Delirium in the Emergency Department

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What is delirium?

• Acute confusional state
• Disturbance of consciousness with reduced attention
• A change in cognition or perceptual disturbance
• Develops over a short period of time
• Evidence of medical cause from history, physical, or investigations

DSM criteria
Delirium Subtypes

• Hyperactive
  – Increased activity levels (overactive)
  – Loss of control of activity
    • Movements are unproductive or lacking in purpose
    • Lost sense of control over actions

• Hypoactive
  – Decreased speed of actions
    • moving more slowly
    • takes longer than usual to perform tasks
  – Decreased amount of speech
    • less speech
    • decreased spontaneous speech
Delirium

- Common in frail older patients with acute illness
- Often seen in patients with underlying dementia
- Prevalence:
  - 10-17% of older patients in the ED
  - 10-25% of medical in-patients
  - 10-50% of surgical in-patients
  - 30-80% of ICU patients
Delirium in Context of Frailty

• **Frailty Definition**: The variable susceptibility to adverse health outcomes of people of the same chronologic age

• Frail older adults behave as complex systems close to failure
  – Fail in highest order functions:
    • **Attention (delirium)**
    • Ambulation (falls)
    • Opposable Thumbs (impaired function)
    • Social interaction (social withdrawal)
Delirium - Risk Factors

• Often seen in patients with:
  – Dementia
  – Greater co-morbidities
  – Functional (ADL) Impairment
  – Sensory impairment
  – Depression
  – Psychotrophic drug use (including sedatives & narcotics)
  – Presenting with
    • Severe illness
    • Dehydration

(Inouye Ann Int Med 1993; Han Acad Emerg Med 2009)
Iatrogenic Risk Factors

- Use of physical restraints
- Use of bladder catheters
- Any iatrogenic event
- >3 Meds added
- Malnutrition

(Inouye JAMA 1996)
Why is delirium a concern?

- Can take months to resolve (if at all)
- Increased mortality
- Higher rates of in-hospital complications
- Longer lengths of ICU and hospital stay
- Persistent cognitive and functional deficits
- Higher rates of discharge to long-term care

(Salluh BMJ 2015; Marcantonio JAMA 1994; Inouye JGIM 1998; Francis JAGS 1992; O’Keeffe JAGS 1997)
Diagnosis – Simplifying it

Start with:

• Two-Item Bedside Test
  – Months of the year backwards
  – What is the day of the week?

• Helpful at ruling out delirium
  – 93% Sensitive (64% Specific)
  – LR 0.1 (+LR 2.59)

(Fick J Hosp Med 2015)
Diagnosis – Confirmation

Confusion Assessment Method (CAM)

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

Diagnosis of delirium if 1, 2, and either 3 or 4

(Inouye Ann Intern Med 1990)
Diagnosis

CAM

- Easy to administer
- Accurate
  - 86% Sensitive
  - 93% Specific
- High interobserver reliability
- Helpful at ruling-in and ruling-out delirium:
  +LR 9.6 (5.8-16)
  -LR 0.16 (0.08-0.29)

(Inouye Ann Intern Med 1990; Wong JAMA 2010)
Applying the CAM

3D-CAM
• 3min diagnostic interview for CAM-defined delirium
• 20 items
• Accurate
  – 95% (84%-99%) Sensitive
  – 94% (90%-97%) Specific
• Useful in those with Dementia
  – 96% (82%-100%) Sensitive
  – 86% (67%-96%) Specific

(Marcantonio Ann Intern Med 2014)
Feature 1: Acute Change / Fluctuating Course

Any one of the following present?*

†Testing: Self report of confusion OR disorientation OR hallucinations
Observed fluctuations in: consciousness OR attention OR speech

Yes

Feature 2: Inattention

Any one of the following present?

†Testing abnormal: Digit span 3 backwards OR 4 backwards OR days of week backwards OR months of year backwards
Observed: trouble keeping track of interview OR inappropriately distracted

Yes

Feature 3: Disorganized Thinking

Any one of the following present?

†Testing abnormal: Orientation to year, day of week, type of place
Observed: Flow of ideas unclear/illogical, Conversation rambling, off target, or abnormally sparse

*Feature 1 Supplementary Question: To be asked only if Feature 2 is present, and either Feature 3 or 4 is present, but Feature 1 is uncertain: Contact a family member, friend, or health care provider who knows the patient well and ask: “Is there evidence of an acute (sudden) change in mental status (memory or thinking) from the patient’s baseline?”

Delirium Present

Feature 4: Altered Level of Consciousness

Any one of the following present?

Observed: Patient is sleepy, stuporous, comatose, and/or hypervigilant

Yes

Delirium Present

†It is recommended that all testing items be administered for Features 1, 2, &3. Skip patterns have not been validated.

Figure 1. Overview of 3D-CAM Assessment
This figure depicts the CAM diagnostic algorithm, with the 3D-CAM items and scoring summarized under each CAM diagnostic feature.
Diagnosing Delirium in those with Dementia

• CAM
  – Specificity 96-100%
  – Sensitivity 77%
  – +LR = 19
  – -LR = 0.24
  – 3D- CAM
    • 96% Sensitive; 86% Specific

• EEG
  – Specificity 91%
  – Sensitivity 67%
  – +LR = 7
  – -LR = 0.36

(Morandi JAGs 2012)
Subsyndromal Delirium

- Presence of 1 or more symptoms of delirium but not meeting delirium diagnostic criteria
- 1-2 Core Criteria on CAM
- Prevalence = 23% (95%CI 9-42%)
- Similar risk factors as delirium
- Outcomes are intermediate between those with and without delirium

(Cole *Int J Geriatr Psych* 2013)
Prevention is Key

Multi-component Preventive Strategies Work

3 trials involving hip fracture pts (N = 646)

**Summary RR 0.75** (95% CI 0.64-0.88)

**NNT= 7** (95%CI 4-20)

No positive pharmacological trials

(Holroyd-Leduc C)
Preventing (and Managing) Delirium

Multi-component Interventions in the ED:
- Optimize sensory input
- Orientation protocols
- Comfort rounds
- Provision of familiar items and family presence
- Avoidance of restraints
- Use of atypical antipsychotics only were indicated
- Avoid missing meals
- Mobilize around the ED; up in chair for meals
- Screening for treatable causes

(Holroyd-Leduc CMAJ 2010; Sullinger Ann Pharmacother 2016; Bounds Am J Crit Care 2016)
Comfort Rounds

- Intentional patient-focused scheduled rounds
- Focuses on addressing unmet care needs
  - Toileting
  - Mobilization
  - Hydration/Nutrition
  - Pain
- Addresses patient orientation and safety issues
- Supports Delirium prevention and management
- Collaborative approach to care that involves all team members
What is the evidence for Comfort Rounds?

• Systematic literature review
  • 11 studies
  • Level of evidence: IIa-b (fair to very good evidence)
  • Medical/Surgical/ICU/Rehabilitation units
  • Looked at q1h or q2h rounding

• Outcomes
  • 5/6 studies showed reduction in call light use
  • 7/9 studies showed reduced fall rates
  • 8/9 studies showed improved patient satisfaction
    • Anticipation and attention to personal needs
    • Timeliness of nurses’ response
    • Management of pain

(Halm Am J Crit Care 2009)
What about diagnosing Dementia or Depression in Setting of Delirium?

- Collateral history may be suggestive of dementia or depression
- Depression and Dementia should not be diagnosed in the setting of acute delirium
- Need to address delirium first
Pain Management and Delirium

- Pain is a risk factor for delirium and agitation
- In frail older adults
  - Consider use of Acetaminophen regular dosing to help decrease amount of narcotics required
  - Consider non-pharmacological strategies
    - Warm/cold compresses
    - (Relaxation therapy/Massage/Music)
Pain Management and Delirium

• Narcotics in frail older adults
  – Start at doses 1/3 to 1/2 that used in younger adults and titrate up slowly
  • Consider the cumulative effect
    – age-related changes in body composition
    – age-related + disease-related changes in creatinine clearance
  – Consider drug-drug interactions (e.g. SSRIs) and drug-disease interactions (e.g. COPD)
  – For the strong-acting opioids, dose is more important than choice of narcotic

(van ojik Drugs and Aging 2012)
Managing Agitation/Aggression

Use non-Pharmacological Approaches First:

– Basics:
  • Calm approach
  • Reassure them that you are there to help
  • Consider your non-verbal communication
  • Optimize vision/hearing
N.I.C.E. & E.A.S.Y. Approach

Name
Introduce
Contact
Eye Contact & Explain
Avoid Arguments
Smile
You are the Key

Alzheimer's Society Canada
It’s All in Your Approach…

Name they prefer
Introduce yourself: NOD
  - *each time* you interact

Contact
  - Offer to Shake hands
  - If asleep: firm pressure on knee / shoulder to announce your physical presence
    • Soft touch is ‘arousing’ touch (think spiders crawling across your skin…)

Eye contact – demonstrates authentic listening
&

Explain what you are going to do **BEFORE** you do it!
  - No one likes ‘surprises’…
  - Use single *step instruction* (5 words or less)

Avoid Arguments
  - If *any* resistance (physical or verbal),
    consider trying the intervention at a later time
  - Ensure you have been ‘**NICE**’ before you trial any intervention.

Smile
  - Take a moment to ‘*breathe*’, calm yourself, smile and you will present as a
    ‘safer’, less ‘threatening’ care provider

You are the key!
  - You are in control and have the ability to change your approach to ensure a
    successful interaction
Managing Agitation/Aggression

• Second Line: Trial atypical neuroleptics
  Risperidone 0.25mg bid
  Olanzapine 2.5mg daily
  Seroquel 12.5mg qhs

  (Ozbolt J Am Med Dir Ass 2008)

  – Start low and titrate slowly
  – Frequently reassess and taper as soon as possible
  – There are side effects and risks
    • EPS
    • Delirium, over sedation and cognitive decline
    • Functional decline and falls
    • Increased risk of stroke (1-2% absolute increase)
    • Increased risk of death (1% absolute increase)

  (Sink JAMA 2005; Schneider JAMA 2005)
Case Discussions