Assessment of Delirium

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What is Delirium?

Delirium is a common clinical syndrome characterized by:
- Inattention
- Acute cognitive dysfunction

Pathophysiology: Disruption of neurotransmission (drug action, inflammation, acute stress response)

Delirium: Think rapid onset, inattention, clouding of consciousness (bewildered), fluctuation

Dementia: Think gradual onset, intellectual impairment, memory disturbance, personality/mood change, no conscious clouding

Do you know....

- Which syndrome occurs more commonly in elderly populations?
  a. Delirium
  b. Dementia
Do you know....

• Which syndrome occurs more commonly in elderly populations?
  a. Delirium
  b. Dementia
• Delirium is the most commonly occurring neurological disorder in later life.

Why Monitor for Delirium?

• 40% of hospitalized aged
• 80% of ICU patients
• 89% of hospitalized aged with dementia
• 20% at time of hospital admission
• 33% at time of hospital discharge
• 23% NH admission
• Delirium leads to increased mortality, longer hospital stay, poorer recovery, higher costs of healthcare, long-term neurocognitive problems

Poor Recognition of Delirium

• Delirium is poorly recognized in older hospitalized patients
  – 72.5% of nurses failed to recognize
  – 76% physicians failed to recognize

(Inouye, Foreman, Mion et al., 2001; McCartney & Palmateer, 1985; Steis & Pick, 2008)
Delirium & Dementia

- 88% of nurses and physicians failed to recognize delirium in a group of older subjects with dementia
- 100% of family members recognized abrupt mental status changes in their parent, spouse, or sibling

(Fink & Foreman, 2000)

Delirium: The Canary in the Coal Mine

- Under-recognized form of organ dysfunction
- 3-fold increase in mortality at 6 months
- Each DAY a patient is delirious = 10% INCREASE in risk of death

Delirium Risk Factors

- Acute illness itself
- Host related
- Iatrogenic factors

Likelihood of developing delirium is 60% or higher if three or more risk factors are present.
Risk Factors

- Age over 70
- Transfer from a NH
- Sleep deprivation
- Co-morbid factors
  - Depression
  - Dementia
  - History of stroke
  - History of seizures
  - Kidney disease
  - Heart failure
  - COPD
  - Cardiac or septic shock
  - HIV infection
- Alcohol abuse
- Psychoactive drugs
- Drug overdose
- High or low blood glucose
- Restraints
- Hypothermia or fever
- Tube feeding
- Rectal or bladder catheters
- Malnutrition
- Visual or hearing defect
- Alcohol abuse
- Psychoactive drugs
- Drug overdose
- High or low blood glucose
- Restraints
- Hypothermia or fever
- Tube feeding
- Rectal or bladder catheters
- Malnutrition
- Visual or hearing defect

Subtypes of Delirium

**Hypoactive**
Patient may be quiet and even peaceful, despite cognitive impairment (more difficult to assess).

**Hyperactive**
Patient may be combative with agitation that may require sedation (diagnosed more frequently).

**Mixed**
Combination of both types

Assessing Delirium

- **Confusion Assessment Method (CAM)**
  - Developed by Sharon Inouye in 1990
  - Valid & reliable regardless of population or experience of examiner
  - Completed by directly observing and conversing with patient
  - May want to perform standard cognitive testing
    - MMSE or Mini-Cog, or
  - Follow recommendations from the CAM-ICU (Ely, 2003)
**Confusion Assessment Method (CAM)**

1. Acute onset & fluctuating course
2. Inattention
3. Disorganized thinking
4. Altered level of consciousness

Diagnosis of delirium requires the presence of features 1, 2, and either 3 or 4

(Inouye, 1990)

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**Feature 1: Alteration/Fluctuation in Mental Status**

- Is the patient’s MS different from his/her baseline, OR
- Has the patient had any fluctuation in MS in the past 24 hours?
- Alteration/Fluctuation is present if answer to either question is “YES.”

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**Common Questions:**

- What if you do not know the patient’s baseline?
  - Assume normal unless you have red flags that make you suspicious
    - Red Flag: patient came from institution

- What about dementia?
  - Ask family “What could she/he do prior to this illness?”

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Feature 2: Inattention

Screening for Attention - Letter “A” Test

- "SAVE A HAART"
  - Instruct patient to squeeze your hand on the letter “A”
  - Inattention is present if >2 errors

Feature 2: Inattention

- What if the patient is too hyperactive or combative to participate in squeezing?
  - Remember what you are assessing—attention
  - This patient is inattentive

- If you have to explain the directions more than twice, be suspicious for inattention

If either Feature 1 or 2 are absent,

**Stop**

Overall CAM is **Negative**

If Features 1 and 2 are present,

**Proceed**

to Feature 3
Feature 3: Altered LOC

This is the first thing you do when you walk into the room!

- This feature is present when the patient demonstrates any LOC other than “awake and alert.”

Feature 4: Disorganized Thinking

- Have patient answer “Yes/No” questions
- Use any form of communication that works (verbalizing, nodding, hand squeezing, blinking, etc), AND
- Have patient follow 2-part command

Yes/No Questions

1. Will a stone float on water?
2. Are there fish in the sea?
3. Does one pound weigh more than two pounds?
4. Can you use a hammer to pound a nail?
2-Part Command

Say to patient:

- "Hold up this many fingers" (examiner holds two fingers in front of patient).
- "Now do the same thing with the other hand" (do not demonstrate).

- Patient gets credit only if he or she is able to successfully complete the entire command.
- **Disorganized thinking is present if** there is >1 error for the combined questions + command.

Confusion Assessment Method

- **Feature 1:** Acute change or fluctuating course of mental status
  - And
- **Feature 2:** Inattention
  - And
- **Feature 3:** Altered level of consciousness
  - Or
- **Feature 4:** Disorganized Thinking

Treatment of Delirium

- **Definitive treatment of the cause of delirium always takes precedence over symptomatic treatment**

- **When environmental interventions are implemented early and consistently, psychosis and agitation may be controlled without medication** (Inouye, 2006)
How is Delirium Managed?

- Identify & correct underlying causes
  - Drugs
    - Prescribed
    - Over-the-counter
    - Herbs
    - Alcohol
  - Infection
  - Fluid & electrolyte imbalance
  - Metabolic disturbances
  - Pain

Stop and THINK

Do any meds need to be stopped or lowered?
- Especially consider sedatives
- Is patient on minimal dose?
- Do sedatives need to be changed?
- Remember to assess for pain!

Consider antipsychotics after evaluating etiology & risk factors

Toxic Situations
- CHF, shock, dehydration
- Hypoxemia
- Infection/sepsis (nosocomial)
- Immobilization

Nonpharmacologic interventions
- Hearing aids, glasses, reorient,
  sleep protocols, music, noise control,
  ambulation

K+ or electrolyte problems

Delirium Case Study
### Case Study

- Mr. Garcia is an 82 year old man with type 2 diabetes, depression, and hypertension
- Medications - HCTZ 25 mg QD, Zoloft 50 mg daily, Ativan 0.5 mg TID, and metformin 500 mg bid
- Lives at an assisted living facility and was well until two days ago when he became angry and resistive to care, especially in the evening.
- Staff report that he has become incontinent of urine.

### Mental Status Assessment

- Drowsy but cooperative
- 2 errors on the “A” test
- Able to answer 4 questions and follow command

### Confusion Assessment Method

- What is Mr. Garcia’s CAM score?

1. Acute onset & fluctuating course
2. Inattention
3. Disorganized thinking
4. Altered level of consciousness

Diagnosis of delirium requires the presence of features 1, 2, and either 3 or 4.
Mr. Garcia's CAM

- Feature 1: Is he at baseline? Fluctuations? [Pos Neg]
- Feature 2: Two errors [X] [Pos Neg]
- Feature 3: No errors [X] [Pos Neg]
- Feature 4: Drowsy [X] [Pos Neg]

Mr. Garcia's CAM

- Feature 1: Is he at baseline? Fluctuations? [X] [Pos Neg]
- Feature 2: Two errors [X] [Pos Neg]
- Feature 3: No errors [X] [Pos Neg]
- Feature 4: Drowsy [X] [Pos Neg]

Confusion Assessment Method

- What is Mr. Garcia’s CAM score?

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Diagnosis

- What is the likely reason for Mr. Garcia’s symptoms?
  a. Dementia
  b. Delirium
  c. Delirium superimposed on dementia

Etiology

- What might be the underlying cause of delirium in Mr. Garcia’s case?
  a. Drugs
  b. Infection
  c. Fluid and electrolyte imbalance
  d. Metabolic disturbances
  e. All of the above
**Etiology**

- What might be the underlying cause of delirium in Mr. Garcia’s case?
  a. Drugs
  b. Infection
  c. Fluid and electrolyte imbalance
  d. Metabolic disturbances
  e. All of the above

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**Confusion Assessment Method Questions?**

- Feature 1: Acute change or fluctuating course of mental status
  
  And

- Feature 2: Inattention

  And

- Feature 3: Altered level of consciousness

  Or

- Feature 4: Disorganized Thinking

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2. Ely, et. al. CCM 2001; 29:1370-1379