MANAGEMENT OF ACUTE DELIRIUM (on floors)

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DELIRIUM PROPHYLAXIS FOR HIGH-RISK PATIENTS

Patient is high risk if ≥2 of these criteria present: -

- Age ≥65 years
- Cognitive Impairment (current admission or prior history)
- History of Delirium
- History of Parkinson's disease
- Current admission for Stroke or Traumatic Brain Injury
- Patient receiving any of these medications this admission: Opiates, Benzodiazepines (eg. Valium/ Ativan), Corticosteroids, or Diphenhydramine (Benadryl)
- Hearing or Vision Impairment
- Language Barrier
- History of Bipolar disorder, Depression, PTSD, or Schizophrenia
- History of substance abuse

* Minimize deliriogenic medications
* Non-pharmacological measures (By Nursing)
* Melatonin 3 mg PO qHS (2000 hrs)

Inouye SK, et al. JAMA 1996;275(11):852-7.
Moerman S, et al. Gen Hosp Psych 2012;34:153-9.
Oldenbeuving AW, et al. Neurol Neurosurg Psychiatry 2013;00:1-4.

HYPOACTIVE DELIRIUM

If ≥4 of these criteria present &/ based on clinical assessment: -

- Unawareness
- Lethargy
- Sparse/Slow speech
- Staring
- Decreased alertness
- Lack of enthusiasm
- Decreased/Slow movement

* Minimize deliriogenic medications
* Non-pharmacological measures (By Nursing)
* Work up precipitating cause of delirium
* May consult Neurology/Psychiatry for diagnosis/management

Liptzin B, et al. Br J Psych 1992;161:843-5.

HYPERACTIVE DELIRIUM*

For all patients with Hyperactive Delirium:
* Minimize deliriogenic medications
* Melatonin 6 mg PO qPM (at 2000 hrs)
* Non-pharmacological measures (By Nursing)
* Sleep aid qHS PRN (such as Trazodone 25 mg or Zolpidem 2.5 mg) IF no results with Melatonin and non-pharmacological measures
* Work up precipitating cause of delirium

Lewy Body Dementia

a) No antipsychotics
b) Continue non-pharmacological measures
c) Consult Neurology

QTc > 500 ms

Yes

a) Non-pharmacological measures
b) Remove other QT prolonging medications if possible and reassess QTc
c) If persistent agitation →Consult Neurology/ Psychiatry

No

Parkinson's disease / Traumatic Brain Injury

Yes

Patient able to swallow

Yes

PO QUETIAPINE
(Sedating)

No

Consult Psychiatry/ Neurology

No

PO QUETIAPINE
(1st choice)
(Sedating)

IV HALOPERIDOL
(2nd choice)

*	IV HALOPERIDOL (Haldol)	PO QUETIAPINE (Seroquel)
MILD AGITATION *(easily redirectable patient: RASS +1)*	0.25-0.5 mg q6h PRN	12.5 mg q6h PRN
MODERATE AGITATION *(Restless, impulsive, poor safety awareness, not easily redirectable: RASS +2)*	1-2 mg qHS + 0.5-1 mg q6h PRN	25 mg qHS + 12.5 mg q6h PRN
SEVERE AGITATION *(Pulling lines/tubes, combative: RASS +3, +4)*	2-4 mg qHS + 1-3 mg q4h PRN	25 mg qHS (May repeat x1) + 25 mg q6h PRN

Devanand DP, et al. Am J Psych 1998;155:1512-20. Rea RS, et al. Pharmacotherapy 2007;27(4):588-94. Campbell N, et al. JGIM 2009;24(7):848-53. Han CS, et a;. Psychosomatics 2004;45:297-301. Schwartz TL, et al. Prim Care Companion J Clin Psych 2000;2:10-12. Straker DA, et al. Psychosomatics 2006;47:385-91. Boettger S, et al. Pall and Supportive Care 2011;9:351-7. Maldonado JR. Crit Care Clin 2008;24:657-722. Al-Aama T, et al. Int J Ger Psych 2011;26:687-94. de Jonghe A, et al. Int J Ger Psych 2010;25:1201-8. Hanania M, et al. Anesthesia and Analgesia 2002;94(2):338-39.

	IV/PO Haloperidol	PO Quetiapine	Melatonin	Trazodone	Zolpidem (Ambien)
Pharmacology	Dopamine D2 > Serotonin $5HT_{2A}$ receptor blockade. IV Haloperidol: 100% Bioavailability Onset: seconds, Duration: 4-6 hrs Elimination half-life: 26-56 hrs PO Haloperidol: 60-70% Bioavailability (lower if ileus, diarrhea) Peak action: 1.5-6 hrs Elimination half-life: 14-30 hrs	Serotonin $5HT_{2A}$ > Dopamine D2 receptor blockade, Adrenergic (α1/2), Histaminergic H1 receptor, and Muscarinic M1 receptor blockade Peak: 1-2 hrs, Half-life: 6 hrs (Half-life of metabolite: 12 hrs)	Hormone from pineal gland. Acts on melatonin receptors. Improves sleep quality. Peak: 1 hr, Half-life 0.5-2 hrs	Unclear mechanism. Improved sleep quality (reduced awakenings), no improvement in sleep onset latency or total sleep time. Onset of action: 1-3 hrs, Half life 11 hrs in age >65 yrs	Non-BZD: Agonist at one subtype of GABA-A receptor (BZD are agonists at all subtypes). May reduce sleep onset latency, total sleep time, no effect on sleep quality (awakenings). Onset of action: 30 min, Half life <3 hrs, no active metabolite, effect may lasts up to 8 hrs
Safety Profile	1) Extrapyramidal side effects (EPS) less with IV than PO Haloperidol (7.2% for IV *versus* 22.6% for PO Haloperidol) - Akathisia (30%, Dose/Duration dependent) - Tardive dyskinesia (4-5%) - Acute dystonia (14%) - Medication induced Parkinsonism (50%, Dose/Duration dependent) - Less EPS if dose <4.5 mg/d 2) QT prolongation more with IV than PO Haloperidol: Ventricular arrhythmias/Torsades de pointes (<0.3%), especially if other QT prolonging drugs being given and/or electrolyte abnormalities 3) Minimal sedative/hypotensive effects 4) Prolactin elevation (reversible)	1) SEDATION (18-35%, H1 receptor) 2) Orthostatic hypotension (7% - α1/2 blockade) 3) Minimal to no EPS 4) Ok to use in Parkinson's disease 5) Rare QT prolongation 6) Minimal to no effect on Prolactin 7) Moderate anticholinergic activity	At high doses: Daytime fatigue, Dizziness.	Anticholinergic. Hypotension (10%), Next day sedation & Dizziness (21%), N/V (15%), Headache (10%), Priapism, Constipation (13%), Rebound insomnia after discontinuation on 2nd withdrawal night, worsen RLS	At doses >20 mg/d → Drowsiness, Falls, N/V. May have some rebound insomnia. Reports of confusion/delirium/falls (?dose of zolpidem), ?fugue state (sleep-walk/eat/drive).
Drug interactions	Carbamazepine and Phenytoin may *increase* clearance of Haloperidol. Prozac, Wellbutrin, Paxil, Phenergan, Effexor may *decrease* clearance of Haloperidol.	Carbamazepine and Phenytoin may *increase* clearance of Quetiapine.			

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