



NICHE CONFERENCE


Delirium in Patients with CVA: Increasing Treatment Team Awareness

New York University Langone Medical Center
 RUSK Rehabilitation
 Departments of NEUROLOGY, NEUROSURGERY and REHABILITATION

APRIL 20, 2017


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Audience Poll


Who among you...



- is learning/hearing about delirium for the first time?
- is learning/hearing about delirium and CVA for the first time?
- works with patients with neurological diagnoses at risk for delirium?
- frequently treats patients with neurological diagnoses with delirium and is clinically comfortable with identifying and managing patients?
- routinely treats patients with neurological diagnoses with delirium in their practice and is recognized as a leader, trailblazer, or clinical expert in identifying and managing patients in this setting?

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Learning Objectives

1. Describe the main risk factors for the development of Delirium and special considerations for patients after CVA
2. Differentiate between Delirium and Neurological impairment
3. Appropriately utilize the CAM and CAM-ICU Delirium screening tools
4. Implement practices to reduce the incidence, duration and severity of Delirium for patients with Neurological diagnoses
5. Discuss initiation of a multi-disciplinary project to increase team awareness in patients with CVA

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Delirium Defined:

- An acute, fluctuating change in mental status with inattention and altered levels of consciousness, occurring within hours to days
- Rarely caused by a single factor but a multifactorial syndrome, resulting from the interaction of vulnerability on the part of the patient and healthcare-related insults



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Motoric Subtypes:

1. Hyperactive
 - characterized by agitation and emotional lability (less common)
2. Hypoactive
 - characterized by apathy and diminished responsiveness (more common, especially among older people)
3. Mixed
 - fluctuates between hyper and hypoactive



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Non-modifiable Risk Factors For Delirium:

- **Advanced Age (65 or greater)**
- Pre-existing impairments in cognition
- Prior episode of delirium
- Environmental unfamiliarity
- Type of CVA

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Potentially Modifiable Risk Factors For Delirium:

- Immobility
- Presence of Infection
- Pain
- Dehydration
- Lack of sleep or altered sleep-wake cycle
- Bladder catheter
- Nutritional deficiencies
- Depression
- Hypoxia
- Severity of illness
- Restraints: physical or pharmacologic
- Hypotension
- Sensory impairments (vision, hearing)
- Electrolyte imbalance
- Drugs (too much: opioids, or too little: withdrawal)
- Communication impairments

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Cerebrovascular Accident (CVA) Defined:

- CVA is a clinical syndrome of sudden onset of neurological impairment of presumed vascular origin.
- The effects of stroke may be permanent depending on the amount of vascular damage, where it is in the brain, and other factors.
- Stroke is the No. 5 cause of death in the USA and a leading cause of serious, long-term disability



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Delirium risk factors in patients post-CVA:

- Right brain stroke
- Intracerebral hemorrhage
- Anterior circulation/large vessel stroke
- Stroke severity and brain atrophy
- Neglect
- Independent risk factors for delirium

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Prevalence of delirium among older people in the hospital and in post-acute settings:

- On admission/in the ED 14-24%
- Post-Operative 15-53%
- Intensive Care Unit 70-87%
- **Post-CVA 13-48%**
- Palliative Care 40-80%
- Inpatient Rehabilitation 23-30%



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Why is Delirium in patients with CVA important?

- A common problem
- Serious consequences
- Multifactorial etiology
- Up to 40% of cases are preventable
- Confounding nature of CVA

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Differential Diagnosis

Feature	Delirium	Dementia	Depression	CVA
Development	Sudden onset, often definite beginning point	Slow with uncertain starting point	Clear onset, often associated with life crisis	Sudden onset, with definite beginning point
Cause	Medical: infection, dehydration, meds, etc.	Alzheimer's, Lewey Body or Vascular Dementia	Recent or cumulative loss, drug toxicity	Hemorrhage or Embolism cuts off blood supply to a portion of the brain
Early Symptoms	Inattention, fluctuating mental status	Memory loss	Anhedonia	Sudden weakness on one side of body, confusion, aphasia, imbalance
Effect at Night	Almost always worse	Often worse	Disturbed sleep, daytime hypersomnia	CVA can occur during sleep
Level of Consciousness	Variable depending on type (hypo or hyperactive or mixed)	Normal until late stages	Normal, may be selective	May vary initially, but should stabilize within hours/days

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25 NICHE CONFERENCE **Differential Diagnosis**

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25 NICHE CONFERENCE **Differential Diagnosis**

Feature	Delirium	Dementia	Depression	CVA
Effect on Speech and Language	Tangential, perseverative, disorganized thought process	Anomia, slow processing, reduced initiation of speech	Reduced output versus belligerent/attacking; however language skills remain intact	Depends on location of CVA
Memory	Varies	Significant short term memory loss	May be impaired (slow recall)	Depends on location of CVA
Progression	Fluctuating mental status	Slow but progressive	Lasts months to years	Patients at risk for recurrent CVAs
Need for Treatment	Immediate	Needed, not urgent	Needed, urgency dependent on severity (suicidal ideation)	Immediate
Effect of Treatment	Typically reverses symptoms but effects can linger	May slow progression but cannot reverse or cure the disorder	Can resolve with treatment	Can improve with treatment

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“Since delirium after stroke has a worse prognosis, it is important to detect these patients as early as possible”

Osterweiling AW, et al. J Neurol Neurosurg Psychiatry 2014;85:431-434. doi:10.1136/nnp-2013-304203.433

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How can we tell what symptoms are related to stroke versus delirium?

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We Can...

- Obtain a new detailed baseline mental status (post neurological event)
- Be Aware of risk factors specific to neuro patients
- Use the CAM or CAM-ICU to assess delirium every shift
- Provide patient and family education on delirium risks and reduction of risks
- Make delirium assessment a routine part of interdisciplinary communication

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Are There Any Positive Consequences?

Recognizing delirium can alert the team to a potentially life threatening source/cause to the patient's change in mental status!



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Confusion Assessment Method (CAM)

1. Acute Onset yes ___ no ___
Is there an acute change from mental status baseline or has the patient's mental status fluctuated during the past 24 hours?
2. Inattention yes ___ no ___
Does the patient have difficulty focusing attention (e.g. easily distractible, or having difficulty keeping track of what is said)? AND Does this behavior fluctuate (e.g. tend to come and go, increase or decrease in severity)?
3. Disorganized thinking yes ___ no ___
Is the patient's thinking incoherent (e.g. rambling or irrelevant conversation, illogical flow of ideas, unpredictable)?
4. Altered level of consciousness yes ___ no ___
Is the patient vigilant (hyper, alert, overly sensitive to environmental stimuli) OR lethargic (drowsy, stuporous)?

MUST HAVE #1 & #2 and either #3 or #4 to be positive for delirium

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CAM-ICU (used for non-verbal patients)

1. Acute Onset yes ___ no ___
Is there an acute change from mental status baseline or has the patient's mental status fluctuated during the past 24 hours?
2. Inattention yes ___ no ___
*"Squeeze my hand when I say the letter A." Read the following sequence of letters: S A V E A H A R T
ERRORS: No squeeze with "A" and/or squeeze with letter other than "A" More than 2 errors = yes*
3. Disorganized thinking yes ___ no ___
Ask the following questions:
1. Will a stone float on water?
2. Are there fish in the sea?
3. Does one pound weigh more than 2 pounds?
4. Can you use a hammer to pound a nail?
*Comment: "Hold up this many fingers" (Hold up 2 fingers)
"Now do the same thing with the other hand" (Do not demonstrate)
OR
"Add one more finger" (if patient unable to move both arms) More than 2 errors = yes*
4. Altered level of consciousness yes ___ no ___
Use the RASS (Richmond Agitation and Sedation Scale), any score other than 0 = yes.

*MUST HAVE #1 & #2 and either #3 or #4 to be positive for delirium

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Richmond Agitation & Sedation Scale (RASS)

Score	Descriptor	Characteristics
+4	Combative	Combative, violent, immediate danger to staff
+3	Very Agitated	Pulls or removes tube(s) or catheter(s); aggressive
+2	Agitated	Frequent nonpurposeful movement, fights ventilator
+1	Restless	Anxious, apprehensive but movements not aggressive or vigorous
0	Alert and calm	
-1	Drowsy	Not fully alert, but has sustained awakening to voice (eye opening and contact > 10 seconds)
-2	Light sedation	Briefly awakens to voice (eye opening and contact <10 seconds)
-3	Moderate sedation	Movement or eye opening to voice (but no eye contact)
-4	Deep sedation	No response to voice, but movement or eye opening to physical stimulation
-5	Unarousable	No response to voice or physical stimulation

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How do you determine baseline mental status?

- Gather information from family, friends, or the H&P.
- If the patient is young (e.g. <65), admitted from home, without documented neurocognitive disorder, you can assume the patient has a "normal" baseline mental status.
- If the patient is older (e.g. >65), has documentation of a stroke or dementia, or came from a nursing home, then you should probe for more information on the patient's pre-hospital baseline mental status.

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Treatment: ABCDEF Bundle

- Assess, prevent, and manage pain.
 - **A**wakening and **B**reathing Coordination of daily sedation and ventilator weaning trials
- **B**oth SAT and SBT
- Choice of analgesia and sedation
- **D**elirium: assess, prevent and manage
- **E**arly mobility and **E**xercise
- Family engagement and empowerment

Early mobility is the ONLY intervention in the bundle resulting in a decrease in duration of delirium

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Early mobilization!

“We recommend performing early mobilization of adult ICU patients whenever feasible to reduce the incidence and duration of delirium.”

(Clinical Practice Guidelines for the Management of Pain, Agitation and Delirium in Adult Patients in the Intensive Care Unit,18)

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Treatment: Patient and Family Education

Tolerate, Anticipate, Don't Agitate (TA-DA):

- **Tolerate:** try re-orientation once, if not effective do not push; Allow patient to act naturally under close observation; Observe behavior to get clues about specific patient needs
- **Anticipate:** discontinue any unnecessary attachments, hide necessary attachments
- **Don't Agitate:** Avoid short-term questioning; Affirm disorientation, allow patient to process, always reassure

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Daytime Treatment Strategies



- Screen for "missed" risk factors
- Correct vision and hearing
- Increase natural lighting
- Review medications
- Offer morning care, including brushing teeth and putting in dentures
- Cognitive Stimulation
- Promote patient sitting out of bed in chair for all meals
- Assist patient with ambulation if safe, or at least repositioning/AROM every 2 hours if unable to ambulate
- Provide patient with reading materials or other leisure interests
- If applicable, ensure the bed or chair alarm is on prior to leaving the room

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Nighttime Treatment Strategies

- Remove clutter
- Assist with bedtime routine
- Remove hearing aids, eyeglasses, keeping them within reach of patient
- Offer earplugs or headphones
- Adjust the room temperature, if possible
- Offer position changes
- Turn off stimulation like television or bright lights, close shades, pull curtain, consider soft music
- Cluster of care at night reduces interrupted sleep

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Management of delirium is an team approach, including, MD, NP, OT, PA, PT, RN, SLP and the patient and family!

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Project Goals

- Identify Neuro staff comfort and knowledge of delirium
- Assess current practices via chart review
- Provide didactic training on delirium, including risks and consequences
- Provide didactic and at the bedside training on delirium recognition through use of the CAM and CAM-ICU
- Utilize NICHE handout for patient and family delirium education

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Neuro Staff Comfort and Knowledge of Delirium Survey

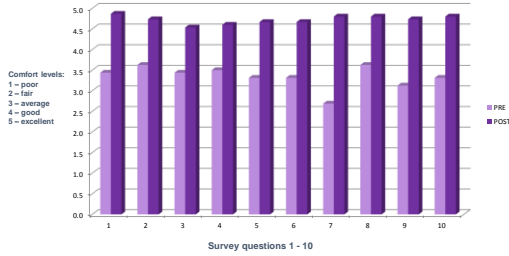
What is your comfort level with:	Pre-Score					Post-Score				
1. Understanding the diagnosis of delirium?	1	2	3	4	5	1	2	3	4	5
2. Identification of delirium?	1	2	3	4	5	1	2	3	4	5
3. Working with a patient with delirium?	1	2	3	4	5	1	2	3	4	5
4. Implementing nursing interventions for treating delirium?	1	2	3	4	5	1	2	3	4	5
5. Educating patients, family/caregivers, and staff on delirium?	1	2	3	4	5	1	2	3	4	5
6. Implementing care plans to address delirium?	1	2	3	4	5	1	2	3	4	5
7. Using the Confusion Assessment Method (CAM)?	1	2	3	4	5	1	2	3	4	5
8. Approaching the medical team in order to advocate for services for your patient with delirium?	1	2	3	4	5	1	2	3	4	5
9. Documentation of delirium in your nursing notes?	1	2	3	4	5	1	2	3	4	5
10. Differentiating Delirium from Dementia?	1	2	3	4	5	1	2	3	4	5

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RN Survey Results

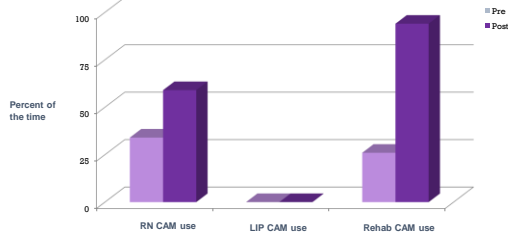


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Changes in Clinical Practice



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2017 Patient and Family Education Document

Need to Know for Patients and Families

What patients and their families need to know before hospitalization or a nursing home admission

Delirium

Delirium is a new, sudden, and serious confusion episode that may change throughout the day or night. A person with delirium will have difficulty paying attention. There also may be a change in alertness or ability to think. Delirium is different from dementia.

Why is it important? Delirium can cause problems for older adults and their families. Delirium can last for hours or weeks. Delirium is a problem in any unfamiliar setting such as a hospital with different routines and people. Anesthesia and surgery can increase risk of delirium.

What Family/Friends Can Do:

- Tell the nurse and doctors what is "normal" for your family member when he or she is not in the hospital. Tell them about any changes.
- Be present, visit often. Let your loved one know you are there. Try to orient them to day and time but do not force reality or argue.
- Bring in personal items from home that can help the person, such as pictures, glasses, hearing aids, dentures, maybe favorite foods if permitted.
- Get your loved one moving! Encourage walks and even sitting in a chair. Activity can prevent and/or shorten the delirium.
- Ask the nurses to check if your loved one is in pain and in need of pain medications. Be alert for signs of pain such as grimacing, restlessness, or not wanting to move or receive care.
- Use a notebook as a "point book" so your loved one can see that people are coming to visit them.

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Case Study

- 1/4/17
 - 85 year old male
 - PMHx: Cerebral aneurysm (1980); Hypercholesterolemia; Hypertension; Incomplete bladder emptying; Macular degeneration
 - Dx: B/L SAH/SDH, non-operative management
 - LOS: 5 days (1/4/17-1/9/17)
 - OT/PT evaluation: New baseline mental status established, patient alert, able to sustain attention, no illogical thoughts, however he did exhibit impaired safety awareness
 - Supervision/minimal assistance required for ADLs and functional mobility

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Case Study

- 1/5/17
 - Agitated overnight, treated with Haldol 5 mg IM and Zyprexa 2.5mg IM
 - OT and PT: positive for delirium using the CAM, change in level of consciousness, irritable, distractible, and easily agitated
 - Neurology: UTI contributing to delirium, ordered for Seroquel for agitation/delirium and Zyprexa for agitation overnight.
 - Interdisciplinary team rounds, OT recommended work-up for delirium
- 1/6/17
 - Neurology: Psychiatry consult for additional recommendations for delirium
 - Psychiatry diagnosis: Delirium, hyperactive, multifactorial etiology
 - Positive UTI, urinary retention, chronic brain injury (old aneurysm with cognitive deficits), and new brain injuries; in addition to other usual causes of delirium including advanced age and hospitalization.

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Case Study: Psychiatry Recommendations

1. Start Seroquel 12.5 mg at bedtime.
2. Start Melatonin 3mg PO Q8PM to help normalize sleep wake cycle & minimize need for additional use of antipsychotics.
3. For severe agitation, offer Seroquel 12.5mg PO PRN. If pt refuses PO, may consider use of Zyprexa 2.5mg IM.
4. Continue to monitor urinary symptoms.
5. Consider alternatives to Keppra for seizure ppx.
6. Non-pharmacologic strategies
 - window bed for adequate exposure to natural light
 - normalize sleep/wake cycles
 - out of bed to chair during day, limit daytime napping
 - consolidate nursing interventions to limit overnight interruptions
 - frequent reorientation and repeated introduction of hospital staff
 - familiar items at bedside as much as possible
 - avoid anticholinergics, benzodiazepines where possible

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Case Study

- 1/7/17
 - Rehab recommendations of nonpharmacological treatments to reduce delirium
 - Neurology: Follow-up psychiatry recommendations ("appreciate their help managing this patient"), melatonin 3 mg QHS, Seroquel 12.5 mg QHS
 - Psychiatry follow-up: Posttraumatic delirium, probably exacerbated by baseline chronic cognitive issues related to prior brain injuries, **now resolving**.
- 1/8/17
 - Psychiatry follow-up: D/C Seroquel and continue melatonin 3 mg QHS

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Delirium in CVA: Where Are We Headed?

- Determine which tool is appropriate to assess delirium in patients with CVA and other neurological diagnoses
- Prioritize delirium awareness and education for all front-line staff including physicians, nurses and therapists
- Develop tool for stratification of risk factors for use in pre-operative screening
- Develop and validate tools for assessment of severity of delirium



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Acknowledgements

Thank you to our colleagues for your expertise, guidance and passion

- Meagan Aladin, RN
- Erika Brown, CCC-SLP
- Adrienne Dicembri, MPA, OTR/L
- Taylor Dodds, RN
- Megan Evangelist, MS, OTR/L
- Mary Fischer, PT, DPT, GCS
- Jena Harb, PT, DPT, GCS
- Nancy Jones, RN, Neuro-Surgical Unit Nurse Manager
- Kristine Josef, PT, DPT, NCS
- Ticia Lavery, PT, DPT, NCS

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References

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