Delirium in the Neurologically Injured

Learning Objectives
- Review the syndrome of delirium and the subtypes
- Examine some of the etiologies of delirium
- Learn some of the most common risks factors
- Focus on ways to assess, prevent and treat delirium symptoms

Financial Disclosure
- Financial relationships - none
- Product endorsements - none
- Financial gains - none
Why Delirium?
- Common problem
- Serious complications
- Under recognized
- Preventable
Delirium is a nonspecific organic syndrome which is characterized by an acute onset of altered level of consciousness with a fluctuating course in orientation, memory, thought or behavior.


Terminology
- “De lirio”
- “Phrenitis”
- Like does not mean same
- DSM-V criteria

DSM-V Criteria
- Disturbance in attention
- Develops over a short period of time
- There is an additional disturbance in cognition
- Not explained by another disorder
- Evidence that the disturbance is caused by a medical condition

**Delirium Subtypes**

<table>
<thead>
<tr>
<th>Type</th>
<th>Percentage</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hyperactive</td>
<td>10%</td>
<td>Increased psychomotor activity, Restlessness, Easily distracted, Hallucinations, Agitation / Combative ness, Confusion</td>
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<tr>
<td>Hypoactive</td>
<td>50%</td>
<td>Reduced alertness, Lethargic, Quiet, Withdrawn, Sluggish, Confusion, Decreased motivation</td>
</tr>
<tr>
<td>Mixed</td>
<td>40%</td>
<td>Features periods of both hyperactive and hypoactive symptoms</td>
</tr>
</tbody>
</table>

**Why is it important?**

- Incident delirium 29 - 31% of hospitalized patients admitted without delirium will develop delirium
- Prevalent delirium 11 - 25% of hospitalized patients will have delirium on admission

References:
- Neurology. 2011;76:993-999.
Epidemiology

- Consequences (economic / functional)
  - $64 Billion annually in USA
  - Higher associated mortality
  - Longer hospitalizations
  - Decreased QOL
  - Increased risk of institutionalization

Pathophysiology

- Neurotransmitter imbalance
- Inflammation
- Impaired oxidative metabolism
- Altered BBB permeability
Who is at risk?

Predisposing Risks
- Pre-existing dementia *
- Age *
- Functional impairments *
- Severity of illness on admission
- History of ETOH abuse
- HTN

Precipitating Risks
- Infection *
- Uncontrolled pain
- Fluid / electrolyte abnormalities
- Environmental influences
- Withdrawal conditions
- Medications *

Medication Risk
- Anticholinergics
- Benzodiazepines
- Opiates
- Corticosteroids
- Tricyclic antidepressants
- H₂ blockers
Neurologically Injured

- Incidence rate: 13% to 28%
- Hypoactive is the most common
- LOS is longer
- Increase in mortality
- Coma was an independent risk factor for the development of delirium


Neurologically Injured

- Age
- Urinary retention / UTI
- Pneumonia
- Pre-existing dementia
- Sensory impairments


Neurologically Injured / Stroke

- Large anterior circulation strokes
- Hemorrhagic strokes
- Any posterior circulation strokes
- Cardio-embolic strokes
- Left hemiparesis


Mnemonic:

- D Drugs
- E Environment
- L Lab abnormalities
- I Infection
- R Respiratory
- I Immobility
- O Organ failure
- U Unrecognized dementia
- S Shock / Steroid / Stroke / Sleep

Adapted from: St. Louis University Geriatrics Evaluation Mnemonics Screening Tool.
Can it be prevented?

Management of Delirium
- Primary Prevention
- Secondary Prevention

Primary Prevention
- Identify patients at risk
- Prevent

Secondary Prevention
- Identify patients at risk
- Treat
- Prevent
Assessment Screening Tools

- CAM / CAM-ICU*
- IC-DSC
- CTD
- Nu-DESC
- DOSS


Primary / Secondary Prevention

- Review the medication list
- Reduce high-risk medications
- Do not use medications to manage sleep, anxiety, mild agitation
- Reserve pharmacologic approaches for severe agitation or psychosis

Critical Care Medicine. 2015;63(1):142-150.

Primary / Secondary Prevention

- Enhance mobility / ROM
- Maintain nutrition / hydration
- Treat pain adequately
- Use functional aids
- Minimize risk of infection
- Sleep promotion


How is it treated?
Delirium Practice Guidelines

- American College of Critical Care Medicine
- Institute for Health and Care Excellence
- American Geriatrics Society

Guideline Recommendations

- Recommend to avoid medication classes that may induce delirium
- Recommend routine monitoring of delirium using validated assessment tools
- Recommend the implementation of nonpharmacological interventions

Guideline Recommendations

- Recommend use of antipsychotics only in patients that are severely agitated or distressed and are posing substantial harm to self and others
- Recommend using the lowest dose of medication for the shortest period of time
- Do NOT recommend the use of antipsychotics to prevent delirium
Guideline Recommendations

- Recommend early mobilization
- Recommend thiamine should be considered in all patients with delirium

General Treatment

- Identify, remove and treat underlying cause(s)
- Non-pharmacologic measures
- Pharmacologic measures
  - Antipsychotics (Neuroleptics)
  - Sedatives

Pharmacologic Treatment

- Typical antipsychotics
  - Haloperidol
    - Dose: Not specified
    - Risks: QT prolongation, EPS, NMS
    - Benefits: Low frequency of sedation, respiratory depression and hypotension

- Atypical antipsychotics
  - Olanzapine
  - Quetiapine
  - Risperidone
    - Dose: Not specified
    - Risks: Drowsiness, decreased risk of QT prolongation and EPS
    - Benefits: As effective as haloperidol
Pharmacologic Treatment

- Sedatives
  - Benzodiazepines
  - Propofol
- In Trials
  - Dexmedetomidine
  - Gabapentin

Key Learning Points

- Delirium is a multifactorial syndrome with predisposing and precipitating risk factors
- Delirium can be diagnosed with high sensitivity and specificity
- Prevention should be the goal
- If delirium occurs, treat the underlying cause(s)
- Always try non-pharmacologic approaches first, and then low dose antipsychotics

Summary

- Nurses play an important role in the assessment, recognition, prevention and treatment of delirium in their patients.

- Therefore, it is important to expand the knowledge about delirium to improve identification, management -- and most importantly outcome.
References


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