

Contraindicated Medications in Parkinson's Disease

ISSUE

Parkinson's Disease (PD) is a neurodegenerative disorder caused by loss of dopamine-producing neurons in the substantia nigra. Further depletion of dopamine with dopamine antagonists and the administration of certain antipsychotics and antiemetics, can lead to worsening PD symptoms, cognitive changes, falls and infections. In hospitalised patients, administration of contraindicated medications has been shown to increase length of hospital stay and mortality. Patients are also more susceptible to hallucinations, mental status changes and nausea, symptoms that are typically treated with anti-dopaminergic medications.^{1,2,3}

EVIDENCE OF HARM

Prescribing contraindicated medication in PD

'Patient had been experiencing worsening of Parkinson's symptoms over a few consecutive weeks, which included ongoing nausea. Attended GP and received a prescription for prochlorperazine. Parkinson's Nurse Specialist advised of contraindication and to revert back to prescriber. Follow up showed an immediate improvement of symptoms once contraindicated medication was stopped by GP.'

Consequences of compromised medication therapy

'Patient admitted to hospital with pneumonia, which later resolved. Parkinson's medications delayed for 48 hours due to aspiration risk and nasogastric tube insertion. Delays to prescribing was further complicated by inappropriate administration of crushed modified release medication. Patient was administered haloperidol for uncontrolled movement and agitation-onset, and subsequently developed neuroleptic malignant-like syndrome. Patient passed away a number of weeks later.'

HOW TO REDUCE THE RISKS

Medications to be avoided or used with caution in patients with PD^{1,4,5}

Medication Type	Medication to Avoid	Mechanism of Action	Alternatives
Typical antipsychotics	E.g. haloperidol, chlorpromazine, flupentixol, fluphenazine, loxapine	Block D2 (Dopamine) receptors in the brain	Consider other atypical antipsychotics E.g. quetiapine and clozapine. These are dopamine blockers with least risk of worsening PD symptoms.
Atypical antipsychotics	E.g. olanzapine, risperidone, aripiprazole, asenapine, lurasidone, paliperidone, ziprasidone	Block dopamine receptors but dissociate from the receptor more quickly than typical antipsychotics	
Antiemetics	E.g. metoclopramide, prochlorperazine, promethazine droperidol, cyclizine*	Block D2 (Dopamine) receptors in the brain	For short term use: domperidone is preferred option; ondansetron is an alternative

NOTE: This medication list is not intended to be exhaustive. *Conflicting data

PD Monoamine oxidase medications include: selegiline, rasagiline or safinamide. They reduce breakdown of dopamine.⁴

Medications to be avoided or used with caution in combination with the monoamine oxidase (MAO) B inhibitors⁵⁻⁷:

Medication Type	Medication to Avoid	Alternatives
Decongestants/stimulants	Containing pseudoephedrine, phenylephrine (found in Sudafed® for example and other brands)	Seek advice from community pharmacist or specialist nurse
Cough suppressants	Containing dextromethorphan (found in Robitussin® for example and other brands)	
Medication that may be required during surgery	E.g. noradrenaline, metaraminol, dobutamine (increased risk of hypertensive crisis)	Careful pre-planning required prior to surgery.
Opiates	E.g. methadone, tramadol, pethidine	Seek specialist advice
Medications that inhibit MAO non-selectively	E.g. linezolid, tranlycypromine ⁵	

NOTE: This medication list is not intended to be exhaustive.

⁵MAOB inhibitors interact with common antidepressants, seek expert advice where both agents are indicated.

Strategies to discourage the prescription and administration of contraindicated medications in PD:

- Encourage self-advocacy among patients and carers. Use the patient's [Parkinson's Passport](#).^{1,8}
- Update allergy status and adverse drug reaction information on the drug chart. Consider using alert labels, highlighting contraindicated medications⁹ (sample illustrated).
- Electronic prescribing and administration systems should be designed to allow configuration of alerts, which are triggered when a contraindicated medication is prescribed for a person with PD.

**Haloperidol
Metoclopramide
Prochlorperazine
CONTRAINDICATED IN
PARKINSON'S DISEASE**

References:

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²Azmi H. et al. Adherence to a strict medication protocol can reduce length of stay in hospitalised patients with Parkinson's Disease. *Clin Park Relat Disord*. 2020. Available from: <https://doi.org/10.1016/j.prdoa.2020.100076> (accessed 17/10/24)

³Lertxundi U. et al. Medication errors in Parkinson's disease inpatients in the Basque Country. *Parkinsonism Relat Disord*. 2017. Available from: <https://pubmed.ncbi.nlm.nih.gov/28065403/> (accessed 17/10/24)

⁴Australian Medicines Handbook (online). Adelaide: Australian Medicines Handbook Pty Ltd. 2024. Available from: <https://amhonline.amh.net.au/> (accessed 19/9/24)

⁵American Parkinson Disease Association. Medication to be avoided or used with caution in Parkinson's disease. 2023. Available from: <https://www.apdaparkinson.org/living-with-parkinsons-disease/treatment-medication/meds-to-avoid/> (accessed 17/10/24)

⁶Parkinson's Foundation. Parkinson's Disease Hospital Care Fact Sheet Aware in Care. 2022 Available from: <https://www.parkinson.org/sites/default/files/documents/aic-hospital-care-fact-sheet.pdf> (accessed 17/10/24)

⁷NHS Greater Glasgow and Clyde. Parkinson's Disease and Elective Surgery. 2023. Available from: <https://ggcmedicines.org.uk/blog/medicines-update/parkinson-s-disease-pd-and-elective-surgery/> (accessed 17/10/24)

⁸Parkinson's Ireland. Available from: <https://www.parkinsons.ie/>

⁹NSW Health. Safety Notice 025/2023: Updated – Medication management in Parkinson's Disease. 2023. Available from: <https://www.health.nsw.gov.au/sabs/Documents/2023-sn-025.pdf> (accessed 17/10/24)