**Inpatient Management of Delirium: Non-ICU**

- Delirium is an acute confusional state with acute changes in attention, cognition, and awareness. It often has a sudden onset and a waxing and waning course.
- Delirium can occur in patients of all ages, is a common geriatric syndrome, and can cause severe complications as well as increased risk of mortality.
- Delirium can lead to a wide variety of hypoactive and hyperactive behavioral changes, thinking problems, and disruption of normal sleep-wake cycles.

### Predisposing Factors

- Advanced age
- Dementia
- Previous delirium
- Dependency in activities of daily living
- Polypharmacy
- Prolonged hospitalization
- Severe illness

### Precipitating Factors

- Medications:
  - Newly added medications or abrupt withdrawal of medications with physiologic tolerance
  - Benzodiazepines, anticholinergic medications, and opiates among many others
  - Under-controlled pain can also aggravate delirium
- Infection:
  - Urinary, skin, and respiratory infection
- Electrolyte / metabolic / endocrine disturbances:
  - Dehydration and sodium imbalances, hypo/hyperglycemia, thyroid abnormalities, hypo/hypercalcemia
- Systemic organ failure
- Hearing or vision impairment
- Urinary and fecal disturbances:
  - Urinary retention / catheter, fecal impaction
- Physical disorders:
  - Burns, trauma, surgery, physical restraints, bedbound status, hyper/hypothermia
- Structural brain lesions (rare)

### Evaluation

- Early recognition and identification of delirium
- Identify and correct the underlying medical conditions(s) that are contributing to delirium

### How to Uncover the Underlying Causes

- Detailed history
- Thorough physical exam with neurologic exam
- Medication and vital sign review

### Screening and Evaluative Tests

- Based on clinical presentations, order the relevant labs:
  - CBC
  - Urine analysis
  - Chem 7, calcium, ammonia
  - LFTs
  - Blood cultures
  - Pulse oximetry, arterial blood gas
  - Chest x-ray
  - EKG
    - Complete prior to first dose of antipsychotics or as soon as patient is calm.
  - Alcohol level
  - Serum drug levels or urine toxicology screening
  - B12 / folate
  - TSH
  - Head CT or brain MRI in patients with head trauma or focal neurologic deficits

### Non-Pharmacologic Measures

- Recognize the predisposing factors
- Minimize the perpetuating factors
  - Redirect / reorient / reassure the patient
  - Early mobilization
  - Reduce noise and provide adequate daytime light in the room; sunny-side room preferable if available
  - Prevent sleep deprivation
  - Minimize use of anticholinergic drugs, benzodiazepines, and narcotics
  - Use of eyeglasses and hearing aids
  - Treat volume depletion
  - Bowel regimens
  - Avoid lines or catheters if possible
  - Monitor for unintentional self-harm
  - Assess fall risk

### How to Recognize Delirium

- Use the [Confusion Assessment Method (CAM)](https://www.ohiolink.edu/primary/jhri/1999122200.html) to screen patients for delirium
Management of Delirium

1. Treat the reversible underlying causes
2. Non-pharmacologic approaches:
   - Redirect / reorient / reassure the patient
   - Early mobilization
   - Reduce noise and provide adequate daytime light in the room
   - Use familiar objects (items from home, photographs of family, etc.)
   - Prevent sleep deprivation
   - Minimize use of anticholinergic drugs, benzodiazepines, and narcotics
   - Use of eyeglasses and hearing aids
   - Treat volume depletion
   - Bowel regimens if patient has constipation or if on narcotics
   - If possible, avoid:
     o Lines or catheters
     o Physical restraints

3. Possible consults:
   - PT
   - OT
   - Speech
   - Geriatrics
   - Psychiatry
   - Neurology
   - Nutrition

4. Pharmacologic approach – antipsychotics:
   - Consider the medications and dosing regimens in the table below if the patient does not respond to non-pharmacologic measures, and if the behavior is dangerous or adversely impacting morbidity risk and recovery.

Pharmacologic Treatment – Clinical Pearls*

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dose Range**</th>
<th>Sedation</th>
<th>EPS</th>
<th>QTc Prolongation</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>haloperidol</td>
<td>0.5–1.0 mg every 12h or qhs (many patients respond to 1–2 mg daily)</td>
<td>+</td>
<td>+++</td>
<td>+++</td>
<td>PO haloperidol may have less QTc prolongation but more EPS.**</td>
</tr>
<tr>
<td>(Preferred routes of haloperidol, from most preferred to least preferred, are: PO, NG, IV, IM)</td>
<td>Suggested Max Dose: 3 mg/day</td>
<td></td>
<td></td>
<td></td>
<td>If patient on IV haloperidol, telemetry is suggested.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>May be scheduled every 12 hours or qhs.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>May be given q4 PRN for breakthrough agitation/delirium.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Avoid IM use if on full anticoagulation.</td>
</tr>
<tr>
<td>risperidone</td>
<td>0.25–0.5 mg every 12h or qhs</td>
<td>+</td>
<td>++</td>
<td>+</td>
<td>Less sedating and less likely to cause hypotension due to no histamine receptor activity.</td>
</tr>
<tr>
<td>(Preferred routes of haloperidol, from most preferred to least preferred, are: PO, NG, IV, IM)</td>
<td>Suggested Max Dose: 1 mg/day</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>quetiapine</td>
<td>12.5–25.0 mg every 12h or qhs</td>
<td>++</td>
<td>+</td>
<td>++</td>
<td>More sedating due to activity on histamine receptors.</td>
</tr>
<tr>
<td>(Preferred routes of haloperidol, from most preferred to least preferred, are: PO, NG, IV, IM)</td>
<td>Suggested Max Dose: 100 mg/day (elderly/low body weight 50 mg/day)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>olanzapine</td>
<td>2.5–5.0 mg every 12h or qhs</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>Increased risk of metabolic side effects and EPS compared to quetiapine.</td>
</tr>
<tr>
<td>(Preferred routes of haloperidol, from most preferred to least preferred, are: PO, NG, IV, IM)</td>
<td>Suggested Max Dose: 20 mg/day</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* FDA requires a “black box” warning for antipsychotics because of increased mortality in elderly patients with dementia. Antipsychotic medications should not be continued long term in geriatric patients with delirium. These patients should be weaned off antipsychotic medications within 3 days after aggressive behaviors are controlled. Lower doses should be considered for patients with low body weight.

**EKG before first dose or as soon as patient is calm. Relative contraindication: if QTc > 500 ms or patient is on medications that prolong QTc. Recheck EKG within 24 hours of first dose of antipsychotics or as needed thereafter with dose increases. Clinical judgment and risk factors for torsades de pointes or QTc prolongation should also dictate frequency of EKG rechecks.

***ODT = orally disintegrating tablet.
References


Order Sets

- Delirium Non-ICU Admission [3337]
- Delirium Non-ICU Management [3408]

Quality Measures

- Incidence of delirium
- Readmission rate
- Length of hospital stay
- Mortality
- Percent of patients diagnosed with delirium who fall
- Percent of patients administered antipsychotics

Guideline Authors

- Guibin Li, MD, PhD
- Ellin Gafford, MD
- Daniel Eiferman, MD
- David Kasick, MD
- Jennifer Browning, MS, RN, ANP-BC
- Bruce Doepker, PharmD, BCPS

Guideline Approved


Disclaimer: Clinical practice guidelines and algorithms at The Ohio State University Wexner Medical Center (OSUWMC) are standards that are intended to provide general guidance to clinicians. Patient choice and clinician judgment must remain central to the selection of diagnostic tests and therapy. OSUWMC’s guidelines and algorithms are reviewed periodically for consistency with new evidence; however, new developments may not be represented.

Copyright © 2016. The Ohio State University Wexner Medical Center. All rights reserved. No part of this document may be reproduced, displayed, modified, or distributed in any form without the express written permission of The Ohio State University Wexner Medical Center.