Keck Medical Center of USC

Perioperative Brain Health Initiative USC/Keck Medical Center

Medications and polypharmacy (>5 medications) can contribute to postoperative delirium.

Below are perioperative medication recommendations based on the current literature from the Departments of Pharmacy and Geriatrics.

Pre-operative Pharmacologic Assessment

- Medication reconciliation to ensure accurate list of patient's currently prescribed medications
- Review of all medications: prescribed, over the counter, herbal supplements and vitamins and instructions of how to use these medications leading up to surgery and when to resume them after
- No longer prescribed medications or ones to avoid should be disposed of to eliminate confusion
- Patient's must be screened for alcohol, marijuana and illicit drug use, all of which are risk factors for post-op delirium.
- Medications that more than double the odds of delirium (odds ratio):
    - Diphenhydramine (2.3), Demerol (2.7), Benzodiazepines (3.0)
- Other medications that increase the odds of delirium:
    - Sleep aids (Ambien, Lunesta, Sonata), PO corticosteroids, Opioids, Antidepressants (SSRIs, TCAs, SNRIs), Atypical Anti-Psychotics, drugs with Anticholinergic profiles & over the counter Lomotil

Adequate post-operative pain control is associated with decreased post op delirium. There is an association between undertreated pain and occurrence of delirium. Pain must be well managed to reduced delirium using opioids and non-opioid medications. When non-opioid medications are used, they must be renally dosed.

Pre-operative/Intraoperative/Post-operative medications which require extra consideration

Acetaminophen PO/IV	Max dose 3gm/24hrs Maximum of 2 gm if pt has pre-existing hepatic disease.
Celebrex Ketorolac	Do not use with Crcl <30 ml/min CrCl 30-50 may use 50% dose
Gabapentin	CrCl >60: 900-3600mg, CrCl 30-59: 400-1400mg, CrCl 15-29: 200-700mg, CrCl <15: 100-300mg)
Opioids Meperidine	Start with 50% dose and titrate up gradually Avoid due to anticholinergic effects
Scopolamine Atropine Diphenhydramine Ipratropium Promethazine Prochloraperazine Metoclopramide	Avoid due to anticholinergic effects. Substitute Glycopyrrolate if possible, as it does not cross the blood brain barrier Diphenhydramine is only appropriate in cases of severe allergic reaction. Significant EPS/Tardive Dyskinesia, Anticholinergic effects
Midazolam Lorazepam	Avoid if possible, if not, utilize low dose single administration, avoid infusions or repeated doses.
Ketamine	Recent studies show it does not increase risk nor prevent post-operative delirium.

Post-operative Pharmacologic Treatment of Post-Operative Delirium

- **Non-pharmacologic** management should be tried **first**.
- No pharmacologic treatment for hypoactive delirium. These patients are not agitated enough to cause harm to self/ others
- If the patient is agitated to a point where he can **cause substantial harm to himself of others**, 1st line pharmacologic management are antipsychotics at the lowest effective dose prescribed **for specific harmful behaviors** and for the shortest possible duration (**Seroquel 12.5-150mg** or **Risperdal 2.5-2mg**). Pts should be evaluated daily for effectiveness.
- BZDs should be reserved for pts who are suffering from OH or BZD withdrawal. BZDs should be used at lowest effective doses for the shortest duration possible. There is no evidence that which supports using BZD for the treatment of delirium. There is substantial evidence that BZDs promote delirium.