is not better accounted for by a pre-existing, established, or evolving dementia.
- Develops over a short period of time and fluctuates during the course of the day
- Evidence of direct cause by general medical condition

DSM-IV

What is confusion?

- a vague term, use with care

- needs defining and diagnosing

- 'acute confusion' is obsolete

- cognitive impairment

  - delirium

  - dementia

  - (learning disability)

Mr AM - history

- 77 years old, fit and active.

- Unwell returning from holiday in the Gambia.

- Taking malaria prophylaxis (mefloquine).

- At home, feverish, flu-like.

- Worse over 2 days, odd behaviour, suspicious or apathetic.

- Wouldn't reason, denied there was anything wrong

- Angry and aggressive when suggested should see doctor

Mr AM - history

- Admitted to hospital.

- Well tanned. Tremulous. Temp 38.8C. Chesty. RR24

- Unable to give account of himself.

- Un-co-operative with examination. Getting out of bed.

- Hb 150g/l, WCC 33, Urea 13.7 creatinine 156. CRP 361.

- Thick film negative.

Mr AM
Chest X- ray

Mr AM - progress

- IV fluids, IV antibiotics

- Very disturbed, especially nights, resisting nursing care

- Pulled out drips, would not tolerate oxygen

- Given 5mg haloperidol IM on 2 occasions

- Spent a lot of the next 2 days asleep

Mr AM - conclusion

- Blood cultures grew strep pneumoniae.

- Fully recovered in 14 days.

- Diagnosis

  - pneumococcal pneumonia

  - complicated by delirium

Mr AM - features

- Change in cognition

- Fluctuation

- Distractible

- Worse at night

- Motor restlessness, some retardation

- Paranoid delusions

- Emotional changes (anger, fear)

- Medical cause

- Recovered

Confusion Assessment Method

The Confusion Assessment Method (CAM) Diagnostic Algorithm

Feature 1: *Acute Onset or Fluctuating Course*
This feature is usually obtained from a family member or nurse and is shown by positive responses to the following questions: Is there evidence of an acute change in mental status from the patient's baseline? Did the (abnormal) behavior fluctuate during the day, that is, tend to come and go, or increase and decrease in severity?

Feature 2: *Inattention*
This feature is shown by a positive response to the following question: Did the patient have difficulty focusing attention, for example, being easily distractible, or having difficulty keeping track of what was being said?

Feature 3: *Disorganized thinking*
This feature is shown by a positive response to the following question: Was the patient's thinking disorganized or incoherent, such as rambling or irrelevant conversation, unclear or illogical flow of ideas, or unpredictable switching from subject to subject?

Feature 4: *Altered Level of consciousness*
This feature is shown by any answer other than "alert" to the following question: Overall, how would you rate this patient's level of consciousness? (alert [normal]), vigilant [hyperalert], lethargic [drowsy, easily aroused], stupor [difficult to arouse], or coma [unarousable])

The diagnosis of delirium by CAM requires the presence of features 1 and 2 and either 3 or 4.

Inouye 1990

Vocab test

Cognition

Consciousness

Attention

Alertness

Awareness

Arousal

Understanding delirium

1. Cardinal feature: inattention

- distractibility

- reduced vigilance or concentration

- impaired awareness of environment

Attention

= voluntary direction of the mind upon an object with the intention of fully apprehending it

= ability to focus the mind, sustain and shift focus, on an environmental stimulus, idea, or series of connected ideas

Understanding delirium

2. Cognitive impairment - disordered thinking

- memory
- irrelevant, unfocussed thought
- loss of logic, rationality
- executive functioning
- visuo-constructional
- language and comprehension
- abstraction

Can be difficult to test

Understanding delirium

3. Abnormal sleep wake cycle

• fragmented

• reversed

• sleeplessness

Contributes to fluctuation in level of consciousness, hypoactivity

Understanding delirium

4. Temporal course: abrupt change, fluctuates

• new and rapid onset cognitive impairment …

• … or worsening of previous cognitive impairment

• Commoner in dementia

• Fluctuation over minutes to hours

• Beware progression of vascular dementia and dementia with Lewy Bodies

Understanding delirium

CORE

1. Inattention

2. Cognitive impairment

3. Abnormal sleep-wake cycle

4. Temporal course: abrupt change, fluctuates

ASSOCIATED

1. Psychosis in 50%

2. Psychomotor: agitation, restlessness, retardation

3. Altered or labile affect or emotion

4. Autonomic features

Delirium subtypes

- Hyperactive

- Hypoactive

- Mixed

Brief tests

- SQiD: Do you feel that [the patient] has been more confused lately?

- Level of consciousness: AVPU

- Months of year backwards

- Problems getting a history

Diagnostic clues?

	'Vague' N=28	'Poor historian' N=76	'Poorly motivated' N=21
Cognitive impairment	57%	58%	38%
Depressed	11%	13%	67%
Either	61%	67%	86%

O'Keeffe, Eur Ger Med 2011

Brief tests

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

4AT

Patient name:
Date of birth:
Patient number:
Date: Time:
Tester:

CIRCLE

[1] ALERTNESS
This includes patients who may be markedly drowsy (eg. 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 (eg. paranoia, hallucinations) arising over the last 2 weeks and still evident in last 24hrs

No	0
Yes	4

4 or above: possible delirium +/- cognitive impairment
1-3: possible cognitive impairment
0: delirium or cognitive impairment unlikely (but delirium still possible if [4] information incomplete)

4AT SCORE [ ]

- Alertness
- Cognition: AMT4
- Attention: YoM
- Acute change: SQiD

A. MacLullich
www.the4AT.com

Diagnosis: underlying cause

In DSM-IV it isn't delirium unless you can specify the underlying cause

- <50% have single cause

- 10-20% no apparent cause

- think more in terms of vulnerabilities and precipitants

A useless differential diagnosis

TABLE 3. Putative causes of delirium

Medications:
  Psychotropics (anxiolytics, sedative-hypnotics, barbiturates, antidepressants, antipsychotics, lithium)
  Anticonvulsants
  Analgesics
  Anticholinergics (antihistamines, antispasmodics, antiparkinsonian agents)
  Antiarrhythmics
  Antihypertensives
  Aminoglycoside antibiotics
  Miscellaneous (cimetidine, steroids, nonsteroidal anti-inflammatory drugs, salicylates)
Drugs of abuse (phencyclidine and hallucinogenic agents)
Alcohol
Poisons (heavy metals, organic solvents, methyl alcohol, ethylene glycol, insecticides, carbon monoxide)
Withdrawal syndromes
Alcohol
  Sedatives and hypnotics
Cardiovascular
Congestive heart failure
Cardiac arrhythmia
Myocardial infarction
Neurologic
  Head trauma
  Space-occupying lesions: tumor, subdural hematoma, abscess, aneurysm
  Cerebrovascular diseases: thrombosis, embolism, arteritis, hemorrhage, hypertensive encephalopathy
  Degenerative disorders: Alzheimer disease, multiple sclerosis
  Epilepsy
Infection
  Intracranial: encephalitis and meningitis (viral, bacterial, fungal, protozoal)
  Systemic: Pneumonia, septicemia, subacute bacterial endocarditis, influenza, typhoid, typhus, infectious mononucleosis, infectious hepatitis, acute rheumatic fever, malaria, mumps, diphtheria, AIDS
  Metabolic
  Hypoxia
  Hypoglycemia
  Acid–base imbalance: acidosis, alkalosis
  Electrolyte imbalance: elevated or decreased sodium, potassium, calcium, magnesium
  Water imbalance: inappropriate antidiuretic hormone, water intoxication, dehydration
  Failure of vital organs: liver, kidney, lung
  Inborn errors of metabolism: porphyria, Wilson disease, carcinoid syndrome
  Remote effects of carcinoma
  Vitamin deficiency: thiamine (Wernicke encephalopathy), nicotinic acid, folate, cyanocobalamin
Endocrine
  Thyroid: thyrotoxicosis, myxedema
  Parathyroid: hypo-and hyperparathyroidism
  Adrenal: Addison disease, Cushing syndrome
  Pancreas: hyperinsulinism, diabetes
  Pituitary hypofunction
Hematologic
  Pernicious anemia

A useful differential diagnosis

- meds

- meds

- meds

- brain disease

- infection

- hypoxia

- metabolic

- some combination

- something else

Rockwood 2001

Slow (and fast) recovery

Persistence

- 61% after 24h

- 45% at discharge

- 33% at 1 month

- 26% at 3 months

- 21% at 6 months

Cole et al 2009

Mr MB - history

- 81 years old, lives alone. Son calls daily

- Son on holiday in Berwick.

- Confused on phone.

- 'Rambling, talking rubbish, own jargon'

- Nil else to add on MAU. Apyrexial. WCC 6. CRP 5.

- Diagnosis: confusion ? cause ? infection

Mr MB – on MAU

- Seen by 2 consultants

- Diagnosed UTI

- Prescribed trimethoprim

Mr MB - history

- Detailed questioning of son
  - onset was sudden
  - no hint of prior cognitive problems

- Alert and attentive

- Severe expressive aphasia, with moderate receptive aphasia

Mr MB
Non-contrast enhanced CT head

Mr MB
Non-contrast enhanced CT head

Small infarct insular cortex

Delirium summary

- If a screening test is abnormal it must be followed up

- You must talk to families or other carers

  - To get a collateral history

  - To explain what is going on

  - To engage them in care

- Learn to examining the mental state

Delirium summary

- If it's there we need to spot it

- Policy demands we <u>screen</u> for it

- Look for change in cognition, inattention or drowsiness, fluctuation, psychosis

- The 4AT may help

- Look for the cause

How to miss delirium

- Keep any talk with patients to a minimum

- Do not assess cognitive function

- Assume cognitive impairment is long-standing

- Never talk to nurses, especially night staff

- Don't talk to families either

- If patient is withdrawn, start an antidepressant

- If patient is noisy, start a benzodiazepine

Thanks to Shaun O'Keefe