Risk Factors/Prevention ("DELIRIUM A")

Things to Think About in Terms of Risk Factor (RF), Prevention (P), and Management (M) of Delirium

**Deficits** that can be corrected or accommodated: e.g. hearing (Portable amplifying devices), vision (glasses), dentures, oxygen, hydration, nutrition, metabolic imbalances, electrolytes, constipation, UA retention (RF, P, M)

**Environmental factors**: e.g. rest/sleep deprivation, stimulation control (avoid over and under stimulation), lighting, familiarity of surroundings, orientation (e.g. clock, pictures, reminders), implement non-pharmacological sleep protocol by the nurse instead of sleep aids (Warm milk or herbal tea, relaxation tapes or music, and back massage, Unit-wide noise reduction strategies and schedule adjustments to allow uninterrupted sleep) (RF, P, M)

**Longevity/age>70 (RF)**

**Impaired functional status, general health status**: early mobilization, PT/OT consults (RF, M);

**Restraints**, avoid, along with other tethers (foley, IV, etc) (RF, P, M)

**Intellect/CNS function**: e.g. dementia, stroke, depression (RF)

**Uncomfortable**; manage pain; scheduled tylenol (limit 3g/day), if needed use low dose opioid (e.g. 2.5mg oxycodone Q4 PRN) (RF, P, M)

**Medications / anesthetic agents** Avoid high risk medications in the elderly, especially benzodiazepines and monitor for drug withdrawal. (RF, P, M)

**Acute stressors**: surgery, infection, metabolic disorders, other acute illness (RF, M)

**Diagnosis: Key Components**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Delirium</th>
<th>Dementia</th>
<th>Depression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onset</td>
<td>Acute (hours to days)</td>
<td>Insidious (months to years)</td>
<td>Acute or Insidious</td>
</tr>
<tr>
<td>Acuity</td>
<td>Acute</td>
<td>Chronic, progressive</td>
<td>Episodic</td>
</tr>
<tr>
<td>Course</td>
<td>Fluctuate hourly throughout the day (worse at night)</td>
<td>Stable throughout the day (Behavior problems may be worse at night). Progressive worsening</td>
<td>Relative stable. May be self-limiting, recurrent or chronic. (worse in Am)</td>
</tr>
<tr>
<td>Duration</td>
<td>Days to months</td>
<td>Years, most types of irreversible</td>
<td>Variable</td>
</tr>
<tr>
<td>Consciousness</td>
<td>Reduced, fluctuates</td>
<td>Clear until late stages</td>
<td>Clear</td>
</tr>
<tr>
<td>Hallucination</td>
<td>Very common (usually visual)</td>
<td>No common until late stages (usually visual)</td>
<td>Uncommon (usually auditory)</td>
</tr>
<tr>
<td>Attention/concentration</td>
<td>Impaired</td>
<td>Normal until late stages</td>
<td>May be disorganized</td>
</tr>
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</table>

**3 types of Delirium:**

- **Hyperactive**: restless and/or agitated.
- **Hypoactive**: lethargic and/or apathetic.
- **Mixed**: both hyperactivity and hypoactivity

**Differential Diagnosis: 3Ds**

1: **Acute Onset or Fluctuating Course**
2: **Inattention**
3: **Disorganized thinking**
4: **Altered Level of consciousness**

There are several validated assessment tools you can use e.g. 4AT: [http://www.the4at.com/](http://www.the4at.com/)

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**Some high risk medications to avoid:**

1. Anticholinergics (promethazine, hyoscyamine)
2. Skeletal muscle relaxants, (carisoprodol, methocarbamol)
3. Older Antihistamines (diphenhydramine, hydroxyzine)
4. Benzo- and Non-benzodiazepine hypnotics (zolpidem, valium, xanax)

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Treatment: Non-pharmacological options
1. Recognize and treat precipitating factors (refer to “Delirium A” above).
2. Review medications and eliminate unnecessary medication, renally dose meds (if patient has renal failure), and avoid high risk medications.

Treatment: Pharmacological options
1. Limit use of antipsychotics, use the lowest dose for the shortest duration. (starting doses listed below)
2. Antipsychotics are not indicated to treat hypoactive delirium.

-------------- Increasing sedative effects -------------
Haloperidol  Olanzapine Quetiapine

<------------- Worsening Extrapyramidal symptoms (EPS) ------------>

<table>
<thead>
<tr>
<th>Drug</th>
<th>Starting Dose</th>
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<tbody>
<tr>
<td>Haloperidol</td>
<td>0.5mg PO or IM; can repeat every 4h (PO) or every 60 min (IM)</td>
</tr>
<tr>
<td>Risperidone</td>
<td>1.5 mg BID</td>
</tr>
<tr>
<td>Olanzapine</td>
<td>2.5 mg daily</td>
</tr>
<tr>
<td>Quetiapine</td>
<td>12.5 mg BID</td>
</tr>
</tbody>
</table>

Delirium impact on surgical outcomes:
1. Increased mortality (1 year mortality: 40%)
2. Higher Complication rates (e.g. aspiration pneumonia, dehydration)
3. Enhanced Length of stay
4. Increased Costs of care ($160 billion/year)
5. Higher Readmission rates
6. More frequent Falls
7. Higher use of Bladder catheter
8. Cognitive decline
9. Poor patient satisfaction
10. Worse functional status leading to increased institutionalization rates.

Postoperative Delirium
Gabbard, Jennifer; David, Stefan
Johns Hopkins University

Pre-op risk assessment

<table>
<thead>
<tr>
<th>Delirium Risk Assessment: (Marcantonio et al.)</th>
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<tbody>
<tr>
<td>Age ≥ 70</td>
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<tr>
<td>Alcohol abuse</td>
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<tr>
<td>Cognitive impairment: MMSE &lt; 25/30 or Telephone Interview for Cognitive Status (TICS) score &lt;30</td>
</tr>
<tr>
<td>Electrolytes: Abnormal sodium, potassium or glucose* sodium, &lt;130 or &gt;150 mmol/L; potassium, &lt;3.0 or &gt;6.0 mmol/L; and glucose, &lt;60 or &gt;300 mg/dL.</td>
</tr>
</tbody>
</table>
| Poor functional status: Specific Activity scale of Class IV. (means <2 mets (light intensity activity e.g. Can’t dress without stopping because of symptoms.)

1 MET = the energy (oxygen) used by the body as you sit quietly, perhaps while talking on the phone or reading a book.

Type of surgery: is it either non-cardiac thoracic surgery or AAA repair?

Score: 0 = low 1-2 = medium ≥3 = high

Delirium Risk

□ Low (2%) □ Medium (11%) □ High (50%)

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