Delirium

PG2 Core Curriculum
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Case Vignette

• Ms. S is a 68 y.o. female with HTN and DM, who came to the ER with a week of worsening claudication in her left calf, and admitted with a left foot that had been cool and pale x 14hr
• Primary admitting diagnosis was occlusion of her left popliteal artery
• At admission she was lucid and Ox4
• She underwent successful embolectomy
• Overnight she became intermittently agitated

Case Vignette (continued)

• At morning rounds, she sees the surgical intern and cries out “There you are, Herbert! Take me home, I’ve had enough of this carnival”

• Bedside exam reveals she is oriented only to herself, has no recollection of why she is here, and believes the intern is her (late) husband

Case Vignette (concluded)

• She is tachycardic and diaphoretic, and shows desaturation on pulse oximetry
• Crackles are heard widely
• She has an elevated WBC, high glucose, and several electrolytes out of range
• Besides her obvious cardiopulmonary and metabolic problems, what is happening in her brain??
Delirium as a Syndrome

- Hallmarks of confusion
  - disorientation
  - attentional deficits
  - waxing and waning level of awareness
  - disorganization of thought processes
  - perceptual distortions - hallucinations, illusions, delusions

Delirium as a Syndrome

- Disorganization of the brain’s “housekeeping” functions
  - sleep-wake cycle reversal
  - increased or decreased motor activity (hyperkinetic or hypokinetic presentations)
- Onset is acute - hours to days - with fluctuation in symptoms

“A rose by any other name…”

- Delirium is also known as
  - Altered Mental State
  - Acute Confusional State
  - Acute Brain Syndrome
  - Acute Brain Failure
  - Toxic Psychosis
  - ICU Psychosis
  - Cerebral Insufficiency

Delirium is Common

- Underdiagnosed and undertreated
- 10-18% of patients on a general medical or surgical ward will have delirium during hospital stay
- ~30% of ICU patients
- ~40-50% of patients s/p total hip replacement, burns
High Risk Groups
• advanced age, and the very young
• pre-existing brain disease
• past history of delirium
• history of alcohol/substance abuse
• multiple organ dysfunction
• complex medication regimen

Consequence of Delirium
• Associated with longer stays, increased morbidity and mortality (3 month mortality ~25-30%)
• Brain as sensitive end-organ
• Clearly interferes with placement
• Could cerebral dysfunction cause secondary problems with other organ systems?

DSM-IV Definitions
• A. Disturbance in consciousness (i.e. reduced clarity of awareness of the environment) with reduced ability to focus, sustain, or shift attention

DSM-IV Definitions
• B. A change in cognition (such as memory deficit, disorientation, language disturbance) or the development of a perceptual disturbance that is not better accounted for by a preexisting, established, or evolving dementia
**DSM-IV Definitions**

- **C.** The disturbance develops over a short period of time (usually hours to days) and tends to fluctuate during the course of the day.

- **D.** There is evidence from history, physical examination or laboratory findings that the symptoms are:
  - the direct physiologic consequences of a general medication condition
  - due to substance intoxication
  - due to a withdrawal syndrome
  - due to more than one etiology

**Presentations**

- Memory deficits or disorientation, without agitation
- Delusions are prominent, especially paranoia, hyperalertness, and mild agitation
- Dramatic psychomotor agitation (often dangerous to self or others)

**Clinical Approach**

- Safety First
- Determine etiology to initiate specific therapeutic intervention
Management of Agitation

- Neuroleptics remain first-line agents
  - Droperidol (Inapsine) can be given IV to restore safety rapidly
  - Haloperidol (Haldol) can be given IM or PO or IV (rare risk of torsades if IV); 1-2 mg Q 2-4 hrs as needed

Management of Agitation

- Atypical neuroleptics -
  - Olanzapine (Zyprexa IM/PO, 2.5-5mg TID NTE 20mg/d)
  - Ziprasidone (Geodon IM/PO) 20-100mg/d divided TID
  - Risperidone (Risperdal, 0.25-0.5 mg q4-6hr NTE 4mg/d)
  - Quetiapine (Seroquel, 25-50mg q4-6hr starting, may titrate to 600mg/d)
  - Aripiprazole (Abilify) ? data needed

Management of Agitation

- Benzodiazepines often worsen confusion and disinhibition, but specific indications include
  - Alcohol, benzodiazepine, barbiturate withdrawal
  - Some instances of Interictal agitation
  - When neuroleptics are problematic, e.g Neuroleptic malignant syndrome

Management of Agitation

- Physical restraint, to minimize risk of harm to patient and others
  - Soft restraints
  - Leather restraints
  - Posey vest, bed rails
- Hospital policies must be observed (e.g. documenting indications, duration, periodic observation)
**Management of Agitation**
- Environmental modifications
  - Don’t overstimulate or isolate
  - Move to a room near nursing station
  - Subdued light even at night
  - Sitters, family members
  - Orientation cues - clock, calendar

**Etiology**
- Primarily Intracranial
  - Perfusion (e.g. hemorrhage, occlusion, post-anoxic state)
  - Infection (e.g. diffuse or focal infection)
  - Inflammation (e.g. cerebritis)
  - Space occupying lesion (e.g. tumor)
  - Traumatic injury (e.g. post concussive)
  - Epileptic or degenerative disorders

- Primarily Extracranial
  - “Toxic” encephalopathy - includes adverse reaction to medication(s) as well as other exogenous toxins
  - Metabolic - electrolyte abnormalities
  - Infections - systemic (sepsis), remote (UTI)
  - Other organ failure - renal, hepatic, CHF

**Pathophysiology**
- More questions than answers at this time
- Heterogeneous - perhaps etiologically-specific?
- In general, diffuse hypoperfusion when delirious vs recovered
- Common pathway model involving disturbances in cholinergic & dopaminergic neurotransmission
Evaluation

• History - particularly speed of onset, recent illnesses or medication changes, prior neuropsychiatric illnesses
• PE - especially for focal neurological signs, other evidence of serious systemic illness(es)

Evaluation

• Mental Status Exam, especially
  • Orientation
  • Attention
  • Memory
  • Thought Process & Content
  • Judgment
• Capacity to give informed consent?

Evaluation

• Lab tests
  • CBC with differential indices
  • Chemistry panel, including “minor electrolytes” such as Ca, Mg
  • Thyroid function tests
  • VDRL, HIV
  • UA
  • EKG, EEG, CXR

Evaluation

• Lab tests when specifically indicated
  • Blood/urine toxicology
  • Cultures of blood, urine, CSF
  • Vitamin B12, folate
  • CT, MRI
• Lumbar puncture with CSF examination
With appropriate evaluation and interventions

• dangerous behavior can be managed
• brain function can be optimized
• patient participation in recovery can be maximized
• morbidity and mortality can be reduced

What Would You Do?

Discussion Case #1

• 72 yo woman, BIB her daughter to the ER because “mom is out of control.” A 3yr h/o progressive memory impairments has become acutely worse over the past week, and today the pt became agitated and combative while being brought to see her PCP.
• On exam, pt is oriented to self and “hospital” only. Mood is irritable, speech is unremarkable at times and slurred at others. Memory registration is 1/3, recall 0/3. She is easily distracted by the sounds of the next patient’s EKG monitor.

Discussion Case #2

• 34 yo woman with 6 yr h/o SLE, admitted to the inpatient medical ward with fever, diffuse myalgias, elevated ANA titers.
• On day 2 of a course of IV Solumedrol, she was found to be lethargic, disoriented, and experiencing auditory and visual hallucinations.
Discussion Case #3

- 25 yo male, recently admitted emergently for ORIF compound tib-fib fractures sustained in a skiing accident. He also fractured two ribs.
- On hospital day 3, he is noted to be confused, agitated, picking at the air, pulling out his lines, and seeking to get up and walk around despite the traction apparatus on his leg. Tachycardia is noted.

References

- Cassem NH. Massachusetts General Hospital Handbook of General Hospital Psychiatry. St. Louis: Mosby.
- Kaplan HI, Sadock BJ, Grebb JA. Kaplan and Sadock’s Synopsis of Psychiatry, Baltimore. Williams & Wilkins.

References