Does delirium increase the risk of dementia?

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25th April 2019
Mrs Smith

- 87 year old lady
- Lives alone as husband died 6 months ago
- Daughter rang ambulance after finding her very confused and not letting her into the house
- Unfortunately, daughter was unable to go to hospital with her mother as she had to pick her grandchildren up from school
Mrs Smith

• Arrived in A+E but quite distressed and would not let the doctors examine her

• Bloods showed CRP 300 and WCC 18 and deranged LFTs so she was admitted under the medics with:
  “?cholecystitis”
  “poor historian”

• There were no medical beds so she was boarded to a surgical ward
Mrs Smith

- She remained very settled on the ward and slept for long periods during the day and night
- When her daughter visited, she was concerned about how confused her mum was
- Unfortunately, the doctor responsible for her care was not on the ward as she was a boarder
- 7 days later she was more alert and eating and drinking and her bloods were settling
- Mrs Smith returned home the following day
Mrs Smith

- Her discharge letter stated:
  - “Admitted with cholecystitis. Managed with IVabs and gradually improved. USS suggestive of cholecystitis. Please recheck LFTs in 2 weeks and consider restarting statin accordingly”
Mrs Smith

- Once back at home, her daughter kept a close eye on her mum
- Her daughter took over the finances and did her weekly shopping
- She was worried about her mum because she was still more confused although much better than she had been just prior to being admitted to hospital
- She was unsure what to do and whether this was just normal at her age
What is delirium? – DSM-5 criteria

A: A disturbance in **ATTENTION** (i.e. reduced ability to direct, focus, sustain and shift attention) and **AWARENESS** (reduced orientation to the environment or even to oneself)

B: **ACUTE** onset, represents a change from baseline and tends to **FLUCTUATE** in severity during the course of the day

C: An additional disturbance in **COGNITION** (e.g. memory deficit, disorientation, language, visuospatial ability, or perception)

D: Disturbances in A and C are not better explained by another pre-existing, established or evolving neurocognitive disorder and do not occur in a context of coma

E: Evidence that the disturbance is a direct physiological consequence of another medical condition, substance intoxication or withdrawal or is due to multiple aetiologies

[American Psychiatric Association, 2013]
What is delirium?

- Sudden onset confusion
- Specifically affects attention and level of alertness

“They’re not normally like this”
What causes delirium?

Vulnerability
- Age
- Cognitive impairment
- Frailty
- Vision impairment
- Hearing impairment
- Comorbidity
- Depression
- History of stroke
- Previous delirium

Precipitant
- Medications
- Bladder catheter
- Infection
- Surgery/Trauma
- Electrolyte disturbance
- Constipation
- Dehydration
- Pain
- Environment

[Inouye et al, Lancet 2014]
Delirium is preventable

- In 30-40% of cases
Delirium is common

• The most common hospital acquired complication
• 1 in 5 hospital inpatients

[Ryan et al, BMJ Open 2013]
Delirium is serious

1. Causes considerable distress
   - For patients, relatives and staff
   - Short and long term distress
   - The thing they remember about hospital
     - “I do not want to go back to that hospital”
   - Information provision really helpful

[Partridge et al, IJGP 2013]
Delirium is serious

1. Causes considerable distress
2. Excess treatment costs of an additional £13,000 per hospitalisation

[Akunne et al, Age & Ageing 2012]
Delirium is serious

1. Causes considerable distress
2. Excess treatment costs of an additional £13,000 per hospitalisation
3. **Poor outcomes**
   - Institutionalisation
   - Mortality
   - Cognitive impairment
Delirium is associated with increased institutionalisation

- Discharged to a care home:
  - 33% of people with delirium
  - 10% of people without delirium
Delirium is associated with increased mortality

85 years old
MMSE 24/30
Hypertension, previous THR
WCC 18, CRP 206, pO2 7.9 RA
DELIRIUM

85 years old
MMSE 24/30
Hypertension, previous THR
WCC 18, CRP 206, pO2 7.9 RA
No delirium

[Jackson, 2014]
Delirium is serious

1. Causes considerable patient and carer distress
2. Excess treatment costs of an additional £13,000 per hospitalisation
3. Poor outcomes
   • Institutionalisation
   • Mortality
   • Cognitive impairment
The DECIDE Study
(Delirium and Cognitive Impact in Dementia)

- Background

“Is my mum going to get dementia?”
Measure the effect on cognition of an episode of delirium, independent of baseline cognitive status and illness severity.
The DECIDE Study
(Delirium and Cognitive Impact in Dementia)

- Background
- Aim
- Methods

Baseline cognitive assessment

Cognitive Function and Aging Study II (CFAS II)

2500 participants in Newcastle >65 years old

Delirium

ASSESS EPISODES OF DELIRIUM PROSPECTIVELY

Follow-up cognitive assessment

12 months after admission

Over a 12 month period

[Richardson et al, BMC Geriatrics, 2017]
“Is my mum going to get dementia?”

• She may already have dementia
  • Half of dementia is undiagnosed
    [Sampson et al, Br J Psychiatry 2009]

• She is at increased risk of developing dementia in the future
  [Davis et al, Brain 2012]
Delirium is often missed

- 43.6% had delirium or one of its synonyms documented in the case notes
  [Ryan et al, BMJ Open 2013]
- 6 month mortality higher if delirium missed prior to discharge from ED
  [Kakuma et al, J Am Geriatr Soc 2003]
  - 30.8% mortality if delirium missed
  - 11.8% mortality if delirium recognised
- Diagnose “delirium”, call it “delirium” and document “delirium”
<table>
<thead>
<tr>
<th>[1] ALERTNESS</th>
<th>CIRCLE</th>
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<tbody>
<tr>
<td>This includes patients who may be markedly drowsy (e.g., difficult to arouse 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.</td>
<td></td>
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<tr>
<td>Normal (fully alert, but not agitated, throughout assessment)</td>
<td>0</td>
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<tr>
<td>Mild sleepiness for &lt;10 seconds after waking, then normal</td>
<td>0</td>
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<tr>
<td>Clearly abnormal</td>
<td>4</td>
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<th>[2] AMT4</th>
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<tr>
<td>Age, date of birth, place (name of the hospital or building), current year.</td>
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<tr>
<td>No mistakes</td>
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<tr>
<td>1 mistake</td>
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<td>2 or more mistakes/untestable</td>
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<th>[3] ATTENTION</th>
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<td>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.</td>
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<tr>
<td>Months of the year backwards</td>
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<td>Achieves 7 months or more correctly</td>
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<td>Starts but scores &lt;7 months / refuses to start</td>
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<td>Untestable (cannot start because unwell, drowsy, inattentive)</td>
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<th>[4] ACUTE CHANGE OR FLUCTUATING COURSE</th>
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<td>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</td>
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<tr>
<td>No</td>
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<td>Yes</td>
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4AT SCORE

GUIDANCE NOTES

The 4AT is a screening instrument designed for rapid initial assessment of delirium and cognitive impairment. A score of 4 or more indicates a high likelihood of delirium and/or cognitive impairment. A score of 1-3 indicates a possible cognitive impairment. A score of 0 indicates no delirium or severe cognitive impairment unlikely (but delirium still possible if [4] information incomplete).
Summary

• Delirium is common, serious and distressing
• Delirium is associated with an increased risk of cognitive decline and dementia
• It is vital to diagnose delirium, document this and communicate the diagnosis with the patient, their family and their GP
• **Targeted delirium intervention may contribute towards dementia prevention**