Case Study

**HPI:** 93 y.o. woman is admitted with falling and fever of 99.6o. Work-up documents a 3 day h/o inability to dress, toilet, feed & groom herself & c/o new DOE & chills.

**PMH:** non-insulin dependent DM, Mild Cognitive Impairment, HTN, DJD. Meds—Glyburide 2.5 mg qd, ECASA 81 mg qd, MVI qd, vitamin E 400 IU bid, HCTZ 12.5 mg qd.

Case Study

**PE:** bronchial bs in R lower chest. Neurological: oriented only to person, somnolent but easily arousable.

**Labs:** wbc ct 12,000 w/ left shift, O2 sat 88%, BUN/crea 38/1.3
Case Study
Case Study

**Orders:** Levaquin, iv fluids, diphenhydramine for sleep, lorazepam for agitation, O2 by nasal canula

**Hospital course:** Overnight, the pt becomes more confused & disoriented. The next day, he found restrained in bed, agitated & calling out.
Delirium in Older Adults

Richard V Sims, MD
Geriatric Section
Birmingham VA Medical Center
Delirium in Older Adults

- Recognition
Delirium in Older Adults

- Recognition
- Risk factors
Delirium in Older Adults

- Recognition
- Risk factors
- Evaluation
Delirium in Older Adults

- Recognition
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- Evaluation
- Treatment
Delirium in Older Adults

- Recognition
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- Evaluation
- Treatment
- Prognosis
Delirium in Older Adults

- Recognition
- Risk factors
- Evaluation
- Treatment
- Prognosis
- Prevention
Delirium in Older Adults

- Recognition
“...to fail to recognize delirium is to practise with an unsatisfying disengagement with one’s patients’ lives. It is also to practise to a standard that most of us would otherwise decry.”

Dr. Kenneth J. Rockwood, Professor of Geriatric Medicine, Dalhousie University, Halifax, NS
DSM-IV Criteria for Delirium

- Disturbance of consciousness w/ reduced ability to focus, sustain, or shift attention
- Change in cognition or perceptual disturbance not accounted for by existing dementia
DSM-IV Criteria for Delirium

- Disturbance develops over a short period of time & fluctuates over 24 hours
Clinical Subtypes of Delirium

- Hyperactive (15-22%)
- Hypoactive (19-26%)
- Mixed (42-52%)
- Neither (11-14%)

47: 1300-6
Prevalence and Incidence

- Medical inpatients
  - Prevalence 11-16%
  - Incidence 4-10%
- 44-65% of elderly w/ hip fracture
- 22% of Alzheimer disease patients
Delirium in Older Adults

- Recognition
- Risk Factors
Vulnerable Older Patients

- Cognitive impairment
- Severe illness
- Visual acuity < 20/70
- BUN:creatinine ratio ≥ 18

# Precipitating Factors for Delirium

<table>
<thead>
<tr>
<th>Risk Factors</th>
<th>Adjusted RR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of physical restraints</td>
<td>4.4 (2.5-7.9)</td>
</tr>
<tr>
<td>Malnutrition</td>
<td>4.0 (2.2-7.4)</td>
</tr>
<tr>
<td>&gt; 3 Medicines added</td>
<td>2.9 (1.6-5.4)</td>
</tr>
<tr>
<td>Use of bladder catheter</td>
<td>2.4 (1.2-4.7)</td>
</tr>
<tr>
<td>An iatrogenic event</td>
<td>1.9 (1.1-3.2)</td>
</tr>
</tbody>
</table>
Double Gradient Phenomenon

Baseline

Risk Group

Low

Intermediate

High

Precipitating Factor Group

Low

Intermediate

High

(0%) (0.8%) (2.3%) (11.6%)
Delirium in Older Adults

- Recognition
- Risk Factors
- Evaluation
Evaluation

- Thorough H & P
- Cognitive assessment
  - MMSE
  - Confusion Assessment Method
- Review all prescription & OTC medications
- Targeted laboratory evaluation
CAM Diagnostic Criteria

■ Feature 1. Acute onset & fluctuating course
  – *Is there an acute change in mental status?*
  – *Did this behavior fluctuate during the past day?*

■ Feature 2. Inattention
  – *Does the pt have difficulty focusing attention? Easily distractible?*
CAM Diagnostic Criteria

■ Feature 3. Disorganized thinking
  – Is speech disorganized or incoherent or flow of ideas illogical or unpredictable switching of subjects?

■ Feature 4. Altered level of consciousness
  – Level of consciousness other than alert?

Delirium = features 1, 2 and either 3 or 4
Etiology of Delirium

Dementia
Electrolytes
Lungs, liver, heart, kidney, brain
Infection
Rx
Injury, pain, stress
Unfamiliar environment
Metabolic

Inouye SK. *Ann Long-term Care* 2000; 8: 53-9
Delirium Vs Dementia

- Abrupt symptom onset
- Impaired attention
- Consciousness fluctuates
- Speech incoherent

- Symptom onset insidious
- Attention preserved
- Normal level of consciousness
- Speech ordered & coherent
Delirium in Older Adults

- Recognition
- Risk factors
- Evaluation
- Treatment
Nonpharmacologic Management

- Personal contact & communication
  - Presence of family members
  - Simple instructions & frequent eye contact
- Eyeglasses on & hearing aids in to minimize sensory deprivation
- Avoid physical restraints, if possible
- Encourage uninterrupted sleep at night
Nonpharmacologic Management

- Reorienting cues: clocks, calendars, daily schedule
- Quiet environment w/ low-level lighting
- Relaxation techniques
Pharmacological Management

- Reserve for severe agitation
- Give lowest possible drug dose for the shortest duration
- Avoid benzodiazepines, except w/ withdrawal syndromes
- Neuroleptics mainstay of pharmacological management
Pharmacological Management

- **Haloperidol**
  - 0.5-1.0 mg po/im q 20-30 min until sedation
  - can give iv as a bolus or continuously (d/c if QTc ↑ >25% or 450 msec)
  - ½ loading dose in divided doses as maintenance over next 24 hrs

- **Droperidol iv** 1-20 mg/hr (monitor QTc)
Pharmacological Management

- Risperidone 0.5 mg bid
- Quetiapine 25 mg qd-bid
- Olanzepine 1.25-2.5 qd-bid
Delirium in Older Adults

- Recognition
- Risk factors
- Evaluation
- Treatment
- Prognosis
Prognosis with Delirium

- New NH placement
- Poor functional recovery at 3 months
- Longer hospital stay (12.1 vs 7.2 days)
- Increased risk of developing a hospital-acquired complication

Prognosis of Delirium in Elders with Hip Fracture

- Poor functional recovery after 1 month
  - New NH placement OR=3.0 (1.1-8.4)
  - Decline in ambulation OR=2.6 (1.03-6.5)
  - ADL decline OR=2.6 (1.1-6.1)

- Delirium at admission associated with poorer physical & cognitive functioning at 6 months

Delirium in Older Adults

- Recognition
- Risk factors
- Evaluation
- Treatment
- Prognosis
- Prevention
Prevention of Delirium

- Randomized controlled trial (n=852 pts)
- ≥ 70 y.o., free of delirium on admission

Intervention addressed--
  - Cognitive impairment
  - Dehydration
  - Sleep deprivation
  - Immobility
  - Visual impairment
  - Hearing impairment
Prevention of Delirium

- 87% compliance w/ the intervention
- Findings in the intervention group
  - 40% reduction in delirium incidence
  - Fewer days w/ delirium
  - Fewer total episodes

Case Study

93 y.o. woman w/ RLL pneumonia is found restrained in bed, agitated & calling out.

1. What intrinsic & extrinsic risk factors are evident in this patient?

2. Which of the following is the best management plan?
   
a. D/c levaquin
   
b. D/c diphenhydramine & lorazepam
   
c. D/c diphenhydramine & increase lorazepam
   
d. D/c lorazepam & begin haloperidol