Delirium in the Elderly

ELITE 2017

Liza Genao, MD
Division of Geriatrics

Why should we care about delirium?

It is:
• common
• associated with high mortality
• associated with increased morbidity
• Very much under-recognized

Why should we care about delirium?

It is:
• common
• associated with high mortality
• associated with increased morbidity
• Very much under-recognized

Incidence Among Elderly Patients is HIGH
• 1/3 of patients presenting to ER
• 1/3 of inpatients aged 70+ on general med units
• 2/3 of patients in the ICUs
• Incidence ranges 5% to 52% after noncardiac surgery (Dasgupta M et al. J Am Geriatr Soc 2006;54:1079-89)

Delirium: Increased Mortality

• One-year mortality: 35-40%
• Independent predictor of higher mortality up to 1 year after occurrence
  – Delirious vs. not delirious elderly medical inpatients: hazard ratio 2.11 (95% CI 1.18-3.77) for death at 1 year
  – Adjusted for dementia, comorbidity, clinical severity, APACHE II score, admitting service (med vs. geri), demographic variables

Delirium: Increased Risk of...

• Functional decline
• New nursing home placement
• Persistent cognitive dysfunction:
  – Only 18-59% of hospitalized elders with complete resolution of delirium symptoms 6-12 months after hospital discharge
  – CAVEAT: Many subjects in these studies had preexisting cognitive impairment

DUH Mortality Review Executive Summary
January – September, 2015

DUH Complications
Persistent Delirium: Associated with High Mortality
(Kiely DK et al. JAGS. 2009)

- Setting: Post-acute care (PAC) facility
- Study Design: Observational cohort study
- Participants: 412 patients with delirium at admission to the PAC
- Results:
  - Cumulative 1-year mortality = 39%
  - Persistent delirium vs. resolved delirium:
    - Hazard ratio 2.9 (95% CI 1.9-4.4) for death at 1 year
      - Adjusted for age, sex, comorbidity, functional status, and dementia

Diagnosis: Call it what it is...

- DELIRIUM:ICD-10 R41.0, F05
- ACUTE DELIRIUM: Complication/Comorbidity (CC) in the MS-DRG system
  - Affects payment to hospitals
- "Δ MS" or "mental status change":

Diagnosis: Confusion Assessment Method (CAM)

- (1) Acute change in mental status with a fluctuating course
- (2) Inattention
- (3) Disorganized thinking
- (4) Altered level of consciousness

Sensitivity: 94-100%, Specificity: 90-95%
Delirium - types

- Hyperactive
- Hypoactive – 75% of the cases
- Mixed

Delirium versus Dementia

<table>
<thead>
<tr>
<th>Condition</th>
<th>Time Course</th>
<th>Distinguishing Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delirium</td>
<td>Acute onset, lasting days to weeks (though could be longer)</td>
<td>Impaired attention and altered level of consciousness</td>
</tr>
<tr>
<td>Dementia</td>
<td>Progressive worsening, permanent</td>
<td>Unimpaired attention and level of consciousness until severe stages</td>
</tr>
</tbody>
</table>

However, there are features that are common in both:
- Disorientation
- Memory impairment
- Hallucinations

Assume it is Delirium until Proven Otherwise

Delirium may be the only manifestation of life-threatening illness in the elderly patient

It is a medical emergency

A Model of Delirium

A multifactorial syndrome that arises from an interrelationship between:

- **Predisposing factors** → a patient’s underlying vulnerability

  AND

- **Precipitating factors** → noxious insults

Predisposing Factors

- Baseline cognitive impairment
  - 2.5 fold increased risk of delirium in dementia patients
  - 25-31% of delirious patients have underlying dementia
- Medical comorbidities:
  - Any medical illness
- Visual impairment
- Hearing impairment
- Functional impairment
- Depression
- Advanced age
- History of ETOH abuse
- Male gender

Precipitating Factors

- Medications
- Bed rest
- Indwelling bladder catheters
- Physical restraints
- Iatrogenic events
- Uncontrolled pain
- Fluid/electrolyte abnormalities
- Infections
- Medical illnesses
- Urinary retention and fecal impaction
- ETOH/drug withdrawal
- Environmental influences
Some drug classes associated with delirium

- Medications with psychoactive effects:
  - 3.9-fold increased risk
  - 2 or more meds: 4.5-fold
- Sedative-hypnotics: 3.0 to 11.7-fold
- Narcotics: 2.5 to 2.7-fold
- Anticholinergic drugs: 4.5 to 11.7-fold
- Risk of delirium increases as number of meds prescribed rises

Prevention of Delirium: It can be done!

- Target patients with the following predisposing characteristics:
  - Visual impairment (worse than 20/70 corrected)
  - Severe illness
  - Cognitive impairment (MMSE<24/30)
  - High BUN/Cr ratio (>18)

Prevention=Good Hospital Care for the Elderly Patient

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive impairment</td>
<td>Orientation protocol; cognitively stimulating activities 3x/day</td>
</tr>
<tr>
<td>Sleep deprivation</td>
<td>Nonpharmacologic protocol; noise reduction; schedule adjustments</td>
</tr>
<tr>
<td>Immobility</td>
<td>Ambulation or active ROM exercises; minimize equipment</td>
</tr>
<tr>
<td>Visual impairment</td>
<td>Glasses or magnifying lens; adaptive equipment</td>
</tr>
<tr>
<td>Hearing impairment</td>
<td>Portable amplifying devices; earwax disimpaction</td>
</tr>
<tr>
<td>Dehydration</td>
<td>Early recognition and volume repletion</td>
</tr>
</tbody>
</table>

A Multicomponent Intervention to Prevent Delirium

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Interv. group</th>
<th>Usual care group</th>
<th>Statistical analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st delirium episode</td>
<td>9.9%</td>
<td>15%</td>
<td>OR=0.60 (95% CI 0.39 to 0.92)</td>
</tr>
<tr>
<td>Total days delirium</td>
<td>105</td>
<td>161</td>
<td>P=0.02</td>
</tr>
<tr>
<td># delirium episodes</td>
<td>62</td>
<td>90</td>
<td>P=0.03</td>
</tr>
</tbody>
</table>

Keys to Effective Management

Find and treat the underlying disease(s) and contributing factors
- Comprehensive history and physical
- Including neurological and mental status exams
- Choose lab tests and imaging studies based on the above
- Review medication list

Always Try Non-pharmacologic Measures

- Arrange for presence of family members
- Provide reorientation
- Provide visual and hearing aids
- Remove indwelling devices; i.e. Foley catheters
- Mobilize patient
- Provide a quiet environment with low-level lighting
- Arrange for uninterrupted sleep

Nonpharmacologic measures may be all that are required in some cases of mild delirium.
However, there are some instances where you must medicate…

- When patient is in immediate risk for harming himself or others (such as health care staff)
- When patient is threatening interruption of essential therapy
  - Ex. Attempting to self-extubate from the ventilator
  - Ex. Trying to pull out central venous catheter
- If you decide to start with medications, you should still initiate nonpharmacologic interventions

**Pharmacologic Management**

- Atypical antipsychotics are as effective as low-dose haloperidol in treating agitated delirium (Lonergan E et al. Cochrane Database Syst Rev. 2007 Apr 18; (2): CD05594)

**Sample Regimens**

- Olanzepine 2.5-5 mg once daily
- Risperidone 0.25-0.5 mg twice daily
- Quetiapine 25 mg twice daily
- Haldol 0.5mg – 1mg twice a day (Inouye, SK. NEJM 2006; 354:1157-65)

What about Ativan (lorazepam)?

- Second line agent
- Reserve for:
  - Sedative and ETOH withdrawal
  - Parkinson’s Disease
  - Neuroleptic Malignant Syndrome

**AVOID RESTRAINTS**

Measure of LAST(!!!) resort

**Take Home Points: Delirium in the Elderly**

- A multifactorial syndrome: predisposing vulnerability and precipitating insults
- Delirium can be diagnosed with high sensitivity and specificity using the CAM
- Prevention should be our goal
- If delirium occurs, treat the underlying causes
- Always try nonpharmacologic approaches
- Use low dose antipsychotics in severe cases

Questions?