THE HOSPITALIZED PATIENT WITH DEMENTIA….. AND DELIRIUM

JENNIFER PALERMO, MMS, PA-C
MAYO CLINIC IN ARIZONA

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DISCLOSURES

- This presentation has no current affiliation or financial arrangements.
- This presentation does discuss off-label uses of products.
OBJECTIVES

• At the conclusion of this session, the participant will be able to:
  • Explain the impact of hospitalization on patients with dementia.
  • Differentiate between patients with dementia and delirium.
  • Recognize the risk factors for the development of delirium.
  • Develop strategies for delirium prevention.
  • Utilize fall assessment tools.
MR. SPIERFOLD

• Mr. Spierfold is a 89-year-old male with Alzheimer's dementia. He is alert and oriented to his name only. At times, he will recognize his wife and daughters. Mr. Spierfold requires a 24 hour caregiver and assistance with all of his ADLs. He can ambulate a few steps but usually requires a wheelchair. He can still feed himself, but his eating habits are variable.
NEUROCOGNITIVE DISORDER

• AKA dementia....

• **DSM-5 Diagnostic Criteria**
  A. Evidence of significant cognitive decline in ≥1 cognitive domains,
  B. Cognitive deficits interfere w/independence in every day activities.
  C. Cognitive deficits do not occur exclusively in the context of delirium.
  D. Cognitive deficits are not better explained by another mental D/O.
BURDEN OF DEMENTIA

- Affects 24 million people worldwide
  - Expected to double by 2040

- 4-5.5 million Americans have Alzheimer’s disease
  - Estimated to ↑ to 10 million by 2040

- AD (and its complications) is the 6th leading cause of death in the US.

- $57,000 per patient annually is spent
DEMENTIA & ACUTE ILLNESS

- Patients ≥ 70 years old hospitalized for:
  - Hip fracture
    - 59 cognitively intact
    - 38 w/end-stage dementia
  - Pneumonia
    - 39 cognitively intact
    - 80 w/end-stage dementia

Six-Month Mortality

<table>
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<tr>
<th></th>
<th>Intact</th>
<th>Dementia</th>
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<tbody>
<tr>
<td>Hip Fracture</td>
<td>12%</td>
<td>55%</td>
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<tr>
<td>Pneumonia</td>
<td>13%</td>
<td>53%</td>
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Morrison and Sui, 2000
DEMENTIA & ACUTE ILLNESS

- End-stage dementia patients received less pain medicines.

- End-stage dementia patients underwent as many “burdensome” procedures.

- Only 7% of end-stage dementia patients had advanced directives pertaining to end-of-life care other than CPR.

Morrison and Sui, 2000
RECOGNITION OF COGNITIVE IMPAIRMENT

- 165 older patients admitted to a university hospital
- 79% of cognitive deficits were missed
- 394 documented examinations but only 4 mental status examinations were performed

McCartney and Palmateer, 1985
RECOGNITION OF COGNITIVE IMPAIRMENT

• 165 patients ≥ 65 years old admitted to ICU
  • 37% of patients had pre-existing cognitive impairment.

• Attending physicians were unaware of 53%.
  • Intern physicians were unaware of 59%.

• If patients had impairment of ADLs and were admitted from SNF, recognition ↑ 13-fold.

MR. SPIERFOLD

- Mr. Spierdold is brought to the ED by EMS. His daughters and caregiver accompany him. They report that as he was transferring from his wheelchair to bed after dinner, and he fell. He is at his baseline mental status but is complaining of L hip pain. A x-ray reveals a fracture. He will be admitted to the hospital for surgery pending your POME.

- What do you tell his daughters, who are at bedside?
DELIRIUM

• DSM-5 Diagnostic Criteria
  A. Disturbance in attention and awareness.
  B. Disturbance develops over a short period of time (usually hours to days, represents a change from baseline, and tends to fluctuate in severity over the day.
  C. An additional disturbance in cognition.
  D. Disturbances in A and C are not better explained by a preexisting, established, or evolving neurocognitive D/O and do not occur in setting of coma.
  E. Evidence from H&P/labs that disturbance is a direct physiological consequence of another medical condition, intoxication/withdrawal, exposure to toxin, or multiple etiologies.
## DEMENTIA VS. DELIRIUM

<table>
<thead>
<tr>
<th></th>
<th>Dementia</th>
<th>Delirium</th>
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<tbody>
<tr>
<td>Memory impairment</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Disturbance of</td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>consciousness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute, rapid onset</td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>Progressive, insidious</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>onset</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluctuation of symptoms</td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>during 24-hour period</td>
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PREVALENCE OF DELIRIUM

• As any as 50% of older hospitalized patients experience delirium.

• Incidence ↑ to 40 - 70% of ICU patients

• 10-50% of elderly surgical patients
  • ↑ risk in patients with hip fractures and vascular surgery
    • 5-45% in patients requiring hip surgery
COST OF DELIRIUM

- $164 billion/year

- Study of 500 patients undergoing elective surgery found an 11.4% delirium rate associated with:
  - 23% ↑ LOS
  - 22% ↑ in total cost ($11,762 vs. $9,145)
  - 18% ↑ in nursing costs ($5,333 vs. $4,353)

Leslie, 2008; Psychosomatics, 2001
CONFUSION ASSESSMENT METHOD

- Adapted originally from DSM-III and best used as screening tool, and then to follow improvement/progression.

Assesses 5 features of delirium:
1. Fluctuating Course
2. Acute onset
3. Inattention
4. Disorganized thinking
5. Altered consciousness

- (+) CAM includes features 1-3 and either 4 or 5
CAM

- Sensitivity 94-100%
- Specificity 90-95%
- Takes less than 15 minutes to complete
- Most commonly used, most predictive of delirium
- Can be performed by non-clinician interviewers

Wong, 2010
OTHER MENTAL STATUS TESTING

• Mini Mental State Exam (MMSE)
• Kokman Mental Status Exam
• Memorial Delirium Assessment Scale
• Delirium Rating Scale Revised-98
• Nursing Delirium Screening Scale

• All found to be less effective than CAM

Wong, 2010
You see Mr. Spierfold the following morning. Unfortunately, his hip surgery has been delayed, but he is scheduled for repair tomorrow.

He is more confused than when you saw him yesterday. He cannot tell you his name and does not recognize his daughter. He is pulling at his sheets.

His daughter asks why he is declining.
EARLY RECOGNITION OF DELIRIUM

• Recent data still suggests wide range of early recognition (5-70%)

• Many studies have looked at protocols for screening high risk patient groups
  • Post cardiac surgery patients
  • Post hip fracture patients

• Improved outcomes with early recognition
Cognitive deficits often missed in patients with delirium.......up to 80% of the time.

Risk factors often not identified in patients with delirium.......up to 60% of the time.
• Use “encephalopathy” to describe a reversible alteration in mental status 2/2 toxic or metabolic changes.

• Use “delirium” to describe psychiatric conditions that are unrelated to underlying systemic conditions.

• “Altered mental status” is a non-specific symptom, and the resources utilized go unrecognized.
RISK FACTORS FOR DELIRIUM

- Underlying dementia*
- Age ≥ 80
- Infection
- Fracture
- Polypharmacy
- ETOH use
- Men > Women
- Multiple medical problems
“ROUND UP THE USUAL SUSPECTS”

- Post-operative
- Infections
- Medications (22-39%)
- Cardiopulmonary events
- Metabolic abnormalities
- Neurologic events
- Substance intoxication or withdrawal
EVALUATION OF DELIRIUM

- Complete history and physical exam
- Review medications
- CBC w/diff, CMP, Ca\(^{2+}\), Mg\(^{2+}\), UA, BC
- ECG and CXR

If the cause is not clear after the initial work-up, consider:
- TSH, folate, vitamin B12, CSF analysis
- Head CT/MRI, LP, EEG
MR. SPIERFOLD

- Mr. Spierfold is POD#1 after his hip repair. The covering night-time PA is called by his RN. She reports that he is more confused then when she came on shift. He is yelling and is verbally abusive. He is trying to get out of bed and pull out his IV.

- His RN would like an order for something to help with his symptoms.
TREATMENT OF DELIRIUM

- Prevention is the primary goal!

- Identify and treat the underlying cause

- Control associated behaviors
  - Private room
  - 24 hour sitter
  - Calm, reassuring behavior
  - Reorienting devices/memory cues
  - Re-establish sleep-wake cycle
  - Avoid restraints

- Reassure patient/family/staff
PHARMACOLOGIC TREATMENT

• Ask yourself......
  • Do the symptoms need drug treatment?
  • Is this medication really going to help the symptoms?
  • What are the potential side effects?
  • How long will I have to continue it?
PHARMACOLOGIC TREATMENT

• There are NO approved medications.

• Avoid benzodiazepines (unless in ETOH withdrawal) and “sleepers”!

• Antipsychotics are often used off-label.
  • Black box warning
    “....conventional and atypical antipsychotics are associated with an increased risk of mortality in elderly patients treated for dementia-related psychosis....”

ANTIPSYCHOTICS

- **Haloperidol**: 0.25-0.5mg 1-3x/d
- **Risperidone**: 0.25mg QD
- **Olanzapine**: 2.5-5mg QD
- **Quetiapine**: 25mg HS or BID
- **Ziprasidone**: 10-20mg QD
- **Aripiprazole**: 2.5mg QD

**Orthostasis/Hypotension**

**2nd Gen**

- **Haloperidol**: 0.25-0.5mg 1-3x/d
- **Risperidone**: 0.25mg QD
- **Olanzapine**: 2.5-5mg QD
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**QT Prolongation**

**Extrapyramidal Side effects**

**Anticholinergic/Sedating**

**Elevated glucose**
You see Mr. Spierfold the following morning. His wife is at his bedside. She is upset that he had such a bad night and asks why you didn’t do more to prevent this from happening?
PREVENTION OF DELIRIUM

• 30-40% of delirium can be prevented.

• Be aware of and modify risk factors.
  • Avoid offensive medications (if possible).

• Medication prevention?

Inouye, 1999; Marcantonio, 2001
PREVENTION - HALOPERIDOL

- Study (n=408) in Netherlands
- No change in delirium prevalence
- Secondary endpoints favorable
  - ↓ duration of delirium
  - ↓ severity
  - ↓ LOS
- No haloperidol side effects noted
- More research needed...
PREVENTION - HALOPERIDOL

• Randomized placebo-controlled trial to determine if haloperidol prophylaxis affected post-op delirium in elderly patients requiring hip surgery
  • 212 patients (of 430 total) received 0.5 mg TID starting at admission and to 3 days post-op (+ proactive geriatric consultation)

• Conclusions:
  • Did not change the risk of delirium (15.1% vs 16.5%)
  • ↓ duration (5.4 vs. 11.8 days) and severity of delirium
  • ↓ LOS
  • Well-tolerated with no side-effects

JAGS, 2005.
Randomized placebo-controlled trial to determine if ramelteon had preventive effects on delirium
  - Melatonin agonist
  - 33 patients (of 67 total) received 8 mg QHS X7 days

Conclusions:
  - ↓ risk of delirium (3% vs 32%)
  - ↑ time to development of delirium (6.94 vs. 5.74 days)
  - QHS ramelteon may protect against delirium in hospitalized elderly patients.
  - More studies needed but appears promising…
In addition to delirium, Mr. Spierfold’s post-operative course is complicated by acute blood loss anemia requiring a transfusion, Afib w/RVR, and aspiration pneumonia. He is slowly improving and is starting to work with PT and OT with plans to be DC’ed to a SNF. While walking in the hall with PT, he trips over his foley catheter.
FALLS IN HOSPITALIZED PATIENTS

• 2-3X the community rate

• 7 falls/1,000 admits

• 1/4 due to environmental hazard (including restraints)

• 30-40% may be preventable
### Risk for Falls
- Impaired cognition
  - Greatest risk!
- Prior falls
- CVA
- Psychoactive meds
- Impaired mobility
- ↓ ADLs

### Results of Falls
- 20% significant injury
- ↑ LOS
- ↑ SNF placement
- ↑ cost
- Legal risk
PREVENTION OF FALLS

• Identify modifiable risks in all patients.

• Fall Assessment Tools
  • Hendrich Fall Risk Assessment
    • Done by nursing at admission or with status change
    • Assigned a risk score
  • “Falling Star” → Hendrich + Intervention

• Multidisciplinary teams
  • A multifactorial intervention for the prevention of falls in psychogeriatric nursing home patients, a randomized controlled trial.

MR. SPIERFOLD

• After his fall, you called Mr. Spierfold’s family. They come in and meet with you. They come with a list of concerns and questions. One of them is related to his aspiration PNA. They are concerned that he will continue to aspirate and have recurrent PNAs. His daughter mentioned that she did some on-line “research,” and they would like to discuss a feeding tube for Mr. Spierfold.

• What do you tell his family?
DEMENTIA & FEEDING TUBES

- Emotional issue
- PEG tube, G-Tube
  - 30% of all PEG tubes are placed in patients with dementia.

- Cochrane Review 2009
  - 452 studies including 1821 patients
  - No benefit from a nutrition perspective or survival
  - ? ↓ in survival
  - QOL could not be commented on. Further studies recommended.
LESSONS FOR PRACTICE

• Recognition of baseline cognitive impairment and delirium in hospitalized patients is key.
• Controlling symptoms of delirium is difficult, so the focus should be on prevention of delirium.
• There are no approved medications for the prevention or treatment of delirium.
• Feeding tubes are not indicated in patients with dementia.
QUESTIONS?

palermo.jennifer1@mayo.edu
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