Sudden Confusion in Elderly
What Does It Mean?

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Objectives

• Identify the most common causes of confusion in the older adult
• Identify the differences in presentation of hypoactive and hyperactive delirium
• Understand the importance of establishing baseline mental status
• Identify predisposing and precipitating factors for delirium development
• Review high risk medication for delirium development
• Explore delirium initiatives in three acute care settings
• Identify non-pharmacological approaches to delirium management
Some Strategies for This Session
Confusion in the Older Adult

• Accepted as a normal consequence of aging
• Term used as a general label for cognitive changes
• Typically implies an untreatable condition
3 D’s of Dementia, Depression, Delirium

- Incidence increases as we age
- Occur separately or in combination
- Only delirium has a sudden onset
  - “Never acted like this before”
  - “Very agitated today”
  - “Kept him sitting at the nurses station so we could keep an eye on him”
  - “He needs something to settle him down”
## Comparison Chart for the 3 D’s

<table>
<thead>
<tr>
<th>Clinical Feature</th>
<th>Delirium</th>
<th>Dementia</th>
<th>Depression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onset</td>
<td>Sudden/abrupt, depends on cause, often at twilight or in darkness</td>
<td>Insidious/slow and often unrecognized; depends on cause</td>
<td>Coincides with major life changes; often abrupt, but can be gradual</td>
</tr>
<tr>
<td>Course</td>
<td>Short, diurnal fluctuations in symptoms; worse at night, in darkness,</td>
<td>Long, no diurnal effects; symptoms progressive yet relatively stable</td>
<td>Diurnal effects, typically worse in the morning; situational fluctuations, but less than with delirium</td>
</tr>
<tr>
<td>Progression</td>
<td>Abrupt</td>
<td>Slow but uneven</td>
<td>Variable; rapid or slow but even</td>
</tr>
<tr>
<td>Duration</td>
<td>Hours to less than 1 month; seldom longer</td>
<td>Months to years</td>
<td>At least 6 weeks; can be several months to years</td>
</tr>
<tr>
<td>Consciousness</td>
<td>Reduced</td>
<td>Clear</td>
<td>Clear</td>
</tr>
<tr>
<td>Alertness</td>
<td>Fluctuates; lethargic or hypervigilant</td>
<td>Generally normal</td>
<td>Normal</td>
</tr>
<tr>
<td>Attention</td>
<td>Impaired; fluctuates</td>
<td>Generally normal</td>
<td>Minimal impairment, but is distractible</td>
</tr>
<tr>
<td>Orientation</td>
<td>Generally impaired; severity varies</td>
<td>Generally normal</td>
<td>Selective disorientation</td>
</tr>
<tr>
<td>Memory</td>
<td>Recent and immediate impaired</td>
<td>Recent and remote impaired</td>
<td>Selective or “patchy” impairment; “islands” of intact memory; evaluation often difficult due to low motivation</td>
</tr>
<tr>
<td>Thinking</td>
<td>Disorganized, distorted, fragmented; incoherent speech, either slow or</td>
<td>Difficulty with abstraction; thoughts impoverished; judgment impaired;</td>
<td>Intact but with themes of hopelessness, helplessness, or self-deprecation</td>
</tr>
<tr>
<td>Perceptions</td>
<td>Slow or accelerated</td>
<td>words difficult to find</td>
<td>Intact; delusions and hallucinations absent except in severe cases</td>
</tr>
<tr>
<td>Psychomotor</td>
<td>Variable; hypokinetic, hyperkinetic, and mixed</td>
<td>Normal; may have apraxia</td>
<td>Variable; psychomotor retardation or agitation</td>
</tr>
<tr>
<td>Behavior</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sleep/wake</td>
<td>Disturbed; cycle reversed</td>
<td>Fragmented</td>
<td>Disturbed; usually early morning awakening</td>
</tr>
<tr>
<td>Associated features</td>
<td>Variable affective changes; symptoms of autonomic hyperarousal;</td>
<td>Affect tends to be superficial, inappropriate, and labile; attempts to</td>
<td>Affect depressed; dysphoric mood; exaggerated and detailed complaints; preoccupied with personal thoughts; insight present; verbal elaboration; somatic complaints, poor hygiene, and neglect of self</td>
</tr>
<tr>
<td></td>
<td>exaggeration of personality type; associated with acute physical illness</td>
<td>conceal deficits in intellect; personality changes, aphasia, agnosa may be present; lacks insight</td>
<td></td>
</tr>
<tr>
<td>Assessment</td>
<td>Distracted from task; numerous errors</td>
<td>Failings highlighted by family, frequent “near miss” answers; struggles</td>
<td>Failings highlighted by individual, frequent “don’t knows;” little effort;</td>
</tr>
</tbody>
</table>
“In U.S. hospitals, five older patients become delirious every minute” (Inouye, 2014).
What is delirium?

- Acute *disease*
  - Acute onset of confusion
  - Impaired attention
  - Disorganized thinking
  - Altered level of consciousness
• Delirium Vignettes
  – Hypoactive
  – Hyperactive
  – ICU
Our Aging Population

• In 2009: 39.6 million over 65, 13% of the U.S. population
  – Represent 60-70% of all hospital admissions
  – Average length of stay 5.6 days for seniors versus 4.8 days for all other ages
  – Incidence of delirium increases length of stay to 7.8 days (McCusker, J, Cole, MG, Dendukuri, N, Belzile, E, 2003)

• In 2030: 72 million over 65, 19% of the U.S. population

• Pennsylvania:
  – 2010 Older adults represented 16% of total population
  – 2030 Older adults will represent 22.6% of total population
Our Aging Body
Delirium is......

- Often unrecognized or attributed to dementia
  - Nondetection rates as high as 69% (Yanamadala, Wieland, Heflin, 2103)
- Preventable in 30-40% of cases (Inouye, 2014) through risk factor identification and modification
  - Also results in prevention of other geriatric syndromes
- Associated with:
  - increased mortality rate
  - functional decline
  - falls
  - increased nursing time
  - longer lengths of hospital stay
  - higher rates of new nursing home placement
Incidence of delirium per situation:
- At hospital admission – 14 to 24%
- During hospitalization – Another 6 to 56%
- Older postoperative patients – 15 to 53%
- Postoperative hip fracture patients – up to 65%
- Intensive care patients – 70 to 87%

• Mortality rates
  - among hospitalized patients with delirium range from 22 to 76%
    • Which is as high as those with sepsis and myocardial infarction
  - one year mortality rate associated with cases of delirium is 35 to 40%

Inouye SK, 2014
Predisposing Factors

- Advanced age > 70
- Dementia
- Depression
- Multi-morbidity
- Sensory deficits: hearing, vision
- TIA/stroke

Inouye SK, 2014
Precipitating Factors

- Medications
- Immobilization
- Indwelling bladders catheters
- Metabolic derangements
- Infections
- Iatrogenic events
- Surgery

Inouye SK, 2014
Management of Treatable Causes of Delirium

- Drugs
- Emotional
- Low PO2 (Anemia, PE, MI, CVA)
- Infection
- Retention of urine and feces
- Ictal states
- Undernutrition/dehydration
- Metabolic disorders (e.g., hypothyroid)
- Subdural

Flaherty JH, Morley JE, 2013
Medications and Older Adults
Medication Appropriateness

Is there an indication for the drug?
Is the medication effective for the condition?
Is the dosage correct?
Are the directions correct?
Are there clinically significant drug-drug interactions?
Are there clinically significant drug-disease interactions?
Are the directions practical?
Is this drug the least expensive alternative compared to others of equal utility?
Is there unnecessary duplication with other drugs?
Is the duration of therapy acceptable?

• Benzodiazepines
• Nonbenzodiazepine hypnotics
• Anticholinergics
<table>
<thead>
<tr>
<th>Antihistamines</th>
<th>Antiparkinson agents</th>
<th>Skeletal Muscle Relaxants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brompheniramine</td>
<td>Benztpine</td>
<td>Carisoprodol</td>
</tr>
<tr>
<td>Carbinoxamine</td>
<td>Trihexyphenidyl</td>
<td>Cyclobenzaprine</td>
</tr>
<tr>
<td>Chlorpheniramine</td>
<td></td>
<td>Orphenadrine</td>
</tr>
<tr>
<td>Clemastine</td>
<td></td>
<td>Tizanidine</td>
</tr>
<tr>
<td>Cyproheptadine</td>
<td></td>
<td></td>
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<tr>
<td>Dimenhydrinate</td>
<td></td>
<td></td>
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<tr>
<td>Diphenhydramine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydroxyzine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loratadine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meclizine</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Antidepressants</th>
<th>Antipsychotics</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Amitriptyline</td>
<td>Chlorpromazine</td>
<td></td>
</tr>
<tr>
<td>Amoxapine</td>
<td>Clozapine</td>
<td></td>
</tr>
<tr>
<td>Clomipramine</td>
<td>Fluphenazine</td>
<td></td>
</tr>
<tr>
<td>Desipramine</td>
<td>Loxapine</td>
<td></td>
</tr>
<tr>
<td>Doxepin</td>
<td>Olanzapine</td>
<td></td>
</tr>
<tr>
<td>Imipramine</td>
<td>Perphenazine</td>
<td></td>
</tr>
<tr>
<td>Nortriptyline</td>
<td>Pimozide</td>
<td></td>
</tr>
<tr>
<td>Paroxetine</td>
<td>Prochlorperazine</td>
<td></td>
</tr>
<tr>
<td>Protriptyline</td>
<td>Promethazine</td>
<td></td>
</tr>
<tr>
<td>Trimipramine</td>
<td>Thoridazine</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Thiotixene</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Trifluoperazine</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Antimuscarinics (urinary incontinence)</th>
<th>Antispasmodics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Darifenacin</td>
<td>Atropine products</td>
</tr>
<tr>
<td>Fesoterodine</td>
<td>Belladonna alkaloids</td>
</tr>
<tr>
<td>Flavoxate</td>
<td>Dicyclomine</td>
</tr>
<tr>
<td>Oxybutynin</td>
<td>Homatropine</td>
</tr>
<tr>
<td>Solifenacin</td>
<td>Hyoscyamine products</td>
</tr>
<tr>
<td>Tolterodine</td>
<td>Propantheline</td>
</tr>
<tr>
<td>Tropium</td>
<td>Scopolamine</td>
</tr>
</tbody>
</table>
Insomnia

• Address underlying issues
  – Sleep history
    • Pittsburgh Sleep Quality Index
  – Medical History
  – Medication History
  – Mobility
Sleeping Medications in the Older Adult

- Increase sleep time by an average of 25 minutes
- Decrease length of time to fall asleep by 10 minutes
- Clinical benefits may be modest at best
- Increase in adverse effects
  - Daytime drowsiness
  - Nightmares
  - GI disturbances
  - Dizziness
  - Motor vehicle accidents
  - Falls
- Are the benefits worth the risks?
Alternatives to Sleeping Medication

- Soft music
- Temperature
- Lighting
- Comfort
- QUIET
Do we have a problem with NOISE?
Other High Risk Medications

• Antibiotics in the fluoroquinolone class
• Tricyclic antidepressants
• Corticosteroids
• Digoxin
• H2 Blockers
• Anti-epileptics
• Muscle relaxants
• Pain medications: Double edge sword
  – Meperidine
  – NSAIDS
PAIN-AD for Adults with Dementia

Pain Assessment in Advanced Dementia (PAINAD) Scale

Description: The Pain Assessment in Advanced Dementia (PAINAD) Scale was developed to assess pain in patients who are cognitively impaired, non-communicative, or suffering from dementia and unable to use self-report methods to describe pain. Observation of patients during activity records behavioral indicators of pain: breathing, negative vocalization, facial expression, body language, and consolability.

How to use: PAINAD is a five item observational tool with numerical equivalents for each of the five behavior items listed, with total scores ranging from 0 to 10. Each of the five assessments contains a range from 0 to 2 and the sum of each of the five categories results in the total numerical score. To use:

Assess the patient during periods of activity, such as turning, ambulating or transferring. Assess the patient for each of the 5 indicators and assign a numerical point value based on each of the 5 assessment indicators. Obtain a total score by adding scores of the 5 indicators. The total score ranges from a minimum of 0 to a maximum of 10.

<table>
<thead>
<tr>
<th>Items</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breathing independent of vocalization</td>
<td>Normal</td>
<td>Normal</td>
<td>Noisy labored breathing</td>
<td></td>
</tr>
<tr>
<td>Negative vocalization</td>
<td>None</td>
<td>Occasional moan or groan</td>
<td>Repeated calling out. Loud moaning or groaning. Crying</td>
<td></td>
</tr>
<tr>
<td>Consolability</td>
<td>No need to console</td>
<td>Distracted reassured by voice or touch</td>
<td>Unable to console, distract or reassure</td>
<td></td>
</tr>
</tbody>
</table>

Total
Delirium Prevention = Modifying Risk Factors

- Determine baseline mental status: family, nursing facility
- Identify delirium risk factors
- Initiate preventative strategies to modify risk factors
Rate Your Preventative Strategies

- Ongoing assessment for high risk medications
- Early and regular mobilization
- Discontinue unnecessary medical equipment/tethers
- “Protect” sleeping during the night
- Address pain
- Address sensory deficits
- Prevent dehydration
- Gentle re-orientation
- Incorporate patient routine
- Monitor for metabolic and electrolyte abnormalities
- Educate and involve families
Key Factors if Delirium Develops

#1 Recognize it: bedside nurse is key
  • Symptoms fluctuate throughout the day
#2 Address underlying causes
#3 Rarely a single reason; require multifactorial approach
Types of Delirium Assessments

Depending on hospital preference:

- CAM Confusion Assessment Method
- NU-DESC Nursing Delirium Screening Scale
- ICDSC for ICU Delirium
Confusion Assessment Method

Four Elements
Must have 1 and 2 and either 3 or 4

1. Acute onset, fluctuating course
2. Inattention
3. Disorganized thinking
4. Altered level of consciousness
Management of Delirium

- Include preventative strategies
- Identify and treat underlying causes
- Pharmacological approaches
- Non-pharmacological approaches
Case Study

• 82 year old male admitted for prostate surgery
• Hx of diabetes, hypertension, moderate hearing loss
• Alert and oriented, active lifestyle
• Restricts fluid intake to avoid getting up often at night
• Preoperative labs are WNL except for a low hematocrit and slightly elevated BUN/Creatinine ratio

What risk factors does he have for delirium development?
What additional features may contribute to delirium during his hospital stay?
What steps should you take?
Case Study

- 82 year old male admitted for prostate surgery from PCH
- Hx of Alzheimer’s disease, diabetes, hypertension, moderate hearing loss
- Ambulates without assistance
- Staff restricts fluid intake to avoid his awakening at night to go to the bathroom
- Preoperative labs are WNL except for a low hematocrit and slightly elevated BUN/Creatinine ratio

What risk factors does he have for delirium development?
What additional features may contribute to delirium during his hospital stay?
What steps should you take?
A 49 year old man is admitted following a fall at home in which he suffered a torn rotator cuff of the right shoulder. He has a history of an aortic valve replacement and a two vessel coronary artery bypass graft 3 years ago.

His medications include simvastin, clopidogrel, lisinopril, aspirin, amitriptyline, oxycodone and phenytoin (hx seizures)

He is in his third day post op and ready to be discharged. He spent the past two days sleeping on and off following the administration of pain medication. Last night he had difficulty sleeping and was quite angry at his physician for not discharging him yesterday. An order was obtained for Xanax which was administered at 3 am. He slept until breakfast was served.
A 79 year old man is admitted following a fall at home in which he suffered a torn rotator cuff of the right shoulder. He has a history of an aortic valve replacement and a two vessel coronary artery bypass graft 3 years ago.

His medications include simvastin, clopidogrel, lisinopril, aspirin, amitriptyline, oxycodone and phenytoin (hx seizures)

He is in his third day post op and ready to be discharged. He spent the past two days sleeping on and off following the administration of pain medication. Last night he had difficulty sleeping and was quite angry at his physician for not discharging him yesterday. An order was obtained for Xanax which was administered at 3 am. He slept until breakfast was served.
Examples of UPMC Current Practices

• UPMC Shadyside: Hospital Elder Life Program (HELP)
  – Annual financial return from HELP: $7,368,549
• UPMC McKeesport: Use of Mini-CAM (Confusion Assessment Method) in the “Fracture Program.”
• Magee-Womens Hospital: Delirium and risk assessment upon admission, change in condition, transfer, and every shift. Multidisciplinary approach to prevent and manage delirium.
• UPMC Passavant: Delirium Task Force was recently formed to include representatives of the ICU Protocol Team, Pharmacy, Nursing Education, and the Restraint Reduction Team
Delirium Risk Reduction Task Force

• Targeted medications
  – High incidence of anticholinergic side effects
    • Diphenhydramine
    • Hydroxyzine
    • Meperidine
  – If patient is >65 years old – physician is contacted

• Automatic Therapeutic Interchanges

• AGS Beer’s Criteria
UPMC McKeesport Delirium Initiatives
UPMC McKeesport Delirium Initiatives
EXPLORE Activity Bags
Items for EXPLORE Bags

- Puzzles with larger pieces (50 pieces or less). Consider easy assembly with simplified picture.
- Large faced deck of cards.
- Magazines, gardening catalogs with large pictures.
- Obtain items from home such as favorite pictures.
Coloring Books

- Many book selections are available for older adult use. Please avoid the use of coloring books designed for children.
QUESTIONS
Sources

• Administration on Aging. Retrieved; http://www.aoa.gov/
• Inouye SK. Delirium in the hospitalized older patients. Clinical Geriatric Medicine 1998; 14: 745-64.
Sources