

Delirium

Jeremy Peacock, MD
University of Wisconsin
Department of Psychiatry

Disclosures

I have no conflicts of interest to disclose

Objectives

- To recognize the key elements of delirium and its subtypes
- To identify possible etiologies and differentiate delirium from other disorders
- To become familiar with mental status examination and assessment tools

Nomenclature

- Has been called many things over time-organic brain syndrome, acute brain syndrome, toxic psychosis, altered mental status, acute confusional state
- Sundowning, acute mental status changes have sometimes used to describe or directly refer to delirium
- Definition in DSM-III helped with recognition and standardization

DSM-IV-TR criteria summarized

- Disturbed consciousness with impaired attention
- Change in cognition or perception not better accounted for by dementia or other established condition
- Development over a short time frame and tends to fluctuate
- Evidence of direct physiologic basis

How do you recognize delirium?



Mr. Brown

Mr. Brown is a 81 yo man, widower, with a previous history of osteoarthritis, hypertension, mild obesity, and hyperlipidemia. He is cognitively intact. He has a history of depression that was well controlled until a recent knee replacement 6 weeks ago. He has been undergoing rehab which has not been as well as hoped. Pain and limitations have contributed to worsening depression. He has been using pain medications, prescribed in tapering dosages.

Mr. Brown

Mr. Brown saw his provider and his antidepressant, an SNRI (serotonin-norepinephrine reuptake inhibitor), was increased to try to address mood and augment his pain control. Three days later, his daughter calls because he seemed confused in their conversation. He does not have a history of cognitive impairment except concentration difficulties during previous episodes of depression. He repeated questions, could not recall details of his recent doctor visit, complained of headache, fatigue, and nausea, though no other GI symptoms.

Mr. Brown

- Why is Mr. Brown experiencing these symptoms and is he delirious?
- Think about the diagnostic criteria
- Things to consider
 - Worsening cognition in context of depression
 - Overdose (he has been depressed and in pain)
 - Unintentional OD-excess pain med usage
 - New infection-he did see his doctor
 - Stroke, MI-hx of HTN, lipids, obesity

Mr. Brown

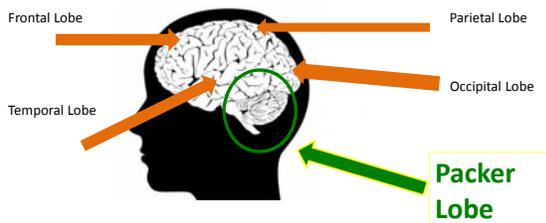
- Recent medication change-SNRI increase is most likely source
- The underlying physiological change though may be complicated

Hyponatremia (low blood sodium), stroke, seizure, serotonin syndrome, altered diet, medication interactions, cognitive impairment as a direct side effect, altered sleep, organ impairment such as kidney or liver



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Fundamental Neuroanatomy



Pathophysiology

- Exact mechanism unknown
- Thought to be multifactorial, multiple brain regions
- Hypotheses
 - Dopamine/acetylcholine/serotonin/norepinephrine imbalance
 - Inflammatory changes
 - Changes in oxidative metabolism
 - Plasma amino acids

Flagg 2010

Delirium Subtypes

- Hyperactive
 - Most recognized
 - ↑ psychomotor activity agitation, mood lability, refusal to cooperate, disruptive behaviors, combativeness
- Hypoactive
 - under recognized
 - ↓ psychomotor activity
 - lethargic
 - withdrawn
 - apathy
- Mixed
 - Highest risk for morbidity/mortality
 - Fluctuating course
- Pathophysiology may be different

Delirium Subtypes

- N=94
- Geriatric unit
- Hyperactive delirium
 - More falls
 - Tended to have more substance withdrawal
- Hypoactive delirium
 - Sicker on admission
 - Tended to have metabolic etiology
 - Longer hospital stays
 - More pressure sores

O'Keefe 1999

Mrs. White

Mrs. White is a 79 yo woman who has a history of type 2 diabetes, hypertension, obstructive sleep apnea, COPD, obesity, mild cognitive impairment, recurrent sinusitis, and osteoarthritis. She has been visiting her hospitalized husband each day for the past 4 days. When she does not visit on day five, her husband calls the assisted living office. Staff come by and she does not seem right. She seems to be tired and her speech is slower than usual. She reports sleeping a lot and not feeling well.

Mrs. White

She denies falling, GI, and urinary sx. At baseline she has a cough which she notes is unchanged. She has been taking medications as prescribed and there are no new medications or over-the-counter agents. She is afebrile. Pulse is steady and 76. Her "color is ok"-she does not look peaked. Her skin is otherwise intact. In talking with her, she asks for her husband-she does not seem to remember that he is in the hospital. In asking about diet and hydration, she cannot recall if she ate breakfast or lunch. While she is sitting, she appears to doze briefly.

Mrs. White

- Is Mrs. White delirious?
- What can help clarify the question?

- Attention screening
WORLD, digit span impaired



- COLLATERAL INFORMATION

- Husband notes she seemed at baseline yesterday, perhaps more tired. She drove herself to hospital and knew most of the circumstances of why he was there.

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Mrs. White

- Why is she impaired?
- Things to consider
 - Recent exposures in hospital
 - Hydration/Diet
 - Environmental change-what did her husband help her with and vice versa
 - Accu-checks
CPAP
Home oxygen



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Epidemiology

- 65yo+ community 1-2%
- 33% of LTCF
- 22-58% dementia depending on stage
- Hospital admits up to 56%
- ICU up to 87%
- hospital patients- delirium appears to persist in 44.7% of patients at discharge and in 32.8, 25.6 and 21% of patients at 1, 3 and 6 months, respectively

McCusker 2011; Robertsson 1998; Fong 2009; Cole 2010

Mr. Green

Mr Green is a 75 yo man with Parkinson's disease, generalized anxiety disorder that is marginally controlled due to medication side effects, and irritable bowel syndrome. He lives with his wife who has had significant medical issues, cognitive impairment, and recently underwent surgery. She has returned to their home in the assisted living complex. At dinner, he reports feeling tired, as he has not been sleeping well since the return of his wife.

Mr. Green

He notes that while she was in the nursing home, he wanted to take care of a few things. He did some home organizing, saw his dentist, went to his neurologist who adjusted his Sinemet, and took care of some financial issues with his bank.

He reports more dreams. His wife told him he punched her several times while he slept. He reports feeling tired multiple times per day and thinks that his disrupted sleep is a problem.

Mr. Green

Mr. Green does not endorse confusion, but then notes he was confused by thinking he saw children playing in his home. He then recalled seeing grass growing on his arm at night and “the rug did not look right-the patterns moved.”



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Mr. Green

- Is Mr. Green delirious?
- His attention seemed at baseline
 - His ability to sustain conversation, memory, and linkage of thoughts
- He had new hallucinations
- Things to consider
 - Sleep disrupted
 - Change of Sinemet
 - Worsening of Parkinson’s Disease

Recognition is poor

- Physicians are NOT good at this
 - Hospital/Floor MDs
- ED physicians
 - Time
 - Impact of formal testing
- Nurses are better
 - MD charting vs nurse recognition
 - Natural presentation and fluctuation
- LTC nursing about 50%



Doerflinger 2009; Voyer 2012

Staff Observations

- Clinical interview represents a narrow window
- Multiple interactions may be necessary to identify delirium
- Local staff may identify earliest signs and describe observed behaviors
- Staff may also identify context of changes
- Hypoactive and mixed delirium states may be hardest to identify

Staff Observations

- Identification of delirium through available notes as reviewed by Kamholz
- Physicians notes compared to Confusion Assessment Method (CAM) diagnosed delirium 42.1% of the time
- Nurses notes compared to CAM diagnosed delirium 97.3% of the time

Kamholz 1999

Mr. Red

Mr. Red is 81 yo. He has a history of hypertension, generalized anxiety disorder, coronary artery disease, hyperlipidemia, chronic back pain, prostate cancer status post transurethral resection of prostate (TURP), and COPD. He lived with his wife in assisted living until she died from pneumonia 4 months ago. She had moderate Alzheimer's disease and he was her caretaker.

Mr. Red

He was admitted and evaluated for chest pain. He was discharged the next day, after the chest pain did not reveal any new cardiac damage. He is now agitated, tremulous, has made nonsensical statements, looks ill, and complained of upset stomach, headache, and his heart racing.

Mr. Red

He denies any new medications but cannot recall what he takes. When asked about it further, he says "there's a list around here" and points his finger toward a table.

On the table are 3 bottle caps. When asked if he had been drinking, he angrily stated "not since before a couple of nights ago."



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Mr. Red

- Is Mr. Red delirious?
- Things to consider
 - New agitation
 - Change in speech
 - Delivery
 - Content
 - Physical signs
 - Change of environment
 - EtOH-withdrawal, intoxication, self treatment anxiety, depression, pain

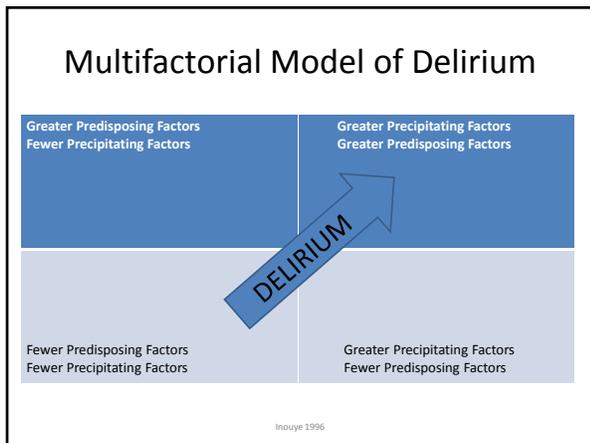


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Factor Analysis

Predisposing Factors	Adjusted RR
• Visual Impairment	3.5
• Severe Illness	3.5
• MMSE less than 24	2.8
• BUN/Cr greater than 18	2.0
Precipitating Factors	Adjusted RR
• Physical Restraints	4.4
• Malnutrition	4.0
• Greater than 3 meds added	2.9
• Bladder catheter	2.4
• Iatrogenic event	1.9

Inouye 1996



Combining Factors

		Precipitating Factors			
		RF	0 RF	1-2 RF	3-4 RF
Predisposing Factors	0 RF	0	0	0	0
	1-2 RF	0	3.2	13.6	
	3-4 RF	1.4	4.9	26.3	

Inouye 1996

Predisposing Factors

- Multiple psychoactive drugs
- High number of drugs
- Alcohol abuse
- High severity of illness
- High level of comorbidity
- Chronic renal or hepatic disease
- Previous stroke
- Neurologic disease
- Metabolic derangements
- Fracture or trauma
- Terminal illness
- HIV infection
- Older age
- Male
- Dementia
- Cognitive impairment
- History of delirium
- Depression
- Functional dependence
- Immobility
- Poor activity level
- History of falls
- Vision impairment
- Hearing impairment
- Dehydration
- Malnutrition

Inouye 2006

Precipitating Factors

- Infections
- Iatrogenic complications
- Severe acute illness
- Hypoxia
- Shock
- Fever/hypothermia
- Anemia
- Dehydration
- Poor nutritional status
- Low serum albumin
- Metabolic derangements (e.g., electrolytes, glucose, acid-base)
- Orthopedic surgery
- Cardiac surgery
- Duration of cardiopulmonary bypass
- Non-cardiac surgery
- Sedative hypnotics
- Narcotics
- Anticholinergic drugs
- Polypharmacy
- Alcohol or drug withdrawal
- Stroke, particularly nondominant hemisphere
- Intracranial bleed
- Meningitis/encephalitis
- Intensive care unit admission
- Physical restraint use
- Bladder catheter use
- High number of procedures
- Pain
- Emotional stress
- Prolonged sleep deprivation

Inouye 2006

Medications

- New Medications
- Dosage Changes-may be inadvertent as well as prescribed
- Medication Interactions
- Over the counter
- Side Effects-may be related to organs other than brain which secondarily cause delirium
- Herbals, vitamins, minerals, supplements
- May not be in pill form-teas, sprays, patches



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Common Contributing Medications

- Benzodiazepines
 - Xanax, Valium, clonazepam, lorazepam
- Antidepressants
 - Amytriptyline, Paxil, Prozac
- Hypnotics
 - Ambien, Lunesta
- Stimulants
 - Caffeine, Ritalin, Pseudoephedrine
- Antihistamines
 - Benadryl, ...-PM
- Antibiotics
 - Ciprofloxacin, Levofloxacin
- Anticholinergics
 - Vistaril, Cogentin
- Steroids
- Lithium

More meds

- Anticonvulsants
 - Gabapentin, Tegretol, Lyrica
- Opiates
 - Percocet, Vicodin, Fentanyl
- Dopaminergic agents
 - Requip, Sinemet
- Antihypertensive
 - Propranolol, hydrochlorothiazide
- Urinary Incontinence
 - Ditropan, Vesicare
- Digoxin
- NSAIDS
 - Aleve, diclofenac
- Theophylline
- Ipratropium
- Antinausea/Antiemetic
 - Meclizine, dicyclomine, hyoscamine
- H2 blockers
 - Ranitidine, cimetidine

Where were they before?

- NH CAM scoring
- Admitted to NH
- Depression scores and cognitive impairment before delirium were associated across sites
- Sometimes the previous residence is predictive (home, other nursing home, acute care, psychiatric unit, rehab unit)
- About 30% of the variance correlated with site

von Gurtten 2010

Delirium Severity Factors

- N=104
- CAM
- DI (delirium index severity score of 0-21, 10 is cutoff)
- Low MMSE scores
- Severe concurrent illness
- Low functional autonomy (Barthel Index)
- IADL
- Narcotics

Voyer 2007

Factors that may prolong delirium

- 30% met CAM or DSM criteria at 6 mos
- Diagnosis in hospital
- Age in some studies
- Functional dependence before diagnosis
- Dementia
- Number of medical illnesses
- Severity of delirium
- Hypoxic illness
- Hypoactive symptoms

Dasgupta 2010

Factors, Factors Everywhere



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I WATCH DEATH

- I=Infection
- W=Withdrawal
- A=Acute metabolic
- T=Trauma
- C=CNS pathology
- H=Hypoxia
- D=Deficiencies
- E=Endocrinopathy
- A=Acute vascular
- T=Toxin (meds, intoxicants)
- H=Heavy Metals

Delirium and heart failure

- N=883
- Age > 65
- Acute decompensated heart failure
- CAM used
- Predictors of delirium
 - LVEF<40%
 - Atrial fibrillation
 - Age
 - NY Heart Association class 3/4
 - Treatment with ACE/ ARB
 - Serum Albumin <3.4
 - Serum B type Natriurectic peptide increased

Uthamalingam 2011

Delirium and heart failure

Delirium predicted outcomes

- In hospital all cause death
- 90 day all cause mortality
- Increased risk of 30 day readmission
- Increased risk of 90 day readmission (more than double any other studied risk factor)
- Higher nursing home placement OR of 2.70



Uthamalingam 2011; Free image courtesy of FreeDigitalPhotos.net

Delirium in ED and Hospital LOS

- N=628
- Mean Age 75 yo
- CAM ICU used
- Associated with 2x longer hospital stay if delirium criteria met in ED
- Stronger association than age, Charlson index, presence of dementia, APPACHE II
- Not as strong as having a surgical procedure, or coming from nursing home

Han 2011

Delirium and Placement

- Hospitals may not recognize delirium
- Many people do not clear from delirium in hospital
- This may get passed to other facilities
- 1/5 post acute admissions have delirium
- Likely to climb as hospital stays continue to shorten
- Was part of quality measures-still part of obtainable data which could impact pay for performance
- May be correlation between placement of delirious patients and number of deficiencies of given facility

Jones 2010

Cognitive Decline

- Patients with Alzheimer's Disease who develop delirium have higher rates
 - Hospitalization
 - Institutionalization
 - Mortality
- N=72 with baseline AD develop delirium
- Controlled baseline cognition
- Trajectory worse with delirium
 - Absolute numbers show 18 mos of expected decline in 12 mos

Fong 2009

Economic Impact

- Estimated yearly costs of delirium is \$143-\$152 billion dollars
- Other conditions
 - Hip fracture - \$7 billion
 - Non-fatal falls - \$19 billion
 - Diabetes - \$91.8 billion
 - Cardiovascular disease - \$257.6 billion
- Hospital Elder Life Program (HELP) n = 7,000 per year in 6 hospital units
 - \$6.9 million in savings after cost of program

Leslie 2011; Rubin 2011

Delirium Severity

- Severe more NH placement
- Greater mortality
- Greater functional decline
- Poor outcomes after surgery
Marcantonio 2002
- Among LTC residents, severity linked to mortality in hospital and 30 days after hospital discharge Kelly 2001
- Greater mortality at 12 mos McCusker 2002

Rejection of care

- 3230 residents
- Minimum Data Set secondary analysis
- Assessment tools-CAM, PHQ9
- 9.7% rejected care in the past five days
- Delusions odds ratio 3.9
- Depression 2.1
- Delirium 1.8
- Severe Pain 1.6

Ikhtil 2010

Mr. Blue

Mr. Blue is 87 yo man with significant bilateral knee pain, chronic low back pain, generalized anxiety disorder, and ulcerative colitis. The colitis required steroids, which have caused diabetes. He has also developed congestive heart failure in the past 3 years. He was living at home alone for many years, but he had recurrent pneumonias requiring hospitalization and rehabilitation at the nursing home prior to returning to his apartment.

Mr. Blue

He effectively fails to thrive once he returns home, despite being able to demonstrate being capable of ADL's and most IADL's prior to discharge and even with home OT evaluation.

While Mr. Blue is intermittently confused after his pneumonias, his memory is fairly good (both long term and short term) once he clears, often about 4 days after resolution of respiratory signs. He has been living in the nursing home for the past 18 mos, repeating this pattern of pneumonia, confusion, and clearing. He is left quite weak for much of the time.

Mr. Blue

He has a period of lethargy. He sleeps most of the day. He does not eat. He does not know what time of day it is and stares at his watch. He is treated empirically given his recurrent lung issues. He clears cognitively for a few hours and then is quite lethargic again. His BP and pulse are low. He has not had any bowel movements for a few days and urination is limited. This decline continues for 12 days until Mr. Blue passes away.

Mr. Blue

- Was Mr. Blue delirious?
- Things to consider
 - Recurrent delirium with lung disease
 - Long history of functional decline, but when stronger, his cognition was reasonably good
 - This time, his cognition declined without clear initial respiratory decline first
 - Terminal delirium

Terminal Delirium

- Delirium in the last days of life
- Up to 88% of deaths
- Usually not reversible, usually hypoactive
- Up to 15% hyperactive
- May cause family distress

Lawlor 1998; Pereira 2000, Lyness 2004

Assessment Tools

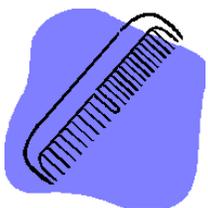


Mental Status Exam

- Appearance
- Behavior
- Speech
- Mood
- Affect
- Thought Process
- Thought Content
- Insight
- Judgment
- Cognition

Appearance

- Cleanliness
- Clothing
- Accessories
- Odor
- Physical abnormalities
- Dentition



Behavior

- Describe what they do
- Eye contact
- Level of cooperation
- Psychomotor disturbance
- Abnormal movements
- Repetitive movements

Speech

- Volume
- Speed
- Articulation
- Quantity
- Spontaneity
- Prosody (sing-song quality of speech)
- Specific speech patterns-stuttering, echolalia (repeating another person's words), neologism (made up words that may have meaning for that person)



Mood

- What the person describes as the emotional state
- Use the patient's words
- Variance in appropriate timing
 - Current state
 - General disposition over longer period
- Patient may not be able to describe their mood or use many terms, even contradictory ones

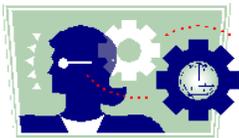
Affect

- The emotion (s) displayed non verbally
- May be congruent (matches verbal) or incongruent (does not match verbal)
- Appropriateness to situation
- May also refer to range
- Common terms-euthymic, flat, blunted, expansive, broad, anxious, sad, irritable, angry, normal, full, restricted



Thought Process

- Describes the quality flow and coherence of thought
- Often evaluated in conjunction with speech
- Common terms: linear, logical, goal-directed, circumstantial (eventually comes back around to the point), tangential (only makes one connection to the point), disorganized, loosening of associations (usually associated with formal thought disorders), perseverative



Thought Content

- Describes the actual thoughts
- Delusions
 - Fixed false beliefs
- Phobias
- Obsessions
- Suicidal Ideation
- Homicidal Ideation
- Hallucinations – perceptions that do not have an external stimulus and may be auditory, visual, olfactory, gustatory and tactile
- Illusions – a sensory perception that is inaccurate but based on an external stimulus



Insight and Judgment

- Insight
 - An understanding and appreciation of a person's conditions
- Judgment
 - Capacity for and execution of reasoned decisions
 - Often assessed by "what would you do in the following situation . . ."
- Both are assessed on a continuum many times rated as poor, fair and good

Cognition

- Alertness – alert, hyperalert, clouded, drowsy, stupor
- Orientation – time, location, person, situation
- Attention
- Memory
- Visual spatial function
- Executive function



For those not musically inclined



Mrs. Black

Mrs. Black is 84 yo and has a history of bipolar disorder, osteoarthritis, hypothyroidism, diffuse pains, recurrent urinary tract infections, and recurrent falls. She has been in the nursing home for the past 3 months, after one of the falls resulted in hip fracture. She displayed some memory impairment and executive dysfunction at the time of admission. This appeared to be her baseline, as best as could be gathered from information from her primary care provider.

Mrs. Black

She complains of feeling depressed since her admission. She is not sleeping as well as prior to her fracture. She does not like the food, so she has been asking friends to bring in snacks and sometimes meals. She reports symptoms consistent with her previous UTI's. An order is placed for antibiotics. During this episode, Mrs. Black's intake is significantly reduced due to nausea. She seems fine for the first couple of days.

Mrs. Black

After 3 days, her intake has gotten worse. Mrs. Black seems even more tired. She has taken several short naps. She has more tremor than usual. She is not oriented. She repeats statements. Her rate of speech is slower than usual and slurred at times. She is not able to spell WORLD backwards. She does not seem to track visually-her eyes do not seem to move appropriately.

Mrs. Black

- Is Mrs. Black Delirious?
- LOTS of things to consider
 - UTI
 - Baseline cognition
 - Lack of sleep
 - Nutrition, especially dehydration, made even worse in context poor po intake (I do not like the food), infection and treatment of infection, and medications-Lithium, antidepressants, antihypertensives, antiemetics, some antipsychotics and antibiotics



Differentiation

	Delirium	Dementia
Onset	Abrupt	Insidious
Alertness	Sleepy to agitated/fluctuates	Minimal deficit or stable
Sleep	Abrupt and frequent changes	Often impaired circadian rhythm, but habitual
Perceptual Disturbance	Often visual hallucinations	VH less common
Speech	Incoherent, fluctuates	Repetitive; stable pattern; word finding
Attention	Shifting	More stable

Mood disorders

- Depression and bipolar disorder
- Usually more gradual onset
- Disorientation not common in mood disorders
- More auditory than visual hallucinations
- Delusions-persistent negative themes or grandiosity
- Attention usually not as impaired
- Alertness not as impaired

Delirium Misdiagnosis

- Evaluate for depression
- Clinical interview and structured interview
 - CAM, MMSE, digit span, months of year backward, Diagnostic Interview Schedule for depression
- 42% misdiagnosed as depression
- Delirious subjects reported depression sx
 - Low mood 60%
 - Worthlessness 68%
 - Thoughts of death 52%

Farrell 1995

Confusion Assessment Method

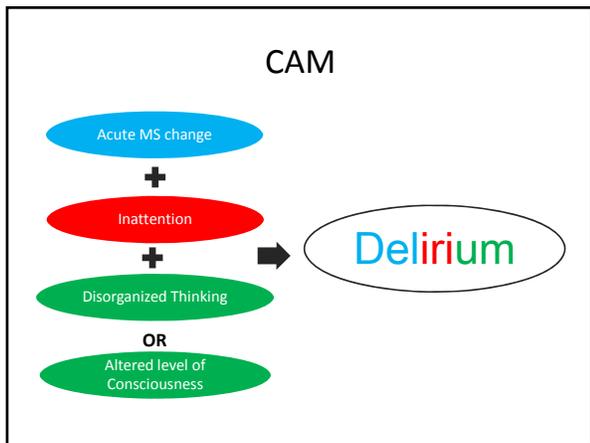
- (1) Acute change in mental status with a fluctuating course
- (2) Inattention
- (3) Disorganized thinking
- (4) Altered level of consciousness

+

OR

AND

Inouye 1990



CAM

- Hundreds of papers, multiple languages, variations such as CAM-ICU
- Completed as part of structured cognitive exam-loses power in unstructured interview
- Originally performed in conjunction with MMSE
- No longer used with MMSE due to copyright
- Modified Mini Cog and Digit Span recommended by author
 - Orientation-day of week, year, day/night, last meal, how long at location, city/state, location, floor
 - Registration 3 items
 - Clock draw-hands ten past eleven
 - Recall 3 items

Inouye 2009; Borison 2000

MDS 3.0

- Delirium Assessment based on CAM
- Code after Brief Interview for Mental Status (BIMS) or Staff Assessment and review of medical record
- BIMS-registration 3 items, year, month, day of week, 3 item recall
- Section C1300 and C1600
- Behavior not present, present and continuous, present and fluctuates
 - Inattention
 - Disorganized thinking
 - Altered consciousness
 - Psychomotor retardation
- Evidence of acute mental status change (only yes or no)



Mrs. Tan

Mrs. Tan is 84 yo with a history of hypertension, diabetes, dysthymia, and macular degeneration. She has chronic pain related to degenerative disk disease and failed back surgery. As a result of her impaired vision and significant mobility issues, she has been admitted to your facility. She has been talking about seeing musical notes and large pages of sheet music. Sometimes she reports seeing children and animals. She is oriented. She complains of poor sleep regularly and her mood is generally somewhat frustrated. She eats ok. She is not suicidal. Her focus is "normal for me."

Mrs. Tan

She tries to engage in some activities, but notes her vision is so poor that she cannot see people well enough to recognize them; hence she isolates herself most of the time. Mrs. Tan does not seem distressed by the visions most of the time. They are present mostly at night, but she reports they are not dreams and can be seen in the daytime too. She notes they have been there for "a while-maybe a few months" She has not had any medication changes recently. She denies constitutional symptoms of infection, unusual GI/GU, respiratory issues, and new focal neurological signs.

Mrs. Tan

- Is she delirious?
- Things to consider
 - She has hallucinations that are not new, but could represent residual impairment
 - She has low level of depression-not usually associated with hallucinations and usually these are auditory and distressing
 - She is otherwise cognitively
 - intact
 - As her vision worsens, it is possible to have release phenomena



Free image courtesy of FreeDigitalPhotos.net

Mrs. Teal

Mrs. Teal is 88 yo and has a history of Alzheimer's disease, hypertension, recurrent falls, and stroke with minimal residual effects-some mild dysarthria. She often repeats stories and questions, will wander at times, and has short term memory loss but talks about her parents' farm and her work in nursing. Her daughter has been battling with serious health issues. As such, she has not come by for normally daily visits. Mrs. Teal's sleeping, eating, and her affect appear at baseline most of the time.

Mrs. Teal

Mrs. Teal has been more easily agitated for the past several days. She has not had any change in alertness. She has been spending time out in the common areas, watching TV with other residents. There have not been any medication changes. She does not complain of symptoms of infections. The agitation seems most consistent about 4PM and lasts for about 30 minutes overall. She tries to exit and says that she needs to leave. She says that she is afraid of the soldiers. She does not have a history of hallucinations.

Mrs. Teal

- Is Mrs. Teal delirious?
- Things to consider
 - New onset behaviors vs exacerbation of existing ones
 - Same time of day
 - Paranoia vs hallucinations
 - Other cognitive function at relative baseline
 - Daughter not visiting-time is spent watching TV

Non Clinician Assessment

- N=40
- 6 sites, post acute facilities
- Within 5 days of admission
- Mean Age 82, 77% female
- Dyad assessment
- Simultaneous
- Blinded to scoring of accompanying assessor

Simon 2006

Non Clinician Assessment

- 2 weeks of training led by nurse practitioner and physician, both with additional training in geriatrics.
- Didactics, handouts, articles, review of assessment tools, study protocols, human research principles, 3 practice sessions
- Met with NP and MD to review

Simon 2006

Tools

- Mini Mental Status Exam for overall cognition
- Digit span with 5 forward and 4 backward for attention
- Delirium Symptom Interview for specific symptoms
- Memorial Delirium Assessment Scale for severity
- CAM for diagnosis.
- A coding protocol was linked to symptoms to improve reliability



Simon 2006

High level of agreement

- Reliability coefficient overall
 - MMSE was 99%
 - MDAS 94%
 - CAM 95%
- Single item agreement best for perceptual disturbances, disorientation, incoherent speech, disorganized thought all at or above 95%
- Lowest agreement inattention, delusions, memory impairment all below 75%
- Duplicates across scales similar scores, e.g. attention

Tools Systematic Review

- Positive results with higher likelihood ratios and normal subjects with low likelihood ratios
 - Global Attentiveness Rating
 - Memorial Delirium Assessment Scale
 - CAM
 - Delirium Rating Scale Revised-98
 - Clinical Assessment of Confusion
 - Delirium Observation Screening Scale
- CAM has best available supportive data

Wong 2010

Stop delirium! Project

- Specialists to train care assistants
- 9 units at 6 care facilities
- Education sessions
- Cards
 - How would you feel?
 - What might you do?
- Cases
- Communication
 - Shifts/work groups
 - Practitioners
 - Family/Friends
 - Descriptive

Featherstone 2010

Stop delirium! Project

- Interactive
- Small groups
- Staff development of tools/ownership
- Shared information across sites
- Diverse roles in each group
- Flexibility of sessions
 - When/Length/Where

Featherstone 2010

Summary

- Delirium is a dangerous diagnosis
- Abrupt onset, fluctuating course, altered consciousness and focus, underlying etiology
- Hyperactive may be most easily recognized, but too quiet may be a problem too
- Observe all that you can to give you clues and gather data from others
- Lots of bedside tools-CAM may be best overall for diagnosis

A Pearl from Dr. Howell

When you are feeling frustrated and confused...



Free image courtesy of FreeDigitalPhotos.net

...Pay attention to that feeling - it may be delirium



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