

Delirium – An Enormous Under-Recognized Problem With Even Bigger Consequences

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Objectives

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1. Appreciate the negative impact of delirium occurrence
2. Know common etiologies of delirium leading to key strategies for delirium prevention
3. Identify key tools of delirium assessment
4. Appreciate the costs of delirium and some innovative solutions

Delirium Stories

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- Being confused is not necessarily being delirious – you made the wrong turn off the highway and now you are lost!
- Being agitated is not necessarily being delirious – the Veteran with traumatic brain injury, who is late for his appointment and the doctor has left, has a fit of rage and throws chairs in the waiting room
- Being non-communicative is not necessarily delirious – the woman in a deep stage of grief after the unexpected death of her husband

What delirium is not

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- An acquired impairment in multiple areas of intellectual function: memory + (language, praxis, object recognition, or executive function)
- That interferes with either occupational or social functioning or interpersonal relationships and represent a decline
- And is not secondary to?

What delirium is!

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- Disturbance of consciousness
- Cognitive change not accounted for by preexisting dementia
- Develops over short time period
- Symptoms fluctuate over the day

American Psychiatric Association: *Diagnostic and Statistical Manual of Mental disorders*, 4th edition. Washington, DC, APA 1994.

Delirium Has Significant Medical Costs

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- Economic cost of delirium attributed to:
 - Longer hospital stays (48% of all hospital days are for those 65 years and older)
 - Higher likelihood of institutionalization
- One intervention saved \$1.25 million per year in among 704 persons on one 400 bed inpatient unit
- Delirium costs \$38 billion to \$152 billion/year

Leslie, et al. JAGS 2011;59:S241-S243
Leslie, et al. Arch Intern Med 2008;168:27-32

Delirium and Functional Decline

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- Delirium often occurs during hospitalization
- Functional decline is a typical consequence of hospitalization – inflammatory stressors and enforced or self-imposed, and consequential immobility (weakness)
- Delirium doubles the risk of functional decline at one month for post-op cardiac surgery
- Of 948 subjects, post-op delirium strongly associated with functional decline (OR:2.4; 95% CI:1.4-4.1)

Quinlan & Rudolph. JAGS 2011;59:S301-S304

Delirium is Stressful for Families

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- Unexpected behaviors without predictability
- Increases need for supervision
- Roller-coaster experience of behavioral changes
- Caregiving stress is magnified and with functional loss, caregiving effort increases to address functional needs

An Unforgettable Case

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- 89 year old woman admitted to medical service with pneumonia
- Next morning, resisting care by nurses which escalated to screaming, hitting, and scratching
- Lived in her own apartment with daily family assistance but ADL independent
- Non-pharmacological approaches were utilized but with little improvement – response to any intervention was predictably negative

89 Year Old With Agitation

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- Family members came to the hospital and noted hearing aids and eyeglasses were missing
- Located these at her apartment and brought in to the hospital
- With these in place, she became calm and cooperative
- Would this be considered delirium?

Etiologies (Pneumonic)

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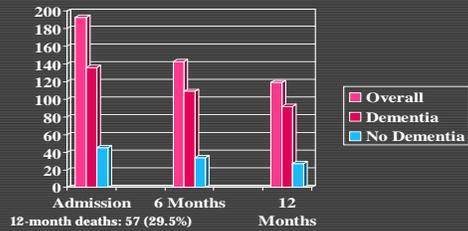
- D – Dementia
- E – Electrolyte imbalance (sodium, calcium...)
- L – lung, liver, heart, kidney, brain disease
- I – Infection (pneumonia, UTI, skin ulcers)
- R – Rx Drugs (benzos, SSRI, Etoh, Digoxin, anticholinergics, dementia meds)
- I – Injury, pain, stress (urinary retention, constipation, head trauma)
- U – Unfamiliar environment (day-night reversal, sleep)
- M – Metabolic (hypo- or hyperglycemia)

Acute Myocardial Infarction (AMI)

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- Mr. Simmons, who is a 91 year old gentleman living in his own apartment in an assisted living facility – presents with nausea and vomiting and is diagnosed with AMI.
- Managed medically
- Day 2, he is acutely confused and has fluctuation between clarity and confusion throughout the day.
- “Ready” for discharge on Day 3.
- Beyond the need for additional support at home, what is the larger potential problem?

Persistence of Symptoms



McCusker J. J Gen intern med. 2003;18:696-704

Mrs. Vogel

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- 81 year old who fell resulting in a left hip fracture requiring a total hip replacement.
- Had lived in Palm Springs for years with her husband who died the prior year
- Had been visiting friends in Los Angeles when she fell, daughter had visited a month earlier – lived in N. California
- Surgery was uneventful; Post-op day 3 is less motivated to do therapy, poor appetite, less communicative
- Antidepressant is started
- Daughter comes to visit from northern California

This is not my mother!

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- Daughter is upset with mother's behavior and appearance – "She has never been like this! Not depressed a day in her life!"
- Mrs. Vogel hardly animated at seeing her daughter. Seems confused by her arrival.
- Confusion worse at night, better in AM but fluctuates throughout the day.
- Frequently falls off to sleep.
- Diagnosis???

Hypoactive Delirium

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- Can masquerade as depression
- Typically alternating states of consciousness
- Because behavioral disturbance may not be obvious, it is often missed
- Assume any behavior change in hip fracture patient is delirium until proven to be otherwise
- Why?

Why assume delirium?

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- Hip fracture patients are immobilized
 - Difficulty moving, Foley catheters, etc.
- They are in pain and / or are on narcotics
- May have underlying cognitive impairment recognized or not (association between gait impairment and cognitive impairment)
- Develop secondary medical problems – physiologic stressors

Missing Delirium Can be Devastating

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- May miss an underlying life-threatening condition
- Behavior change may be the only identifiable symptom for infection, hypoxia, untreated pain, heart attack, bowel obstruction, etc.
- No opportunity to remove potential causal agent (always multiple interacting perturbations – frailty) if undiagnosed

Treating Mrs. Vogel

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- Early mobilization
- Frequent reorientation and social stimulation (daughter's arrival a big help)
- Relieve constipation (on narcotics)
- Lighten narcotic therapy
- Remove Foley catheter and treat urinary tract infection
- Symptoms improve within 48 hours!

Why is it so under-recognized?

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- Pandora's box (will I be able to discharge this person as anticipated?)
- Requires cognitive assessment (infrequently done)
- Not part of the practitioner's radar screen – on the list of "silent illnesses" – dementia, depression, mental illness
- Assessment skills and treatment approaches are lacking

Pandora's Box



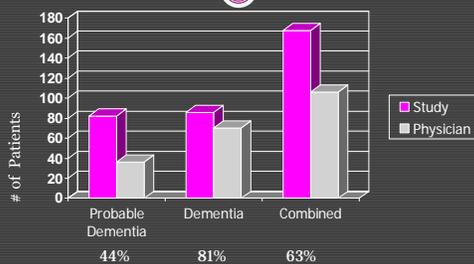
Are There Lessons to Be Learned From Failure to Recognize Cognitive Impairment?

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- Surveyed 729 physicians in southern California health maintenance organization (2000-01)
- Asked physicians to estimate the cognitive functioning of one of the selected patients participating in the cohort study of estrogen and memory function
- 2-Stage Dementia assessment (TICS/TDQ)

Physician Recognition of Cognitive Impairment

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Chodosh, et al. J Am Geriatr Soc. 2004;52:1051-1059

Need for Better Assessment

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- Hospitalized Older Patients
 - Do not routinely receive cognitive assessments
 - Are assumed to be demented and behavior is interpreted through that biased veil
 - Physician time at the bedside is increasingly little
 - Functional assessment is not performed
 - Hypoactive delirium misinterpreted as depression

Comparative Features

	Delirium	Dementia	Depression
Definition	Impaired sensorium	Global decline in cognitive capacity in clear consciousness	Disturbance in mood, low vital sense and self-attitude
Core Symptoms	Inattention, distractibility, drowsiness, befuddlement	Amnesia, aphasia, agnosia, apraxia, disturbed executive function	Sadness, anhedonia, crying
Common Symptoms	Cog impairment, hallucinations, mood lability, acute or sub-acute onset	Depression, delusions, hallucinations, irritability	Fatigue, insomnia, anorexia, guilt, self-blame, hopelessness, helplessness
Temporal Features	Acute or sub-acute onset	Chronic onset, usually gradual	Episodic, sub-acute onset
Diurnal Features	Usually worse in evening and night	No clear pattern	Usually worse in morning

Lee HB, et al. Crit Care Clin 2008;24:733-viii

Diagnostic Strategies

- Physical inspection
- Additional environmental inspection
- Medication and laboratory review
- Confusion Assessment Method
- Establish baseline if possible
 - How was this person functioning before hospitalization?

Confusion Assessment Method

- 1) Acute onset and fluctuating course
AND
- 2) Inattention
AND EITHER
- 3) Disorganized thinking
OR
- 4) Altered level of consciousness
95% sensitivity and specificity

Inouye SK, et al. Ann Int Med. 1990;113:941-948

Tests for Inattention

- The “A” Test
 - Read a list of letters (up to 60) with the letter “A” occurring more frequently and in the same tone. Ask the patient to indicate every time they hear an “A”.
 - Count errors of omission and commission
 - > 2 errors considered abnormal

Therapeutic Nihilism?

- Delirium is preventable: Hospital Elder Life Program (HELP)
 - Targeted multi-component intervention
 - Savings in original trial of 852 patients:
 - \$831 per intervention participant in acute inpatient costs
 - \$9,446 per participant in long term care costs
 - 7000 participants per year in 6 hospital units-annual savings of \$6.9 million (program costs: \$440,000)

Hospital Elder Life Program - HELP

- Daily visitor program (orientation, communication, social support)
- Therapeutic activities (cognitive stimulation and socialization)
- Early mobilization (daily exercise, walking)
- Sleep protocol without drugs
- Hearing and vision adaptations
- Oral volume repletion (feeding assistance)
- Geriatric interdisciplinary care
- Provider education
- Community service linkages

Opportunities for Innovation

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- An increasing number of healthcare innovations in care transitions will highlight the inadequacies of inpatient approaches to older age care
- As attention works backward earlier and earlier in the acute care process, new approaches to incorporating delirium preventive care will emerge.

Some Ideas...

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- Cognitive Screeners at admission
- Delirium SWAT Teams supporting clinical services
- Volunteer forces for social engagement
- Nurse transition coaches who engage early
- Enhanced performance measures to increase quality of care

Conclusion

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- Delirium has enormous negative impacts made worse by inadequate recognition.
- Not only is an educational mandate necessary but institutions must undergo real structural changes for new care models.
- With an increasing appreciation of the importance of cognitive impairment, delirium assessment, improved management, and prevention are likely beneficiaries.
