OBJECTIVES – WE WILL UNDERSTAND…

- What is delirium?
- How to recognize and assess delirium
- Risk factors for delirium in elderly patients
- Interventions to prevent delirium
- Interventions to treat delirium

DELIRIUM ASSESSMENT AND MANAGEMENT

GREGORY JOHNSON, MD

GOOD SAMARITAN SOCIETY, CHIEF MEDICAL OFFICER

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TOPICS COVERED

- General Facts
- Impact
- Risk Factors
- Signs, Symptoms, Assessment
- Causes
- Evaluation and Management

DELIRIUM – GENERAL FACTS

- Definition (DSM-5):
  - a disorder of attention and awareness that develops acutely and tends to fluctuate
- "Acute Brain Failure" (Inouye, 2014)
- 3 types: hypoactive, hyperactive, and mixed
- Potentially PREVENTABLE and REVERSIBLE

INCIDENCE / PREVALENCE

- Affects up to 50% of hospitalized older adults
  - 1/3 of inpatients aged 70+ on general medical units, half of whom are delirious on admission
  - In ICU: more than 75%
- Preventable in 30-40% of cases
- Annual US healthcare costs - $164B (2011)
- At end of life: up to 85%

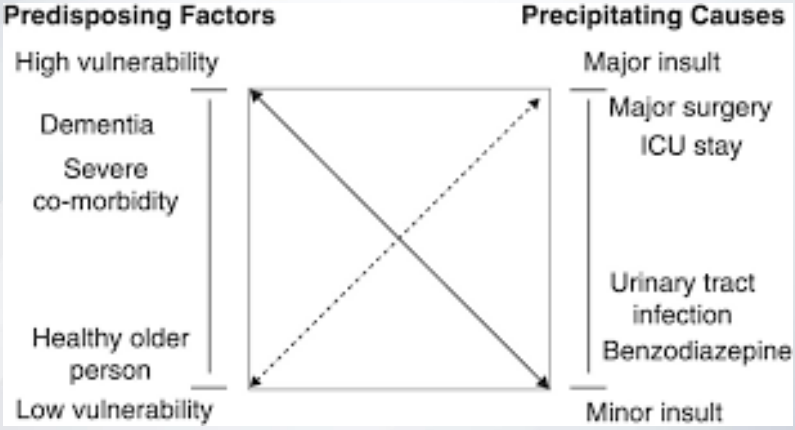
DELIRIUM'S IMPACT ON PATIENTS

- Inyoue, et al. 2014
  - Delirium after surgery – Cognitive impairments can last up to one year
  - Physical function is impaired for ≥30 days in both surgical and non-surgical patients with an episode of delirium
  - Delirium on admission to post-acute care is associated with a 5-fold increased risk of six-month mortality (Marcantonio)
  - Delirium in patients with dementia is associated with increased rates of cognitive decline, institutionalization, and mortality
- Pitkala, et al, 2010
  - Delirium in the ED – approx. 70% risk of death within the next 6 months

DELIRIUM'S IMPACT ON PATIENTS

- Goldberg, et al. (2020)
  - Meta-analysis: up to 3000 pts followed for almost 2 years showed increased risk:
    - 2-fold for death
    - 2.4-fold for institutionalization
    - 12.5-fold for new dementia
  - Persistent delirium → poor long-term outcomes

PREDISPOSING FACTORS AND PRECIPITATING CAUSES



PREDISPOSING FACTORS

- Advanced age
- Dementia
  - Delirium in a patient without dementia associated with incident dementia
  - Delirium in a patient with established dementia associated with accelerated cognitive decline
- Functional impairment in ADLs
- Multi-morbidity
- History of alcohol abuse
- Male sex (maybe)
- Sensory impairment (↓ vision, ↓ hearing)

PRECIPITATING FACTORS

- Acute cardiac events
- Acute pulmonary events
- Bed rest
- Drug withdrawal (sedatives, alcohol)
- Fecal impaction
- Fluid or electrolyte disturbances
- Indwelling devices
- Infections (esp. respiratory, urinary)
- Medications
- Restraints
- Severe anemia
- Uncontrolled pain
- Urinary retention

BIOLOGIC CAUSES OF DELIRIUM

- Multifactorial
- Risk Factor Model
  - Caused by “sum” of predisposing and precipitating factors
  - Greater the burden of predisposing factors, the fewer precipitating factors required to cause delirium
- Cholinergic deficiency
  - Acetylcholine is an important neurotransmitter for cognitive processes
  - Cholinesterase inhibitors not been effective in preventing/ treating
- Inflammation
  - Especially important in postoperative, cancer, and infected patients
  - Break down of BBB allowing medications and cytokines access to CNS
  - Neuroinflammation may damage neurons→long-term cognitive effects (“oil spill”)

EVALUATION: HISTORY

- History
  - Change from baseline?
  - Sleep-wake cycle disturbance?
  - Focus on time course of cognitive changes, esp. their association with other symptoms or events
  - Medication review, including OTC drugs, alcohol

EVALUATION: MEDICATION REVIEW

- Alcohol
- Anticholinergics
- Anticonvulsants
- Antidepressants (anticholinergic only)
- Antihistamines (anticholinergic only)
- Antiparkinsonian agents
- Antipsychotics
- Barbiturates
- Benzodiazepines
- Chloral hydrate
- H2-blocking agents
- Non-benzodiazepine hypnotics
- Opioid analgesics (esp. meperidine)

Almost any medication if time course is appropriate

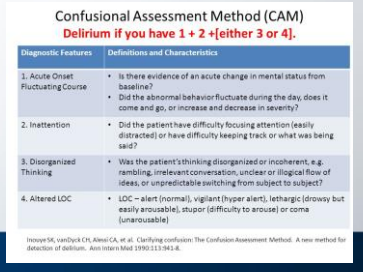
EVALUATION: PHYSICAL ASSESSMENT

- Assessment
  - Vital signs with 02 Sat
  - General medical assessment including neuro
    - Did the patient have difficulty focusing attention, for example, being easily distractible, or having difficulty keeping track of what was being said?
    - Did this behavior fluctuate during the interview, that is, tend to come and go or increase and decrease in severity?
    - 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?
    - How would you rate this patient's level of consciousness? Quiet or hypervigilant
    - Is the patient/resident disoriented?
    - Memory impaired?
    - Sensory disturbance (e.g. hallucination)
    - Psychomotor changes ("revved up" or sluggish)

DIAGNOSIS OF DELIRIUM

- Delirium is a clinical diagnosis
- Recognition requires a brief cognitive screening and astute clinical observation
- Diagnostic features include (Inouye, 2014)
  1. Acute onset/fluctuating course of symptoms
  2. Inattention
  3. Impaired level of consciousness
  4. Disturbance of cognition (e.g. disorientation, memory impairment, alteration in language)

***The diagnosis of delirium by CAM requires 1 and 2 and either 3 or 4.**



Confusional Assessment Method (CAM)

Delirium if you have 1 + 2 +[either 3 or 4].

Diagnostic Features	Definitions and Characteristics
1. Acute Onset Fluctuating Course	• Is there evidence of an acute change in mental status from baseline? • Did the abnormal behavior fluctuate during the day, does it come and go, or increase and decrease in severity?
2. Inattention	• Did the patient have difficulty focusing attention (easily distracted) or have difficulty keeping track or what was being said?
3. Disorganized Thinking	• Was the patient's thinking disorganized or incoherent, e.g. rambling, irrelevant conversation, unclear or illogical flow of ideas, or unpredictable switching from subject to subject?
4. Altered LOC	• LOC – alert (normal), vigilant (hyper alert), lethargic (drowsy but easily arousable), stupor (difficulty to arouse) or coma (unarousable)

Inouye SK, vanDyck CH, Alessi CA, et al. Clarifying confusion: The Confusion Assessment Method. A new method for detection of delirium. Ann Intern Med 1990;113:941-8.

EVALUATION: LABORATORY TESTING

- Base on history and physical
- Include complete blood count, electrolytes, renal function tests
- Also helpful in selected situations: UA, urine toxicology, LFTs, serum drug levels, arterial blood gases, chest x-ray, electrocardiogram, cultures
- Cerebral imaging rarely helpful, except with head trauma or new focal neurologic findings
- EEG and CSF rarely helpful, except with associated seizure activity or signs of meningitis

MANAGEMENT: GENERAL PRINCIPLES

- Requires interdisciplinary effort by clinicians, nurses, family
- Identify and treat reversible contributors
  - Optimize medications
  - Treat infections, pain, fluid balance disorders, sensory deprivation
- Maintain behavioral control
  - Behavioral and pharmacologic interventions
- Anticipate and prevent complications
  - Urinary incontinence, immobility, falls, pressure ulcers, sleep disturbance, feeding disorders
- Restore function
  - Hospital environment, cognitive reconditioning, ADL status, family education, discharge planning

MANAGEMENT: NONPHARMACOLOGIC

- Use orienting stimuli (clocks, calendar, radio)
- Provide adequate socialization
- Use eyeglasses and hearing aids appropriately
- Mobilize patient as soon as possible
- Ensure adequate intake of nutrition and fluids, by hand feeding if necessary
- Educate and support the patient and family

MANAGEMENT: BEHAVIORAL PROBLEMS

- Provide “social” restraints: consider a sitter or allow family to stay in room
- Avoid physical or pharmacologic restraints if possible
- If absolutely necessary for agitation in delirium, medications can be considered
  - High potency antipsychotics such as Haloperidol (off-label) are treatment of choice in low doses
  - Contraindicated in Parkinson disease, Lewy-body dementia or history of neuroleptic malignant syndrome

THE BEST MANAGEMENT IS PREVENTION

- HELP Interventions: cognitive impairment, sleep deprivation, immobility, sensory impairment, dehydration
- Focus on nonpharmacologic approaches (eg, sleep protocol involving warm milk, back rubs, soothing music)
- Limit or avoid psychoactive and other high-risk medications
- Proactive geriatrics consultation

SUMMARY

- Delirium is common and associated with substantial morbidity for older people
- Delirium can be diagnosed with high sensitivity and specificity using the CAM
- A thorough history, physical assessment, and focused diagnostics should be performed to identify the underlying cause(s) of delirium
- Managing delirium involves treating the underlying cause(s), care attendance the medication regimen, avoiding complications, managing behavioral problems, providing rehabilitation
- The best treatment for delirium is prevention

CASE 1 (1 OF 3)

- An 84-year-old man is brought to the ED by his family. His daughter thinks that he has mouth pain.
- She says that he does not want to open his mouth, and he grimaces when others try to open it.
  - He usually eats well, but he has accepted only some liquids for the last 7 days.
- He has been more lethargic and less interactive with family over the past 5 days.
- History: CAD, CABG, prostate cancer, moderate cognitive impairment, osteoarthritis, bilateral knee replacement

CASE 1 (2 OF 3)

Which one of the following is the most likely diagnosis?

A. Worsening of dementia
B. Delirium
C. Depression
D. Acute stroke

CASE 1 (3 OF 3)

Which one of the following is the most likely diagnosis?

A. Worsening of dementia
B. Delirium
C. Depression
D. Acute stroke

CASE 2 (1 OF 3)

- An 82-year-old woman is brought to the ED because she is coughing and short of breath.
- She is lethargic, confused, and easily distracted, and she is trying to pull out IV lines.
- History: systolic heart failure, CAD, hypertension, renal insufficiency
- Heart failure is diagnosed.
- Confusion Assessment Method (CAM) is positive for delirium.

CASE 2 (2 OF 3)

Which one of the following is the best initial treatment for managing this patient's delirium?

A. Administer haloperidol.
B. Administer lorazepam.
C. Encourage family to spend time at bedside.
D. Apply soft wrist restraints.

CASE 2 (3 OF 3)

Which one of the following is the best initial treatment for managing this patient's delirium?

A. Administer haloperidol.
B. Administer lorazepam.
C. Encourage family to spend time at bedside.
D. Apply soft wrist restraints.

CASE 3 (1 OF 3)

- An 80-year-old woman is admitted to the hospital because of worsening agitation that began a few days ago.

- History: moderate Parkinson disease
- She refuses physical examination.
- Lab tests indicate UTI.
- CT of the head shows a new subdural hematoma.
- She is trying to leave and cannot be redirected. Her family is at her bedside.
- At 1:00 am the agitation worsens, and the patient tries to hit the nursing staff.
- She has been receiving her routine medications.

CASE 3 (2 OF 3)

Which one of the following should be started to lessen the patient's agitation?

A. Lorazepam
B. Haloperidol
C. Quetiapine
D. Citalopram

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