Delirium recognition in the PACU: Recognition and interventions

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Agenda
- Identify signs and symptoms of delirium in the recovering patient
- Describe nursing interventions & medical treatments appropriate for use with the patient with delirium in the PACU setting
- Questions & Answer

Can you recognize delirium?
- CAM ICU Tool Use
- CAM ICU Video

Changes in mental function
- Distinct categories:
  - Emergence delirium
  - Delirium
  - Postoperative cognitive dysfunction (POCD)
What is emergence delirium?

- “Emergence delirium is a condition that can affect all segments of the postoperative population, but is seen most often in pediatric and older adult patients” (Hudek, 2009, 509).

- Emergence delirium occurs in 10-15% of the geriatric population postoperatively.

- Higher risk when undergoing: ophthalmological, otorhinolaryngological, breasts, or abdominal surgery

Causes of Emergence Delirium

- Risk factors:
  - Patient's age
  - Type of anesthesia
  - Anxiety level
  - Level of postoperative pain
  - Preexisting medical conditions
    - Depression
    - Drug dependence
    - Organic brain disease (Lepoue et al., 2006; Hudek, 2009)

Other causes of Emergence delirium

- A rapid emergence from anesthesia without adequate pain control
- Younger or advanced age
- No previous surgery
- Poor adaptability
- Large blood loss during surgery
- Postoperative pain
- Use of sevoflurane or isoflurane or a combination of both
- Use of analgesics (Hudek, 2009, 510)

Medications causing . . .

- Most inhalation agents
- IV agents:
  - midazolam
  - Remifentanil
  - Propofol
- Others:
  - Atropine
  - Ketamine
  - Droperidol
  - Barbiturates
Physical causes . . .
- Urinary retention
- Hypoxia
- Severe hypercarbia
- Hypotension
- Hypoglycemia
- Increased intracranial pressure
- Electrolyte imbalance

Sensory deprivation
- Sensory overload
- Pain
- Sepsis
- Embolism
- Alcohol withdrawal

Signs & Symptoms
- Emergence delirium:
  - Usually occurs within 15 to 30 minutes after surgery or in the elderly may be 8 to 24 hours later. (slower to metabolize anesthesia medications)
  - Excitement alternating with lethargy
  - Restlessness and behavioral regression (verbally abusive or infantile behavior)

Assessment of Agitation
- Richmond sedation-agitation-scale (SAS)
- Riker sedation-agitation-scale

Treatment of Emergence Delirium
- Basics:
  - Maintaining airway
  - Breathing
  - Circulation
  - Pulse oximetry
  - Chemical restraint may be needed
  - Vital sign monitoring
  - Most cases resolve with only supportive care
  - Debate over use of pharmaceuticals
  - Calm & reassuring environment
Effects of Emergence Delirium

- Morbidity
- At risk for hurting themselves; i.e. self extubation, pulling out drains, etc.
- Human resources
  - Additional persons to hold them down
- Finances
  - Additional time in PACU
  - Extra pharmaceuticals
  - Repair of any physical damage
  - Extra personnel to protect them

Delirium $D =$ Mom

- Organic brain syndrome
- Acute develops
- Fluctuating clinical course
- Disturbances
  - Attention
  - Memory
  - Orientation
  - Perception
  - Psychomotor
  - Behavior
  - Sleep

- Key diagnostic feature: change in mental status; attention & reduced clarity of awareness of environment (Charlome & Ouellette, 2013; Neufeld et al., 2013).
- Neufeld et al. (2013) note that up to 50% of elderly patients experience delirium postoperatively and increase mortality, longer hospital stays, and cognitive & functional decline.

Delirium symptoms/signs

- Misinterpretations
- Illusions
- Hallucinations
- Inability to focus, sustain, & shift attention
- Disturbance in sleep-wake cycle & activity cycle
- Affective disturbances
  - Mood lability
  - Anger
  - Sadness
  - euphoria
  - delusions
  - thought disorders
  - disorganized thinking

Delirium Causes

- General medical condition
- Substance-induced (medications or toxin exposure)
- Substance intoxication
- Substance withdrawal
- Multiple etiologies
- Any condition that interferes with neurotransmitter function or supply of substrates for metabolism within the CNS.
- Hepatic encephalopathy – drug or metabolic
- Melatonin is one mediator causing delirium
- Congestive heart failure (CHF) (Parente, Veiga, Silva, and Abelha, 2013) as an independent risk factor.
Risk Factors Preoperative
- Age 70 or older
- History of delirium
- History of alcohol abuse
- Preoperative use of opioids
- Preoperative depression
- Malnutrition
- More than three medications added in 24-48 hours before onset of delirium
- UTI and more.

Perioperative Risk Factors
- Greater intraoperative blood loss than typical for the procedure
- Postprocedure blood transfusions
- Postprocedure hematocrit less than 30%
- Severe postprocedure pain (especially use of Meperidine)

Recognition of delirium
- “Early recognition & treatment is essential to reduce the duration and severity of delirium & negative outcomes” (Ouellette & Ouellette, 2010, 43).
- Most common complication: hip surgery – 16 to 62% of the older patient population.
- Use the CAM tool.

Use of the CAM tool
- Discuss the use of the confusion assessment method (CAM) tool in the PACU area. (Waszynski, 2012)
  1. Acute onset
  2A. Inattention
  2B. If present or abnormal
  3. Disorganized thinking
  4. Altered level of consciousness
  5. Disorientation
  6. Memory impairment
  7. Perceptual disturbances
  8A. Psychomotor agitation
  8B. Psychomotor retardation
  9. Altered sleep-wake cycle
The CAM Diagnostic Algorithm

- Feature 1: Acute onset of fluctuating course
- Feature 2: Inattention
- Feature 3: Disorganized thinking
- Feature 4: Altered level of consciousness

The diagnosis of delirium by CAM requires the presence of features 1 & 2 and either 3 or 4. (Inouye et al., 1990).

Another tool used is the Nursing Delirium Symptom Checklist (NuDESC) (Neufeld et al., 2013).
Nursing Interventions

- Recognition
- Correct imbalances: fluid, electrolytes
- Remove precipitating factors: overstimulation
- Encourage family visits
- Reorient patient
- Medications:
  - Haloperidol
  - Benzodiazepine

Why control delirium?

- Neufeld et al. (2013) note post discharge morbidity, institutionalization, and mortality.
- May not be recognized for up to days after surgery
  - Common occurrence after anesthesia
  - Natural history of postoperatively after surgery

Surgery types with delirium

- Cardiac surgery
  - Shad & Hamilton, 2013
  - Smulte, Linghall, Gustafson, Olofsson, & Engstom, 2013
  - Martin & Arora, 2013
- Lumbar spine surgery
  - Fineberg, nandyala, Marquez-Lara, Oglesby, Patel, and Singh, 2013
- Hip & knee
  - Nandi, Harvey, Saillant, Kazakin, Talmo, & Bono, 2013
  - Krenk, Rasmussen, Hanse, Bogo, Soballe, and Kehlet, 2012
- Postoperative
  - Parkh and Chung, 1995
**Postoperative cognitive dysfunction (POCD)**

- “Long-term deterioration of cognition after surgery and anesthesia, POCD is characterized by mild changes in personality, emotional instability after anesthesia and surgery or some loss of cognitive powers (such as short-term memory lapses, difficulty concentrating, or reduced visual-motor speed)”
  
  (Ouellette & Ouellette, 2010, 44).

**Causes of POCD**

- Unknown and unclear
- Cerebrovascular disease
- Cerebral hypoperfusion
- Genetic susceptibility
- Alteration in neurotransmitter function
- Neurohumoral stress
- Central nervous system inflammatory phenomenon
- Anticholinergic agents
- Regional anesthesia may reduce incidence of POCD early after surgery according to Ouellette & Ouellette (2010).

**More causes of POCD . . .**

- Pain
- Epidurals may actually decrease incidence of POCD
- Sustained high levels of cortisol
- Major surgery

**At risk for POCD**

- 10-60% of POCD in the older patients
- 25% cognitive dysfunction a week after anesthesia
- POCD is usually reversible but may take up to one year

- Increased risk with older patients, multiple surgeries during same admission, and postoperative infections.

- Polypharmacy increases risk, alcohol & sedative hypnotic withdrawal, anxiety, & depression.
Preventing POCD

- Medication reconciliation before surgery
- Medical problem evaluation
- Detect sensory perceptual deficits
- Education before surgery to reduce anxiety
- Correct imbalances before surgery
- Adjust drugs for age, weight, comorbidities
- Ambulate older adults as soon as possible
- Allow family members & care givers to be with patient

Drugs to avoid

- Known to alter cognitive behavior
  - Diazepam
  - Flurazepam
  - Reserpine
  - Hydrochlorothiazide
  - Beta-adrenergic blockers (propranolol)
  - Aspirin
  - Metoclopramide

What next?

- Ettema, et al. (2013) noted that further research is needed on delirium recognition and treatment in the postoperative cardiac surgery patient population especially in regards to preoperative interventions to reducing postoperative delirium. (Ouellette & Ouellette, 2010).

References

References 2...


Reference 3...


Reference 4...


Reference 5...

Questions

- How do you see yourself using the CAM tool in your recovering patients?
- Have you recognized delirium in your recovering patients?
- Are there medications you use to treat delirium in recovery?
- Do you recognize patients at high risk for delirium in recovery?