Delirium

Identification and

Confusion Assessment Method (CAM)

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Applying Best Practices to Diverse Older Adults
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"Delirium: Identification and Confusion Assessment Method (CAM)"

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Dr. Hussain and Ms. Turner-Hubbard will inform you if they discuss anything off-label or currently under scientific research.

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About the Presenters

- Dr. Yusra Hussain is a Clinical assistant Professor at Stanford University. She is a board certified Internist and a Geriatrician and currently is the Medical Director of Aging Adult Services at Stanford, and is also the Medical Director of Vi CCRC and Manor Care, Health Care Center. Dr. Hussain is involved in the Medical education at Stanford school of Medicine and the fellowship proram for Geriatrics.
- Ms. Kathleen Turner Hubbard has been a geriatric nurse practitioner at Stanford Hospital and Clinic for the past 3 years, where she evaluates hospitalized geriatric patients with delirium. She has been a nurse practitioner for 30 years and has been working with older adults for more than 10 years

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Case vignettes

82 yo female admitted for total knee replacement, history of HTN and lives independently, was doing well until 2nd night post operatively when she was having difficulty with sleeping.

Case #2

Hispanic 85 yo female with no chronic illnesses admitted with urosepsis, treated with IV antibiotics. She responds to questions with smiles and does not follow directions

Case # 3

72 yo male executive admitted for abdominal hernia became acutely confused in anesthesia recovery area

Case #4

68 yo Asian male with esophageal cancer admitted for surgical excision and reconstruction. Has poor pain control postoperatively and continues to decline.

Delirium- Definition

- Delirium is a sudden change in mental status, or sudden confusion, which develops over hours to days.
- Clinical Features
  - Disorganized thinking
  - Altered sleep-wake cycle
  - Increased or decreased psychomotor activity
  - Perceptual disturbance: misinterpretations, illusions, hallucinations
  - Reduced ability to maintain attention – questions must be repeated
  - Clinical features fluctuate, so at times patient will appear normal

Why is Delirium Important?

- Increased Mortality/Morbidity
  - 62% greater risk of mortality in delirious patients
  - Higher Incidence of Cognitive Impairment at Hospital Discharge
  - Estimated costs: $16, 303- $64,421 per patient
  - More than $143 billion/year
  - Post-Hospital Costs:
    - Institutionalization, Rehabilitation, Home Care
    - Caregiver Burden

Leslie, DL & Inouye, SK, JAGS 59:S241-243, 2011

Epidemiology of Delirium

- Prevalence (On Admission): 14-24%
- Incidence (In Hospital): 6-56%
- Intensive Care Unit: 80%
- Orthopedic Surgery: 40-50%
- Cardiac Surgery: 38.5%
- Surgical Units: 10-15%
- Medical Units: 15-25%

Delirium Risk Factors

Present Upon Admission

- Chronological age
- Hearing or visual defects
- Dehydration/malnutrition
- Pre-existing Dementia
- Drug or alcohol withdrawal
- Metabolic abnormalities

Delirium Risk Factors

- Precipitating Factors
  - Acute fracture / Hip fracture*
  - Cardiothoracic surgery
  - Acute blood loss
  - Pre-existing functional impairment
  - Number of co-morbidities
  - Severe untreated pain
  - Advanced Cancer
  - Acute Metabolic Encephalopathy

Precipitating Factors

- Sleep disturbances
- Use of bladder catheter
- Immobility/use of restraints
- Medication (adding more than 3 new medications)
- Infections
- Hypoxia, hypotension, hypo-perfusion

Failure to Recognize Delirium

- 65% unrecognized by physicians
- 43% unrecognized by nurses
- 41.8% of Psychiatry referral for depression are delirium
- 53-59% of physician unaware of presence of underlying cognitive impairment in their patients
- 40% of cognitively impaired hospitalized individual will develop delirium

Types of Delirium- Spectrum is often Mixed

HYPO - ACTIVE DELIRIUM
Unawareness
Lethargy
Decreased alertness
Staring
Slow speech
Apathy
Decreased motor activity Often missed

HYPER - ACTIVE DELIRIUM
Easily startled
Easily distracted
Fast/loud speech
Agitated
Wandering
Combative

Maldonado J. Crit Care Clin.24;(2008):657-722

Three entities
Not mutually exclusive

	Delirium	Dementia	Depression
Consciousness	Fluctuating	Alert	Alert, Possibly Withdrawn
Onset	Abrupt	Gradual	Gradual
Course	Fluctuating	Slow decline	Variable
Orientation	Disoriented	Sometimes Disoriented	Oriented
Attention	Distracted	Usually normal	May Be Reduced

Delirium Evaluation and Management

Bedside Evaluation

- History
- Confusion Assessment Method (CAM)
- Physical examination (including neurological exam) and vital signs

Adapted from American Psychiatric Association Practice Guidelines. (1999) Practice Guideline for the Treatment of Patients with Delirium. *The American Journal of Psychiatry,* (supplement). Vol 156, No.5.

Confusion Assessment Method (CAM)

- Screening tool for delirium
- Developed to provide a quick, accurate method for detection of delirium for non-psychiatrically trained clinicians
- Widely used standard tool for clinical and research purposes nationally and internationally
- Used in over 250 original published studies to date
- Translated in at least 10 languages
- Sensitivity of 94% and specificity of 89%
- High inter-observer reliability

CAM-Short Form has Four Features

1. **Acute Onset** or **Fluctuating Course** *
2. **Inattention** *
3. **Disorganized Thinking**)
4. **Altered level of consciousness**

(Anything but **ALERT** is altered)

Acute Onset or Fluctuating changes in mental status

- Alteration in mental status (e.g. attention, orientation, cognition) that was new or worse for the patient, usually over hours or days.
- Ask family, caregivers if they have noticed change in patient's behavior
- Do these changes fluctuate during the day?

Question to assess mental status

- What is the reason for staying here
- Tell me the date, season and current year
- Tell me which hospital, which city and which state we are in.

INATTENTION

- Reduced ability to maintain attention to external stimuli and to appropriately shift attention to new external stimuli. Respondent seems unaware or out-of-touch with environment (e.g. dazed, fixated, or darting attention).

Tests for inattention

- Repeat the number 5- 9- 2
  - Now repeat backwards OR
- Spell the word W-O-R-L-D
  - Now spell world backwards OR
- Count backwards from 20.

DISORGANIZED THINKING

- Is indicated by rambling, irrelevant, or incoherent speech.
- Examples:
- You ask the respondent to tell you the reason he is admitted to the hospital. He responds, "I've have to get to the Yellow Brick road."
- You ask the respondent if she is able to feed herself. She replies, "It depends what kind of party I'm at; I need a bat's ram."

ALTERED LEVEL OF CONSCIOUSNESS

Any state of consciousness other than **Alert**

- **Vigilant:** respondent startles easily to any sound or touch
- **Stupor:** very difficult to arouse and keep aroused for the interview, requiring shaking or repeated shouting
- **Lethargic**: repeatedly dozes off while you are asking questions. Difficult to keep respondent awake for interview, but does respond to voice or touch
- **Coma**: respondent cannot be aroused despite shaking and shouting

CAM Positive

1. Acute onset mental status changes or a fluctuating course

and

2. Inattention

And--Either

3. Disorganized thinking

OR

4. Alternating level of consciousness

Delirium screening is positive with the presence of Features 1 and 2 AND either 3 or 4

Inouye SK. Ann Intern Med. 1990; 113:941-8.

Potential treatments of delirium

Prevention is key

Preventing Cognitive Impairments

- Help maintain orientation – engage the family
  - Discussion of current events, watch the news read newspaper to patient
  - Structured Reminiscence
  - Word games

Preventing Immobility

- Early mobilization protocol:
  - Ambulation or active ROM 3x day
- Take to public areas to sit and engage patients
- Minimize use of immobilizing equipment such as bladder catheters and physical restraints

Preventing Sleep Deprivation

- Non-pharmacologic sleep interventions
  - Relaxation tapes or music
  - Unit wide noise reduction strategies
  - Schedule/ bundle interventions (meds, vital signs, lab work).
  - Protect sleep time
  - During the day, older adults should not sit or lie still for longer than 60 minutes at a time

Delirium Evaluation and Management

- Bedside Evaluation
  - Confusion Assessment Method (CAM)
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Adapted from American Psychiatric Association Practice Guidelines. (1999) Practice Guideline for the Treatment of Patients with Delirium. *The American Journal of Psychiatry,* (supplement). Vol 156,

Work-Up for Underlying Etiology

- Establish baseline cognition on admission
- Review medications(current and previous)
- Alcohol and substance use history
- Targeted metabolic work-up: CBC, electrolytes, BUN/Cr, Glucose, LFT's, Calcium, $Sa0_2$, EKG, TSH, B12
- Search for occult infection (e.g. chest-x-ray, urinalysis, etc.)
- Neuroimaging or LP in <5% of cases

Pharmacological Awareness

- Review medication profiles and report meds that may contribute to potential delirium
- Pay special attention to the following categories of medications:
  - Anti-cholinergic medications
  - Analgesics
  - Sedative hypnotics
  - Anti-psychotics
  - Cardiovascular drugs

Drug Classes Which May Cause Delirium

- Anticholinergic
- Analgesics/ Opioids
- NSAIDs
- Antidepressants Benzodiazepine
- Hypnotic,
- Nonbenzodiazepine
- Barbiturate
- Corticosteroids
- Skeletal Muscle Relaxant
- Anti emetics
- Histamine H1 or H2 Antagonist
- Antiseizure
- Antimanic
- Antipsychotic typical or atypicals
- Stimulant
- Anti-Parkinson's
- Antibiotic Aminoglycoside
- Antibiotic, Cephalosporin
- Antibiotic, Penicillin
- Antibiotic, Macrolide
- Antibiotic, sulfonamides
- Antibiotic, Quinolone
- Antibiotic, others
- Antifungal
- Antiviral
- Antimalarial
- Antitubercular
- Anticoagulant
- Motility agents
- General Anesthetic
- Topical / local anesthetic
- Beta blockers
- Diuretics
- ACE inhibitor
- ARBs
- Antiarrhythmic Agent
- Calcium Channel Blocker
- Cardiac Glycoside
- Vasodilator
- Bronchodilator
- Antihyperlipidemia
- Antiabuse, other
- Ergot derivatives
- Estrogen Receptor Antagonist
- Antimetabolite
- IL-2, Interferon

Environmental Management

- Use of sitter (avoid restraints)
- Communication in primary language
- Adjusting environment, open drapes during daytime. quiet room, minimize use of lights at night
- Remove all unnecessary equipment and monitoring

Behavioral Management

- Antipsychotics
  - Should only be used when patient at risk of harm to self or others
  - Haloperidol
  - Quetiapine
  - Risperidone
  - Negative outcomes include extra- pyramidal side effects, excess sedation, increase fall risk, cardiac arrythmias

Medications for sleep

- Trazodone
- Rozerem (ramelteon- melatonin based
- Lorazepam (alcohol withdrawal)

Patient-Family Centered Approach to the Management of Delirium

- Family/close friends encouraged to stay with patient, orient the patient by speaking in calm, reassuring tones.
- Familiar objects from home can be helpful in an unfamiliar environment.
- When giving instructions, family members should state one fact/task at a time and not overwhelm or over stimulate the patient.
- Communication in patient's preferred language
- On-going care coordination post discharge is very critical

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