Delirium

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Terminology

- Acute mental status change
- Reversible dementia
- Altered mental status
- Organic brain syndrome (OBS)
- Toxic or metabolic encephalopathy
- Acute brain failure
- Acute confusional state
## Differential Diagnosis

<table>
<thead>
<tr>
<th>Delirium</th>
<th>Dementia</th>
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</thead>
<tbody>
<tr>
<td>• Acute onset</td>
<td>• <em>Insidious onset</em></td>
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<tr>
<td>• Brief duration</td>
<td>• <em>Progressive course</em></td>
</tr>
<tr>
<td>• Impaired attention</td>
<td>• Normal attention span</td>
</tr>
<tr>
<td>• Reduced LOC</td>
<td>• No change in LOC</td>
</tr>
<tr>
<td>• Disorganized speech</td>
<td>• Speech organized</td>
</tr>
<tr>
<td>• Fluctuating course</td>
<td>• Persistent deficits</td>
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</table>
INCIDENCE OF DELIRIUM AMONG OLDER PATIENTS

• $\frac{1}{3}$ of older patients presenting to the ED

• $\frac{1}{3}$ of inpatients aged 70+ on general medical units (half of these are delirious on admission)
MORBIDITY ASSOCIATED WITH DELIRIUM

• 10-fold risk of death in hospital
• 3- to 5-fold risk of nosocomial complications, prolonged stay, post-acute nursing-home placement
• Poor functional recovery and risk of death up to 2 years following discharge
• Persistence of delirium with poor long-term outcomes
• Nurses recognize and document <50% of cases

• Physicians recognize and document only 20%
DIAGNOSING DELIRIUM

• DSM-5 criteria
  – Precise
  – Field-tested
  – High inter-rater reliability
  – Not meant as a scale
  – Delirium has an ICD-9 code (293.00)
DIAGNOSING DELIRIUM

- Confusion Assessment Method (CAM) is a practical tool to identify delirium
  - Evidence based and validated
  - Clinically useful
  - Sensitivity 94-100%
  - Specificity 90-95%
CONFUSION ASSESSMENT METHOD

1. Acute change in mental status and fluctuating course
2. Inattention
3. Disorganized speech
4. Altered level of consciousness

Requires features 1 and 2 and either 3 or 4
DELIRIUM TAKES VARIOUS FORMS

• Hyperactive or agitated delirium = 25% of all cases
• Mixed
• Hypoactive delirium = 50% of all cases, but less recognized and appropriately treated
• Additional features include emotional lability, psychosis, hallucinations
PREDISPOSING FACTORS

- Advanced age
- **Dementia**
- Functional impairment in ADLs
- Medical comorbidity
- History of alcohol abuse
- Male sex
- Sensory impairment (vision, hearing)
PRECIPITATING FACTORS 1

- Acute cardiac events
- Acute pulmonary events
- Bed rest
- Drug withdrawal (sedatives, alcohol)
- Fecal impaction
- Sleep deprivation
- Fluid or electrolyte disturbances
PRECIPITATING FACTORS 2

• Indwelling devices
• Infections (esp. respiratory & urinary)
• Medications
• Restraints
• Severe anemia
• Uncontrolled pain
• Urinary retention
EVALUATION 1

- HISTORY & PHYSICAL
- Emphasis on
  - Medication review
  - Vital signs
  - Mental status
  - Neurostatus
EVALUATION 2

• LABORATORY TESTING
  – CBC
  – BMP (electrolytes, BS, LFTs, renal function tests)
  – UA and urine toxicology screen
  – (Serum drug levels)
  – chest x-ray
  – EKG
  – Cultures
EVALUATION 3

• RARELY NEEDED

• Cerebral imaging (except with head trauma or new focal neurologic findings)

• EEG and CSF (except with associated seizure activity or signs of meningitis)
1. It is estimated that 30-40% of cases of delirium are preventable.

2. Prevention is the most effective strategy for minimizing the adverse outcomes of delirium
PREVENTION

Hospital Elder Life Program (HELP)

– To prevent delirium in older, hospitalized adults by systematically identifying and intervening to reduce delirium

– Interventions are carried out by a skilled interdisciplinary team and trained volunteers

Yale University School of Medicine
GOALS OF HELP

• Maintain cognitive and physical functioning of high-risk older adults throughout hospitalization
• Maximize patients' independence at discharge
• Assist patients with the transition from hospital to home
• Prevent unplanned hospital readmissions
STANDARDIZED PROTOCOLS

- Cognitive impairment
- Sleep deprivation
- Immobility
- Visual impairment
- Hearing impairment
- Dehydration
RESULTS OF HELP

• Incidence of delirium was reduced by 40%
• Fewer days and episodes of delirium
• No significant effect on the severity of delirium (NB: primary prevention of delirium is the most effective treatment strategy)
MANAGEMENT

• DRUGS TO REDUCE OR ELIMINATE
  – Alcohol
  – Anticholinergics
  – Anticonvulsants
  – Tricyclic antidepressants
  – Antihistamines (anticholinergic only)
  – Antiparkinsonian agents
  – Antipsychotics
  – Barbiturates
  – Benzodiazepines
  – H2-blocking agents
  – Opioid analgesics (esp. meperidine)
MANAGEMENT

• BEHAVIORAL PROBLEMS
• “Social” restraints: consider a sitter or allow family to stay in room
• Avoid physical or pharmacologic restraints
MANAGEMENT

• BEHAVIORAL PROBLEMS

• If absolutely necessary, use antipsychotic
• Haloperidol is the most widely used
MANAGEMENT: HALOPERIDOL

• Advantages

  – Can be given PO, IM or IV
  – Little sedation
  – Low anticholinergic potency
  – No respiratory suppression
  – No active metabolites
MANAGEMENT: HALOPERIDOL

• Disadvantages

  – Extrapyramidal symptoms (dystonias, Parkinsonian symptoms)
  – Neuroleptic malignant syndrome
  – Prolonged QT interval
  – Torsade de pointes esp. when given IV
MANAGEMENT: HALOPERIDOL

• Dosing
  – Mild delirium: 0.25–0.5 mg PO or 0.125–0.25 mg IV/IM
  – Severe delirium: 0.5–2 mg IV/IM
  – Additional dosing q 60 min, as required

• Caveats
  – Assess for akathisia and extrapyramidal effects
  – Monitor for QT interval prolongation
  – Do not exceed 10 mg of haloperidol in a 24 hour period (5 mg in the older patient)
NON PHARMACOLOGIC MANAGEMENT

• 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
SUMMARY

• Delirium is common and associated with substantial morbidity
• Delirium can be diagnosed with high sensitivity and specificity using the CAM
• A thorough history, physical, and focused labs will lead to the underlying cause(s) of delirium
SUMMARY

• Discontinue meds likely to contribute to delirium

• Managing delirium involves treating the primary disease, avoiding complications, managing behavioral problems, providing rehabilitation

• The best treatment for delirium is prevention
MANAGEMENT

• GENERAL PRINCIPLES
  – Interdisciplinary effort
  – Multifactorial approach is most successful because multiple factors contribute to delirium
  – Failure to diagnose and manage delirium .. costly, life-threatening complications; loss of function
KEYS TO EFFECTIVE MANAGEMENT

- Treat the underlying disease
- Address contributing factors
- Optimize medication regimen
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- Address contributing factors
- Optimize medication regimen
BIBLIOGRAPHY

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