Dementia Versus Delirium in the Hospitalized Inpatient
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Objectives
• Review clinical and diagnostic criteria to help differentiate dementia versus delirium
• Discuss pharmacological risk factors associated with developing delirium in the critical care setting
• List specific prevention and treatment strategies that have been shown to be effective with delirium associated with critical illness.

Dementia Defined
• Diagnosed clinically
  - Evaluating clinical symptoms combined with imaging or CSF analysis
  - Significant, episodic memory impairment
• Other Warning Signs
  - Misplacing personal items
  - Difficulty performing ADLs
  - Disorientation to time and place
  - Changes in mood, behavior, personality
• Loss of initiative
• Risk Factors
• Conditions that mimic dementia
Delirium Defined

• Diagnosed clinically

• Diagnostic criteria:
  • Disturbance in attention and awareness
  • Change in cognition
  • Develops over a short period (hours to days) and fluctuates during the course of the day
  • Disturbance is resultant from physiologic consequences of medical condition, intoxicating substance, medication use or more than one cause
  • With or without agitation (DSM-V, 2013).

Importance of Delirium

• Prevalence as high as 80% in mechanically ventilated patients (Ely, et al, 2001)

• ICU costs associated with delirium range between $4 and $16 billion annually in the US

• Under-recognized / under-diagnosed because the majority of patients present with hypomorphic delirium.

Assessment Tools

• Confusion Assessment Method
  • Most widely used tool to screen to diagnose delirium

• Confusion Assessment Method for the ICU
  • Modification of the CAM to assess nonverbal patients
  • Developed by Dr. Wes Ely from Vanderbilt University
  • Assesses for the features of delirium
Assessment Tools

  - Compared Confusion Assessment Method for the Intensive Care Unit (CAM-ICU) with assessments done by experts using DSM-IV criteria for delirium
  - CAM-ICU determined to have 93-100% sensitivity and 98-100% specificity for delirium with kappa score of 0.96
  - Helped demonstrate extent of problem:
    - 96 patients studied, 80 of which were CAM-ICU positive for delirium at some point during ICU stay

CAM-ICU in the Real World

  - Compared diagnosis of delirium from clinical experts of multidisciplinary team with bedside RN's CAM-ICU assessment
  - Kappa score was 0.63
  - Overall sensitivity of CAM-ICU 47% and specificity of 98%
  - Sensitivity of CAM-ICU in patients with hyperactive delirium was 100%
  - However, sensitivity of CAM-ICU in patients with hypoactive delirium was low at 31%
  - Lowest sensitivity (17%) with neurocritical patients.
Causes of Delirium

Conditions Associated with Delirium
- Advancing age
- Surgical procedures
- Acute Illnesses & presence of comorbidities
  - Dementia
  - Hypertension
- Drugs (prescribed and otherwise)
- Trauma
- Poorly managed pain
- Acute illness / inflammatory states
- Coma
- APACHE II score
- Delirium identified previous day
- Mechanical ventilation
- Metabolic acidosis
- Altered sleep / wake cycles
- Immobility

Sleep Deprivation
- Defined as lack of restorative sleep over a period of time.
- Etiology
  - Medications (eg hypnotics like propofol)
  - Pain
  - Hospital environment, especially critical care
  - Anxiety/stress
  - 14 healthy participants exposed to recorded ICU noise and light
  - Polysomnography revealed more light sleep, longer REM latency, less REM sleep when exposed to ICU light and noise. Participants reported poorer sleep quality.
Benzodiazepine Infusions
  - Compared use of dexmedetomidine infusion with midazolam infusion
  - Study drug started with 96 hours of intubation
  - Patients could receive open-label midazolam boluses to max dose of 4 mg in 8 hours as well as haloperidol
  - Prevalence of delirium was significantly higher in patients who received midazolam infusions versus those that received dexmedetomidine (76.6% versus 44%; P < .001) even after having received more open label midazolam (60 versus 153 patients; P < .02)
  - 30-day mortality was not significantly different between study groups (22.6 versus 25.4%; p = 0.60)

Morbidity & Mortality
  - Retrospective Cohort study from SEDCOM Study
  - Multivariable regression analysis to examine delirium along with seven other variables as independent predictors of morbidity and mortality
  - Presence of delirium was strongest independent predictor of 30-day mortality
  - Hazard ratio for mortality increased significantly for each additional day the patient was delirious
  - Delirium was also found to be strongest independent predictor for time on mechanical ventilation and ICU length of stay
  - Prospective cohort observational; Medical ICU
  - Duration of delirium significantly associated with reduced ability to perform ADLs up to 1 year after discharge

Treatment of Delirium
Treatment of Delirium

- Antipsychotics
  - IV haloperidol (Marino, 2007; Marino, 2013; Devlin & Skrobik, 2011)
  - Risk versus benefit – EP adverse effects & QT prolongation; independent risk factor of mortality in the elderly
  - Do all forms of delirium respond to antipsychotics in the same way?
  - Delirium not specific from alcohol withdrawal
  - Additional supporting evidence is needed on use of antipsychotics to treat delirium (Devlin & Skrobik, 2011)

Prevention of Delirium

Avoiding Benzodiazepine Infusions

- Avoid benzodiazepine infusions
- PRN midazolam boluses for breakthrough sedation
Appropriate Pain Management
- Prospective observational study published in the Journal of Trauma found a Delirium prevalence of 67% in the Trauma ICU.
- Patients who received Morphine had a protective affect against delirium

Wake Up and Breathe
- Girard, et al (2008); Spontaneous awakening trials paired with spontaneous breathing trial (SBT)
- Compared SBT alone with SBT combined with spontaneous awakening trial.
- Patients in the intervention group were screened for a spontaneous awakening trial and had all sedation and analgesia interrupted.
- Patients who underwent spontaneous awakening trial with subsequent SBT had significantly fewer vent days, shorter ICU and hospital length of stay although the intervention group did experience more self-extubations.

Early Mobility
- Compared early consultation of PT and OT to standard consultation of PT and OT when ordered by the patient’s primary medical team.
- Patients in the intervention group began therapy at a median of 1.5 days following intubation versus the control group which had therapy begin at a median of 7.4 days following intubation.
- There was significantly less delirium in the ICU as well as in the hospital, less time on mechanical ventilation and shorter ICU LOS.
Adjusting Nursing Routines

- Promoting more normal sleep/wake cycles
- From Hu, et al., (2010) we already know it affects healthy subjects
- Awake & interactive during the day
- Reduce frequency of interventions as appropriate overnight
- Vital signs
- Neuro checks/assessments
- Bathing
- Area of future research...

Reference #1


Reference #2

References #3
