How many of you routinely assess for delirium in your patients?

2013 SCCM Guidelines

Pain

- Recommend Assessment with CPOT (Critical-Care Pain Observation Tool) or BPS (Behavioral Pain Score)
  - To assess pain in medical, postoperative, or trauma (except for brain injury) adult ICU patients who are unable to self-report and in whom motor function is intact and behaviors are observable
  - Do NOT use vitals as sole method for determining pain
  - Vitals may be used as a cue to pain
Assessing Pain

CPOT – 0 to 8 scale
- Facial Expression (0 – 2)
- Body Movements (0 – 2)
- Compliance with the Ventilator or vocalizations (0 – 2)
- Muscle Tension (0 – 2)

Assessing Pain - BPS

Behavioral Pain Score
- Facial (1 – 4)
- Upper Limbs (1 – 4)
- Compliance with Ventilation (1 – 4)

2013 SCCM Guidelines

Pain Treatment
- Recommend pre-emptive pain control and non-pharmacologic methods prior to chest tube removal & other invasive procedures
- Recommend IV Opioids as first line treatment for non-neuropathic pain
  - All IV opioids similar – none recommended over the other
2013 SCCM Guidelines

Pain Treatment
- Suggest non-opioid be administered to decrease amount of opioids used
- Recommend that either enterally administered gabapentin or carbamazepine, in addition to IV opioids, be considered for treatment of neuropathic pain (+1A).
- Other considerations for thoracic epidural administration in certain surgeries

2013 SCCM Guidelines

Agitation and Sedation
- RASS and SAS most valid sedation assessments
- Recommend titration of sedation to light rather than deep level of sedation, unless contraindicated
- Suggest objective brain function assessments such as Bi-Spectral, Evoked potentials, etc. as adjunctive sedation assessment in pharmacologically paralyzed patients
- Recommend EEG monitoring for burst suppression treatment

How do you assess Sedation?

Assessment and Management
- Analgesia
- Sedation
- Delirium
- How?
- First Step – Evaluate sedation assessment tools
  - Evidence Based Assessment Tools for Sedation
    - RASS – Richmond Agitation – Sedation Scale
    - SAS – Riker Sedation – Agitation Scale
    - MAAS – Motor Activity Assessment Scale
    - Ramsey – Designed for anesthesia assessment
How do you assess Sedation?
Evidence Based Assessment Tools for Sedation

2013 RECOMMENDED SCALES - SCCM
- RASS – Richmond Agitation – Sedation Scale
  - +4 = Combative
  - 0 = Alert and Calm
  - -5 = Unresponsive
- SAS – Riker Sedation – Agitation Scale
  - 7 = Dangerously Agitated
  - 4 = Calm and Cooperative
  - 1 = Unarousable

MAAS – Motor Activity Assessment Scale
- 6 = Dangerously agitated
- 3 = Calm and Responsive
- 0 = Unresponsive
-Ramsey – Designed for anesthesia assessment
- 1 = Awake
- 4 = Asleep
- 6 = No response

2013 RECOMMENDED SCALES - SCCM
- RASS – Richmond Agitation Sedation Scale

<table>
<thead>
<tr>
<th>Score</th>
<th>Term</th>
<th>Description</th>
<th>Score</th>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>+4</td>
<td>Combative</td>
<td>Overly combative, violent, immediate danger to self</td>
<td>-1</td>
<td>Crowdy</td>
<td>Not fully alert, but has sustained awakening (eye opening contact) to voice (greater than 15 seconds)</td>
</tr>
<tr>
<td>+3</td>
<td>Very Agitated</td>
<td>Pub or removal tube(s) or catheter(s), aggressions</td>
<td>-2</td>
<td>Light sedation</td>
<td>Briefly awakened with eye contact to voice (less than 10 seconds)</td>
</tr>
<tr>
<td>+2</td>
<td>Agitated</td>
<td>Frequent non-purposeful movement, fights</td>
<td>-3</td>
<td>Moderate</td>
<td>Movement or eye opening to voice (but no eye contact)</td>
</tr>
<tr>
<td>+1</td>
<td>Restless</td>
<td>Aroused, apprehension, but movements not aggressive or vigorous</td>
<td>-4</td>
<td>Deep sedation</td>
<td>No response to voice, but movement or eye opening to physical stimulation</td>
</tr>
<tr>
<td>0</td>
<td>Alert &amp; Calm</td>
<td>-5 Unarousable</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Assessing Sedation
RASS = Richmond Agitation Sedation Score
- Neg 4 & Neg 5 are physical stimulation
- Negative 3 to Positive 4 are verbal stimulation

Evidence Based Assessment Tools for Sedation
Assessing Sedation
- RASS = Richmond Agitation Sedation Score
  - Neg 4 & Neg 5 are physical stimulation
  - Negative 3 to Positive 4 are verbal stimulation

STEP 1 Sedation Assessment
RICHMOND AGITATION SEDATION SCALE (RASS)

<table>
<thead>
<tr>
<th>Scale</th>
<th>Label</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>COMBATIVE</td>
<td>Agitated, violent, immediate danger to self</td>
</tr>
<tr>
<td>2</td>
<td>VERY AGITATED</td>
<td>Pub or removal tube(s) or catheter(s), aggressions</td>
</tr>
<tr>
<td>3</td>
<td>AGITATED</td>
<td>Frequent non-purposeful movements, fights</td>
</tr>
<tr>
<td>4</td>
<td>RESTLESS</td>
<td>Aroused, apprehension, movements not aggressive or vigorous</td>
</tr>
<tr>
<td>5</td>
<td>ALERT &amp; CALM</td>
<td>Aroused, movements to command</td>
</tr>
<tr>
<td>6</td>
<td>LIGHT SEDATION</td>
<td>Briefly awakened to voice (eyes open contact &lt;5 sec)</td>
</tr>
<tr>
<td>7</td>
<td>MODERATE SEDATION</td>
<td>Movement or eye opening to voice (eye contact)</td>
</tr>
<tr>
<td>8</td>
<td>DEEP SEDATION</td>
<td>No response to voice, but movement or eye opening to physical stimulation</td>
</tr>
<tr>
<td>9</td>
<td>STOP</td>
<td>No response to voice or physical stimulation</td>
</tr>
</tbody>
</table>

RASS (0-3) is equal to CAM-ICU (Q and Q > 2 or none in 3H)
2013 SCCM Guidelines

Sedative Choice
- We suggest that analgesia-first sedation be used in mechanically ventilated adult ICU patients (+2B).
- Suggest non-benzodiazepine sedatives (propofol or dexmedetomidine) may be preferred over benzodiazepines (midazolam or lorazepam) to improve clinical outcomes in adult ventilated patients.

Delirium – Big Deal?

- Delirium – What is it?
  - Disturbance of Consciousness with
    - Inattention accompanied with
    - Change in cognition or perceptual disturbance
      - Disorganized Thinking!
    - Develops over hours or days
  - Develops in any Age group
    - More Prevalent in Age greater than 70
    - Each year increases risk by 2%
  - Prevalent in 60 – 80 % of patients on ventilator

- Delirium – Big Deal?
  - Three Types of Motor Activity in Delirium
    - Hyperactive
    - Hypoactive
    - Mixed
  - Which do you think is the more common?
  - Answer:
    - Hypoactive 35% prevalence
    - Mixed 64%
    - Hyperactive aka ICU psychosis 5% Prevalence
Delirium – Big Deal?

Delirium – What is it
• True or False
  • Delirium is often associated with Hallucinations
    • A. True
    • B. False
    • Answer – FALSE!!!
  • Delirium is sometimes associated with delusions, hallucinations or illusions

Delirium – Big Deal?

• Delirium – Big DEAL?
  • Increased Length of Stay
  • Increased Cost of Stay
  • Increased Mortality
    • 2 to 3 Times more likely to DIE at 6 months post delirium episode
  • Link between increased PTSD and Delirium

Delirium – Big Deal?

• Increase in Acquired Dementia in patients with delirium
  • Increase in Long Term Cognitive Impairment
  • Delirium actually causes deterioration in the brain in the prefrontal cortex = ORGAN DAMAGE & ATROPHY!
  • Annual US costs estimated at 7 – 20 Billion dollars
2013 SCCM Guidelines

Delirium
- Recommend routine monitoring for delirium using ICDSC or CAM-ICU
  - Valid and reliable tools
- Prevention of Delirium
  - Recommend Early Mobilization
    - ABCDE Bundle
  - NO pharmacologic recommendation for delirium prevention

2013 Guidelines

Main Risk Factors for Delirium Development
- Benzodiazepine use may be a risk factor for the development of delirium
- Insufficient data regarding propofol
- Dexmedetomidine use may be associated with less delirium

2013 Guidelines

Main Risk Factors for Delirium Development
- Pre-existing Dementia
- History of Hypertension and/or Alcoholism
- And A High Severity of Illness at Admission
- Coma is an independent risk factor for the development of delirium in ICU patients
- Conflicting data for opioid use and delirium
Delirium – Big Deal?

• Delirium – Who is at risk?
  – Impaired SLEEP!!!
  – Illness
    • Severe Sepsis
    • Shock, CHF, Dysrhythmias
    • Hypoxia
    • Hyperglycemia and Hypoglycemia
  – Severity of Illness
    • For each point increase in the APACHE II score, risk of developing delirium increases by 6%

• Benzodiazepines and Narcotics
  – Lorazepam (Ativan), Midazolam (Versed), Fentanyl, Morphine, etc
  – Lorazepam is an independent risk factor for transitioning to delirium in intensive care unit patients.

  Pandharipande P, Shintani A, Peterson J, et. al Dept. of Anesthesia/Critical Care medicine, Vanderbilt University Medical Center, Nashville, Tennessee 37232, USA

  Anticholinergics such as Benadryl

Lorazepam and the Probability of Transitioning to Delirium

![Graph showing the probability of transitioning to delirium with increasing lorazepam dose]
Delirium = Big DEAL?

- Do we want to improve the care of our patients?
- Do we want improved outcomes for our patients?
- Do we want to decrease LOS and Cost?
- If you answered yes to any question then we have to change our practice!!

Assessing Consciousness

- Usual Assessment
  - Mental Status and Level of Consciousness
    - Alert, Oriented?
    - Follow commands?
    - Motor Function
    - Sensory Function
    - Sedation assessment
      - RASS, Ramsay, etc.
  - Unconscious
    - Glasgow Coma Score –
      - Eye Opening
      - Best Motor
      - Best Verbal

Assessing Consciousness

- Our usual assessments do not assess....
Completely Assessing Consciousness

- Cognition
  - Ability to process thoughts
  - Organize thinking
  - Concentrate

- Delirium impairs our cognition
  - Disorganized thinking
  - Inattention
  - Perceptual disturbances

Assessment, Management, Treatment

- Prevention is the key!!
- Assess and manage risk factors
  - Age
  - Severity of illness – Manage underlying illness
    - MI, CHF, Pneumonia, Sepsis, Metabolic disturbances
    - Ventilator – Spontaneous Breathing Trial Daily
  - Use of analgesia and sedation
    - Evaluate for appropriateness and reduction of dose
    - Sedation Vacation Daily
    - Consider switching agents

Assessment, Management, Treatment

- Assess and manage risk factors
  - Correct metabolic disturbances and hypoxemia
  - Frequent reorientation by nurse and family
  - Early mobilization and physical therapy
  - Optimize non-pharmacologic sleep
    - Day Night protocols
Assessment, Management, Treatment

- Assess and manage risk factors
  - Cognitive stimulation – during waking hours
    • Use of hearing aids, glasses
    • Family at bedside if appropriate

Assessing Delirium

- Patient must respond to VERBAL Stimulation to assess for Delirium
- Tools: ICDSC and CAM – ICU
- Simplified Assessment:
  - Acute Onset or Fluctuating Course of mental status?
  - Do they have inattention?
  - Do they have an altered level of consciousness? Or
  - Do they display disorganized thinking?

Assessing Delirium

- Patient must respond to VERBAL Stimulation to assess for Delirium
- Tools:
  - Intensive Care Delirium Screening Checklist – ICDSC
    - Total Score: 0 – 8
  - Confusion Assessment Method – ICU – CAM-ICU
    - 4 Features to Assess: if 3 of 4 positive
      • Patient is Positive for delirium
Examples of CAM – ICU Assessment
• http://www.youtube.com/watch?v=1hSDNOVHMVs
Delirium Resources
http://www.icudelirium.org

- Examples of CAM – ICU Assessment
  - http://www.youtube.com/watch?v=1hSDOVHMVs
- Examples of scoring
- Patient Stories
  - Hear how patients have had to learn to deal with long term cognitive impairments due to ICU stays complicated with delirium

Case Study
52 yo F with pneumonia intubated, on fentanyl and propofol
- Risk of Delirium due to?
  - Narcotics, hypoxia, pneumonia, sleep deprivation, noise
- Day One
  - Awake, alert, opens eyes to verbal, calm. In report: she has episodes of confusion during the night
  - RASS SCORE?
    - Zero
    - Proceed to CAM – ICU?
      - YES

Case Study
CAM – ICU Assessment
- Tell patient assessing for disorganized or unclear or altered thinking which can happen in the ICU
  - Feature 1 Acute onset neuro change or fluctuating course?
  - Case Study Feature One: Yes or No?
    - Feature One is Positive
    - Proceed to Feature 2?
      - Yes or No?
Case Study

CAM – ICU Assessment

Feature 2
- Ask patient to squeeze your hand
- Tell them you are going to repeat a series of letters and they should squeeze when they hear letter A
- Ask them to practice, say A, they should squeeze
- Repeat slowly S A V E A H A A R T
  - Count squeezes - should only be 4 total for the A’s
  - If patient fails to squeeze or squeezes when shouldn’t greater than or equal to 3 times
    - Proceed to Feature 3
  - If squeezes appropriately on A’s and not on any other letter
    - STOP!! Patient is not delirious.
- CASE STUDY: Patient squeezed on all A’s and 4 other times
  - How many errors? _____
  - Proceed to Feature 3?
    - Yes or NO?

Case Study

CAM – ICU Assessment

- Feature 3
  - Does the patient have an altered level of consciousness? (RASS other than Zero?)
    - Yes
      - Patient is delirious (Features 1, 2 and 3 were positive)
    - NO – RASS = Zero Proceed to Feature 4
- Case study – RASS Score was ZERO
  - Proceed to Feature 4
    - Yes or NO?

Case Study

• CAM – ICU Assessment
  Feature 4 – Disorganized Thinking
  - Ask patient to nod yes or no to the following questions (see questions for alternate days)
    - Will a stone float on water?
    - Are there fish in the sea?
    - Does one pound weigh more than two pounds?
    - Do you use a hammer to pound a nail?
  - Ask question to hold up “this many” fingers (hold up 2 fingers)
    - Hold 2 fingers up
    - Now repeat on other hand
      - Or add one more finger to original hand if unable to move other extremity
  - LESS than 2 errors = NO DELIRIUM
  - Greater than or equal to 2 errors = Delirium Notify Physician
Case Study

Our Patient
- Will a stone float on water? Nods yes
- Are there fish in the sea? Nods Yes
- Does one pound weigh more than 2 pounds? Nods No
- Can you use a hammer to pound a nail?
  - Nods Yes
- Result? One error – Less than 2
- Result of CAM ICU? No Delirium

Case Study

However
- Patient has some disorganized thinking and inattention
- Evaluate & Collaborate with physician
  - Oxygenation
    - What can you do?
  - Analgesia and Sedation
    - What can you do?
  - Sleep Disturbance?
    - What can you do?
  - Risk of sepsis?
    - SIRS positive? Check for risk factors for sepsis

FAQ

- Am taking care of a neuro patient – How do I know if the neuro change is a “Neuro change” or “Delirium”
- Do Neuro assessment AND CAM – ICU
  - Neuro = Motor & Sensory Function! Motor & Sensory Changes
  - CAM = Cognitive Function!
- Delirium is a neuro change = Organ Dysfunction
  - Causes changes in the pre-frontal cortex – cognitive changes
  - Report Neuro change and Delirium (if CAM positive) to Physician
  - Be prepared with recommendations for patient!!
Prevention of Delirium

• Day and Night: Make it clear for your patient
  – Lights, sunshine, close blinds, curtains
  – Create a schedule, post it and stick to it!!

Prevention of Delirium

Sleep: Do we have to bathe our patients in the middle of the night?
  – Encourage uninterrupted sleep
  – An avg. ICU patient only gets 60 – 100 minutes of sleep/24 hour period

Prevention of Delirium

Use of Glasses & Hearing Aids if appropriate

• Family visits if they are calming
  – Even at night consider use of family to calm patient
• Restraints remove as early as possible
Prevention of Delirium

- Remove the physiologic dysfunction – optimize oxygenation, CHF, COPD, Sepsis, Dysrhythmias, Glucose levels
- Least amount of analgesia and sedation agents
  - Lorazepam has been linked to increased incidence of delirium

2013 SCCM Guidelines

Delirium Treatment
- No evidence that treatment with Haloperidol reduces duration of delirium
- Do not suggest antipsychotics in patients at risk for torsades due to risk of QTc prolongation and development of Torsades
- Suggest in delirium unrelated to ETOH or benzodiazepine withdrawal, continuous IV dexmedetomidine for sedation to reduce duration of delirium in these patients

2013 Delirium Treatment

- Delirium treatment
  - There is no published evidence that treatment with haloperidol reduces the duration of delirium in adult ICU patients (No Evidence).
  - Atypical antipsychotics may reduce the duration of delirium in adult ICU patients (C).
  - We do not recommend administering rivastigmine to reduce the duration of delirium in ICU patients (–IIB).
2013 Delirium Treatment

Delirium treatment
- We do not suggest using antipsychotics in patients at significant risk for torsades de pointes (i.e., patients with baseline prolongation of QTc interval, patients receiving concomitant medications known to prolong the QTc interval, or patients with a history of this arrhythmia) (– 2C).
- We suggest that in adult ICU patients with delirium unrelated to alcohol or benzodiazepine withdrawal, continuous IV infusions of dexmedetomidine rather than benzodiazepine infusions be administered for sedation to reduce the duration of delirium in these patients (+2B).

Treatment of Delirium

- FIX the underlying cause
- Change medications – ie analgesics and sedatives
  - Reduce doses, use different agents
- FDA approved drugs to treat delirium = NONE
  - Haldol, Ativan, Geodon, Zyprexa,
    - Must monitor QTc

Prolonged QT & Torsades

History:
- 40 yo admitted with Hx. of Methamphetamine Addiction
- Haldol 10 mg IV prn for “agitation”
  - Doses given at 0330, 0430, 0610
- AM Labs – Potassium and Magnesium
  - Potassium 2.7 mEq/Liter
  - Magnesium 1.7 mEq/Liter
  - Low levels of both of these put patient’s at risk for prolonged QT interval
Measure the patient’s QT Interval

- Actual measured QT interval is in pink – it should be less than ½ the preceding R-R interval.
- If you just measured the QT interval in pink it measures as “normal” at 0.44 sec. You need to compare the QT to the preceding R-R interval to correct it for the heart rate.
- Measured R-R interval is 0.62 sec – the measured QT should be less than ½ the preceding R-R interval.

Measure QT Interval

- When you compare the measured QT to the preceding R-R interval, the QT of 0.44 seconds is prolonged as it is greater than ½ the preceding R-R interval.
- R-R interval is 0.62 sec – The QT should have been less than 0.31 sec.

10 minutes after 4th Dose of prn Haldol

- QT interval is 0.44 sec – It is considered normal.
Nursing Implications

- Be AWARE of the numerous medications which prolong the QT
- Amiodarone, Levaquin, Haldol, Geodon, anti-depressants, etc. see table below

When giving a medication that may prolong the QT interval
- Measure the QT and correct it for the HR = QTc
- QT calculated or QTc = QT (measured) / √R interval (seconds)
- Evaluate your electrolytes and correct

Update your knowledge with the latest AHA Scientific statement found at:
http://circ.ahajournals.org/content/121/8/1047.full.pdf+html
AACN Article:
http://ajcc.aacnjournals.org/content/17/1/77.full.pdf+html?sid=5f1913f6-9e05-4271-9f65-c283c99bd8a3

2013 Guidelines

Strategies for Managing Pain, Agitation and Delirium to Improve ICU Outcomes
- Daily Sedation Interruption or Light Sedation for mechanically ventilated adult ICU patients
- Suggest Analgesia FIRST sedation
- Promote Sleep by optimizing environments to control light, noise and cluster patient care activities – Decrease night time stimuli
- Recommend Interdisciplinary approach and rounding to facilitate use of pain, agitation and delirium management guidelines

Managing Analgesia & Sedation

Evaluate Agitation for causes
- Hypoxemia
- Pain
- Fear
- Anxiety
- Withdrawal from alcohol or narcotics
- CNS dysfunction
- Metabolic dysfunction
- Evaluate for Delirium
- Treat the CAUSE
Managing Analgesia & Sedation

Analgesics
- Morphine
- Fentanyl – Use in hemodynamically unstable

Sedation Agents
- Dexmedetomidine – Precedex – may be used off the ventilator
- Propofol – Only used for ventilator patients
  - RN may only titrate infusions
  - No IV bolus by RN – only anesthesia providers may IV bolus
- Lorazepam
- Midazolam

Analgesia Sedation Strategies

Analgesics - Morphine Sulfate
- Additive effect when used with sedation
- Adult dosing for Ventilator patients
  - For 70 kg patient
    - 0.7 – 10 mg every 1 – 2 hours as needed
    - Infusion: 5 – 35 mg/hour

Analgesia Sedation Strategies

Analgesics - Morphine Sulfate
- Precautions
  - Paralytic ileus, Liver dysfunction
  - May impair effectiveness of diuretics
    - Due to ADH release
  - St. John’s Wort increases CNS depression
Analgesia Sedation Strategies

Analgesics – Fentanyl
- Narcotic Analgesic, General Anesthetic
  - Mechanically Ventilated Patients (70 kg)
    - 0.35 – 1.5 mcg/kg every 30 – 60 minutes
    - Infusion: 0.7 – 10 mcg/kg/hour
  - Elderly: Twice as sensitive as younger patients to effects
  - Used in hemodynamically unstable patients

- Precaution:
  - Bradycardia
  - Rapid administration can cause chest wall rigidity, broncho & laryngospasm
  - ADH Release
  - St. John’s Wort may decrease levels
    - BUT increase CNS depression

Sedation Strategies

**Sedation: Precedex** (Dexmedetomidine)
- IV sedative and is the first and only alpha2 agonist indicated for sedation – Adults only
- May be used on patients NOT on the ventilator
- Continuous infusion
  - FDA – 24 hours only
  - Anecdotal reports
  - Full sedative effect of Precedex is generally not seen for 20 to 30 minutes
    - Wait to adjust
Sedation Strategies

**Sedation: Precedex** (Dexmedetomidine)
- Generally initiate Precedex maintenance infusion at 0.4 mcg/kg/hr
- The titration range for Precedex in the ICU is 0.2 to 0.7 mcg/kg/hr
- Most Common Adverse Effects
  - Bradycardia
  - Hypotension
  - Dry Mouth

Analgesia Sedation Strategies

2013 Guidelines:
- We suggest that in adult ICU patients with delirium unrelated to alcohol or benzodiazepine withdrawal, continuous IV infusions of dexmedetomidine rather than benzodiazepine infusions be administered for sedation to reduce the duration of delirium in these patients (+2B).
- We provide no recommendation for the use of dexmedetomidine to prevent delirium in adult ICU patients, as there is no compelling evidence regarding its effectiveness in these patients (0,C).

Sedation Strategies

- Sedatives - Propofol – General anesthetic
  - Indicated as alternative for treatment of agitation in ICU on intubated mechanically ventilated patients
    - Infusion only
  - Lipid Based – accumulates in fatty tissue
    - Longer time for reduction in blood drug level
    - Higher risk for contamination
    - Delivers 1.1 kcal/ml – if on TPN may not require regular lipids if on Propofol
Sedation Strategies

Sedatives - Propofol – General anesthetic
- Assess for Propofol Induced Infusion Syndrome
  - Severe metabolic acidosis
  - Associated with patients who are hemodynamically unstable or on high dose propofol
  - Limit propofol use to less than 72 hours

Sedation Strategies

Sedatives - Propofol – General anesthetic
- Infusion only for ICU sedation – No IV bolus by RN
- Wean slowly
- Urine will turn green
- Central line preferred
- Relative contraindications
  - Hypotension, hemodynamically unstable, Abnormally low vascular tone (sepsis or SIRS)
  - Monitor for propofol induced infusion syndrome

Sedation Strategies

Sedatives - Midazolam
- Prolonged response with infusions
- Elderly (> 65 yo) & Debilitated
  - Initial dose 2.5 mg recommended
  - Concomitant dosing with Narcotics or CNS depressants – Reduce dose by 50 % if > 65 or by 30% if less than 65 yo.
  - St. John’s Wort decreases levels
Sedation Strategies

Sedatives - Lorazepam
- Use with caution in liver and renal disease
- Possibly linked to dilated esophageal disease
- Polyethylene glycol & propylene glycol toxicity with prolonged parenteral administration
- 2013 Guidelines: Benzodiazepine use may be a risk factor for the development of delirium• Linked to increased incidence of delirium

- Paradoxical reactions reported
- Hyperactive / Aggressive behavior
  • Adolescents
  • Psychiatric patients
- NO analgesic, anti-depressant or anti-psychotic properties
- St. John’s Wort increases sedation

DECISION TREE FOR VENTILATOR SEDATION PROTOCOL

Is the patient on Mechanical ventilation? NO

Does the patient's respiratory status show signs of hypoxia? NO

Does the patient show evidence of pain? (0-50; Pediatric arterial lines, FLACC) NO

Does the patient show signs of or have the potential for alcohol withdrawal? NO

Does the patient show evidence of other potential causes of agitation, such as pain, hypoxia, or hypothermia? NO

Is patient currently on a sedative infusion? NO

Obtain physician order for ventilator sedation protocol. Ensure appropriate strategies prior to sedation.

Administer sedation at appropriate rate per protocol.

If indexing present: assess airway patency, ETT position, proper ventilator function, is need for sedation/stabilization/pain necessary? YES

If pain is present, obtain & implement order for pain medication – REMEMBER: Treat pain prior to sedation!

If hypoxia present, assess airway patency, ETT position, proper ventilator function. Is need for sedation/stabilization/pain therapy necessary? YES

If hypoxia present, obtain & implement order for pain medication – REMEMBER: Treat pain prior to sedation!

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If hypoxia present, obtain & implement order for pain medication – REMEMBER: Treat pain prior to sedation!
Treatment of Delirium

What about Haloperidol, Ziprasidone (geodon), and other treatments for agitation?
- No FDA approved drugs to treat delirium!
- 2013 Guidelines: No evidence that treatment with Haloperidol reduces duration of delirium

Prevention is Key
- Manage symptoms and treat the underlying cause of the delirium

Evaluate all Patients
- Pain – Treat with Analgesia
- Agitation – Treat with Analgesia Sedation FIRST
- Delirium – Prevention is Key
  - Early Mobilization
  - Treat causes
- What do I need to do?
  - Evaluate current practice
  - Review resources
  - Collaborate at with team to make changes
References


SCCM – 2011 Analgesia, Sedation, Delirium Guidelines retrieved from:

CAM–ICU/NAS Pocket Cards Retrieved from:
http://www.mcv.vanderbilt.edu/icudelirium/docs/PocketCards.pdf last accessed January 25, 2013


Delirium Resources: http://www.mc.vanderbilt.edu/icudelirium/


CPOT retrieved from:

Speaker Contact

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