

Delirium

Goals

- Define the different types of delirium
- Recognize delirium risk factors
- Report impact of delirium on patient outcomes
- Demonstrate how to assess delirium
- Prevent and manage delirium

Definition (DSM-5):

- a disorder of attention and awareness that develops acutely and tends to fluctuate
- “Acute Brain Failure”
- “Attenuated Delirium” is persists for weeks - months

Delirium

- 3 types: hypoactive, hyperactive, and mixed
 - (can cycle through repeatedly)
- Under-diagnosed
- Potentially PREVENTABLE (30 – 40 %) and REVERSIBLE

Why does delirium occur ?

Pathophysiology

- Multi-factorial
- Cholinergic deficiency
- Acute inflammation
 - Elevated serum S-100B, TNF, CRP, IL1 IL6

Risk factors

Main factors

- Age
- Medical complexity
- Dementia
- Functional impairment
- End of life
- Hospitalization
- Medication profile

Other factors

- Alcohol excess / withdrawal
- Sensory impairment
- Male gender
- Depressive symptoms
- Bed rest
- Restraints / indwelling devices
- Pain

Reversible causes of delirium

- **D**rugs
- **E**lectrolytes
- **L**ack of drugs
- **I**nfection
- **R**educed sensory
- **I**ntracranial
- **U**rinary
- **M**yocardial / pulmonary

etiological subtypes

- Septic
- Hypoxemic / hypercapnic
- Metabolic
 - Electrolyte disorders
 - Withdrawal
- Medication – related
 - Post op sedation
 - Anti-cholinergics
- Idiopathic

When and where does delirium occur ?

- 75% ICU
- 33% general hospitalization (half on admission, half acquired)
- 15% ED
- 30% long term care
- 85% end of life
- 1% out patient settings

Consequence of delirium

- Short and long term
- Death
 - ICU – 2-4 fold increased risk of death, both in and out of the hospital
 - General medical wards – 1.5-fold increased risk of death within 1 YR
 - ED – approx. 70% risk of death within the next 6M
 - OR = 2.0 for deathw
- Cognitive decline (2.3 X or OR = 12.5)

The high cost of Delirium

- Annual US healthcare costs - \$164B (2011)
- Post – op cognitive impairments up to one year
- Physical function is impaired for ≥ 30 days
- Delirium on admission to post acute care 5X mortality in 6M
- OR = 2.4 for institutionalization
- Delirium in patients with dementia is associated with increased:
 - cognitive decline
 - institutionalization
 - mortality

Delirium assessment

- < 50% of delirium recognized by healthcare workers
- Confusion Assessment Method (CAM)
 - Acute change / fluctuating
 - Inattention
 - Disorganized thinking
 - Altered consciousness
- Ultra brief tool
 - Ask to state months of the year backwards and state day of the week

Differential diagnosis of delirium

- 75% hypoactive
- 25% hyperactive

- Hypoactive delirium versus depression or dementia
- Hyperactive delirium versus mania, bipolar or agitated depression

Range of delirium severity

- CAM-S (score 0 – 19)
- 10 features

Feature	Severity Score		
Scoring the CAM-S: Rate each symptom of delirium listed in the CAM as absent (0), mild (1), marked (2). Acute onset or fluctuation is rated as absent (0) or present (1). Add these scores into a composite. Higher scores indicate more severe delirium.			
	Not Present	Present (mild)	Present (marked)
1. ACUTE ONSET & FLUCTUATING COURSE	0	1	
2. INATTENTION	0	1	2
3. DISORGANIZED THINKING	0	1	2
4. ALTERED LEVEL OF CONSCIOUSNESS	0	<i>vigilant/lethargic:</i> 1	<i>stupor or coma:</i> 2
5. DISORIENTATION	0	1	2
6. MEMORY IMPAIRMENT	0	1	2
7. PERCEPTUAL DISTURBANCES	0	1	2
8. PSYCHOMOTOR AGITATION	0	1	2
9. PSYCHOMOTOR RETARDATION	0	1	2
10. ALTERED SLEEP-WAKE CYCLE	0	1	2
Short Form SEVERITY SCORE:	Add the scores in rows 1-4. Range is 0-7. <input type="text"/>		
Long Form SEVERITY SCORE:	Add the scores in rows 1-10. Range is 0-19. <input type="text"/>		

History around delirium

- What is the time course ?
- What are other symptoms ?
 - Fever
 - SOB
- Medication changes: new or withdrawal
- Substance use and withdrawal

Physical exam

- Vitals
- Pulse ox
- Glucometer
- Papilledema / Anisocoria ?
- Neurological asymmetry ?
- Asterixis ?
- Battle's sign, Raccoon's eyes, bruises ?

Laboratory tests

- No neuroimaging unless lateralizing signs OR if suspect bilateral subdural hematoma
- CBC
- Electrolytes / renal / LFTs
- U/A
- Urine toxicology
- Blood culture
- CXR
- ECG
- Blood gas

Management

- Medication adjustments
- Treat infections
- Manage fluids (hydrate or restrict if salt retaining state)
- Treat hypoxia, hypercapnia, hypotension, severe anemia
- Disimpaction
- Treat pain

Manage behaviors

- Non pharmacological treatment
 - Go with the flow
 - Reassure
 - Lighting
 - Address neurosensory deprivation (eyesight, hearing)
 - Orientation (clocks and calendars)

Manage behaviors

- Low dose anti – psychotics if delusions, hallucinations or harm to self
- Haloperidol 0.25 – 0.5 mg every 4 hours (po, IM, IV)
 - Limit 3 mg
- Risperidone 0.25 – 0.5 mg every 4 hours (po)
 - Limit 2 mg
- Olanzapine, Quetiapine, Ziprasidone
- Pimavanserin for PD psychosis
- Lorazepam 0.25 – 0.5 mg every 8 hours (po, IV): mostly EtOH withdrawal

If medications or restraints used:

- Monitor efficacy
- Reassess
- Document
- De-escalate as soon as possible

Management

- Scheduled toileting
- Avoid restraints
- Family members / sitters
- Repositioning with hypoactive delirium
- Sleep hygiene (no vitals at night, avoid sedatives)
- Reduce clutter and noise
- Reorient
- Family education / training

Recovery

- Slow recovery associated with advance age, illness severity, and pre-existing dementia
- Recovery can take weeks to months
- Unresolved delirium post hospitalization has a high 1 YR mortality

Care transitions

- Hospitals, EDs and SNFs need to know cognitive baseline of older adult.
- Need clear documentation of delirium
 - Chart abstraction, n = 149, only two documented ED or Hospital cases of “acute mental status change”. No mention of delirium.
- Intensive therapy in SNF does not shorten delirium duration
- Avoid multiple transitions (Hospital → short term SNF → Home)

Prevention

- Hospital Elder Life Program (HELP) : multifactorial intervention
 - Cognition
 - Hydration
 - Sleep
 - Hearing
 - Vision
 - Mobility
- OR = 0.47

Prevention

- Geriatric Consults
 - 30 – 40 % delirium reduction post – op
- Equivocal evidence with melatonin

Case report

- 84F is seen in clinic and expresses loss of appetite and weight loss ever since her husband died 2 months ago. The primary care provider prescribes low dose Remeron because she believes the patient to be depressed and she heard a Geriatric presentation that suggested Remeron to be a potential appetite stimulant.
- One week later the patient is taken to the emergency room with new onset of confusion.
- What are your next steps ?

Case Report

- Confusion Assessment is positive

Summary

- Delirium is often under recognized due to 75% of cases being hypoactive
- Recognize older adults most at risk
- Identify reversible causes of delirium
- Preventive measures work !
- Avoid delirium – inducing drugs
- Emphasize non – pharmacological management of both hypo and hyperactive delirium