
PARKINSON'S DISEASE

- Patients with Parkinson's Disease are at increased risk for perioperative complications. In a study examining perioperative complications in 600 patients followed by the Medicine Consult Service at UWMC, patients with Parkinson's disease were at significantly higher risk for all serious complications after correcting for all other risk factors in a multi-variate analysis (Odds ratio, 8.14 (1.76 - 37.67))¹. Patients are generally thought to be at increased risk because of difficulty with mobility, swallowing, and decreased pulmonary reserve. These patients are also at increased risk for delirium and falls.
- Patients with Parkinson's tend to show a restrictive type picture on pulmonary function testing² and this is improved by treatment with levodopa. However, it is not necessary to routinely obtain PFTs before surgery. The management of patients with Parkinson's should include general measures to improve pulmonary toilet - incentive spirometry, elevating the head of the bed, early mobilization. It is important to institute measures designed to minimize the risk of delirium. Patients who are unable to swallow their medications may be managed with a feeding tube or NG tube. Physical and Occupational therapy may also prove beneficial perioperatively for transfers and routine ADLs. Fall precautions should be considered.
- The medications used to treat the patient's Parkinson's can be a significant issue perioperatively. If the patient is unable to take their usual medication by mouth, you can substitute diphenhydramine (Benadryl) IV or IM 10 to 50 milligrams every 2 to 3 hours. Doses should not exceed 400 milligrams/day. If you are having difficulty, consider Neurology consultation.

With respect to oral medications:

Carbidopa/Levodopa - (Sinemet)

- May precipitate confusion or hallucinations at higher doses and may increase the risk of urinary retention
- Acute discontinuation of Levodopa may rarely precipitate a neuroleptic malignant like syndrome. It is best to taper the dose slowly. Some authors recommend reducing the dose of carbidopa/levodopa to the lowest possible preoperatively, then resuming the drug postoperatively as soon as possible.

MAO B inhibitors - Selegiline (Eldepryl)

- Although designed to be a selective inhibitor of monoamine oxidase (MAO) type B, at higher doses (>10 mg) this drug does not act selectively. There are numerous drug interactions (at any dose) especially with meperidine (Demerol) and anti-depressants (such as Prozac). At higher doses, interactions with sympathomimetic drugs and all narcotic analgesics are possible.
- In general, as with more traditional MAO inhibitors, these should be discontinued at least 2 weeks prior to surgery. If you are not able to stop these drugs preoperatively (e.g., emergent surgery) consult with pharmacy and anesthesia about potential drug interactions.

Dopamine agonists - bromocriptine (Parlodel), pergolide (Permax), pramipexole (Mirapex), ropinirole (Requip).

- These drugs can usually be given perioperatively, but use caution as they can cause postural hypotension and confusion.

Neurology

COMT (catechol-O-methyl transferase inhibitors) - entacapone (Comtan) and tolcapone (Tasmar).

- These drugs increase the plasma half-life of L-dopa and prolong the therapeutic effect of those medications. They can usually be continued perioperatively. But, they may precipitate dyskinesias, hallucinations, confusion and orthostatic hypotension.

References

1. Reilly DF, McNeely MJ, DOerner D, et al. Arch Intern Med. Self-reported exercise tolerance and the risk of serious perioperative complications. 1999;159:2185-2192.
2. Sathyaprabha TN, Kapavarapu PK, Pall PK, et al. Pulmonary functions in Parkinson's disease. Indian J Chest Dis Allied Sci. 2005;47(4):251-257.