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1 September 2023

Distributed to:
Chief Executives
Directors of Clinical Governance
Director, Regulation and Compliance Unit

Action required by:
Chief Executives
Directors of Clinical Governance

We recommend you also inform:
- Drug and Therapeutics Committees
- Directors of Medical and Surgical Services
- Directors of Pharmacy
- Directors of Nursing and Midwifery
- Heads of Emergency Department
- Heads of Neurology
- Nurse/Midwifery Unit Managers

Expert Reference Group
Content reviewed by:
Medication Safety Expert Advisory Committee
ANNA Movement Disorder Chapter

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UPDATED – Medication management in Parkinson disease

What's new in this Safety Notice?

This Safety Notice replaces SN:002/20 and includes additional medication management strategies to ensure safety for patients with Parkinson disease. These include broadened electronic Medication Management (eMM) system considerations as well as considerations for patients with swallowing difficulty.

Situation

Many medications for Parkinson disease (also known as Parkinson's disease) are time critical. Rapid deterioration in the control of symptoms or a rare (and potentially fatal) neuroleptic malignant-like syndrome can occur if medications are delayed, missed, stopped or abruptly changed.

Assessment

Consequences of compromised therapy

- Motor and non-motor symptoms of Parkinson disease are patient-specific and dependent upon a personalised medication regimen, that often involves administration of doses at multiple specific and non-standard times during the day**. Even minor delays in dosing (i.e. 5 to 30 minutes) may make a significant difference to symptom control.**
- Missed and delayed doses can result in emergencies, adverse events and/or worsening of symptoms, such as tremors, rigidity, akinesia (difficulty initiating movement), gait and balance disturbance, impaired swallowing ability, autonomic and psychiatric effects.
- Abrupt withdrawal from Parkinson medications or severe intercurrent illness can cause a rare but potentially fatal 'neuroleptic malignant-like syndrome' (also called 'parkinsonism hyperpyrexia syndrome') featuring muscle rigidity, hyperthermia, autonomic dysregulation, cognitive changes and altered level of consciousness.
- Centrally acting dopamine antagonists, which include some commonly used anti-emetic and anti-psychotic agents (e.g., metoclopramide, prochlorperazine, haloperidol, olanzapine) interfere with the action of Parkinson medications and must be avoided.

Contributing factors

- On presentation to hospital, clinical staff may not be aware of a patients' history of Parkinson disease or their current medication regimen and it's time criticality.
- Patients presenting to hospital may be unable to swallow oral medications (e.g., due to stroke, delirium, reduced level of consciousness, vomiting) and there may be delays to speech pathologist assessment and/or nasogastric tube insertion.
- Levodopa is presented in several different formulations (e.g., immediate release, controlled release, dispersible tablets, capsules, tablets), and in various strengths and combination products. These are "look-alike-sound-alike" products and there is risk of selection error.
- Self-medication may be discouraged by local protocols and doses may be delayed or missed whilst hospital supply is being sourced.

Recommendations for clinicians

- Notify the patient's usual neurologist, geriatrician or Parkinson disease specialist nurse of the admission.
- Obtain timely review of medicines by a local specialist nurse and/or clinical pharmacist.

Recommendations for clinicians cont.

- Ensure the inclusion of Parkinson disease and time-critical medications in verbal and written handovers.
- Encourage patients to maintain and carry an up-to-date medicines list (e.g., Parkinson's Passport - Parkinsons NSW, Medication summary).
- Ensure **timely and accurate supply** of Parkinson medicines by:
  - Using a patient's own medicine supply until hospital supply is established (consistent with Medication Handling Policy Directive PD2022_032).
  - Reviewing the range of Parkinson medications available in Emergency Department and after-hours drug cupboards/imprest areas (including options for those with swallowing difficulty – see below).
  - Utilising barcode scanning and automated dispensing cabinet technology where available, to minimise selection error.
- Ensure timely **administration** of Parkinson medicines by:
  - Administering medications at specific times of the day that replicate the patients' usual regimen. Parkinson medication is **time-critical – administer doses on time, every time.**
  - Assess the patient's ability to self-medicate. Encourage self-medication where appropriate and in accordance with local procedures and Medication Handling Policy Directive PD2022_032.
- When **prescribing** medications for patients with Parkinson disease:
  - Obtain an accurate medication history from the patient or carer, then confirm with a second source of information e.g., patient's own medicines, medication list, local pharmacy, MyHealthRecord, GP.
  - Prescribe medications at the **specific times of the day** that replicate that patients' usual regimen. Avoid using default or standard hospital administration times.
  - Avoid prescribing centrally acting dopamine antagonists. Consider updating patient allergy and adverse drug reaction information to discourage use.
- For patients with **swallowing difficulty**:
  - In a patient who was previously tolerating oral intake, and has an acute change to swallow, document nutritional status as 'nil by mouth' and obtain an urgent review of medications to consider non-oral alternatives. Do not delay whilst waiting for speech pathologist assessment or nasogastric tube insertion as first line management.
  - In a patient with swallowing difficulties who is assessed and is either on a modified diet or able to have thin fluids, refer to the Society of Hospital Pharmacists of Australia '*Don't Rush to Crush*' accessible to NSW Health clinicians through MIMS Online, for guidance on how to appropriately administer each medicine.
  - In a patient who is able to swallow, and is 'nil by mouth' in the peri-operative period, do not delay Parkinson disease medicines and obtain specialist advice. Comprehensive dose equivalence studies are lacking. Calculators are available to assist in transitioning to non-oral alternative regimens, but should be used in conjunction with clinical judgement, individualised assessment, and expert advice. Calculators include:
    - OPTIMA Calculator (This calculator applies a correction factor to avoid large patch doses that may precipitate side effects such as confusion, hallucinations or delirium)
    - Parkinson's UK
    - Therapeutic Guidelines: Neurology
  - Non-oral alternatives may include:
    - Equivalent regimens of dispersible or crushable tablets for administration .
      Transdermal rotigotine (Neupro) patches – there is some evidence to suggest that continuous dopaminergic stimulation with rotigotine is more effective than oral levodopa in improving swallowing functions. However, variability in patient response to rotigotine patches means there is a risk of adverse effects, even when the target patch strength has been calculated. **Unless the patient has fragile disease control, consider starting rotigotine at a lower patch strength than the target dose, then titrate as tolerated to the effective dose. Exercise caution due to variability in effect and risk of delirium, and monitor blood pressure in rapid titration.**
    - Subcutaneous apomorphine – only on advice of a Parkinson disease specialist.

Recommendations for local governance committees

- Establish key local contacts for Parkinson medication advice during and outside of business hours, e.g., neurology registrar, specialist nurse and/or on-call pharmacist.

Recommendations for local governance committees cont.

- Ensure staff have access to education on how to manage patients with Parkinson disease, and encourage uptake. An e-Learning module is available for this purpose from My Health Learning (Course code: 283839943).
- Liaise with local eMM teams to optimise configuration of the eMM system, for example:
    - Use of automated Parkinson disease icon alerts within Emergency Department and ward electronic systems, to alert clinicians to a patients' arrival and admission.
    - Use of electronic consultation order (or equivalent) to expedite Parkinson disease specialist nurse review.
    - Displaying Parkinson medicines with generic (active ingredient), brand name and specific formulation (e.g., immediate or extended release), to minimise risk of selection error at the point of prescribing and administration.
    - Ensuring processes are in place for high level frequency and timeliness of levodopa Parkinson medications (e.g. 6 times per day). Adjust the timing of nursing overdue alerts to trigger at an appropriate interval (e.g., after a 15-minute delay), rather than according to default settings (e.g., 60 minutes).
    - Pop-up alerts when prescribing time-critical medicines that provide instructions on how to avoid prescribing contraindicated medications to patients on levodopa-based medications; adjust the order to non-standard administration times; and remind nurses to check the patient-specific administration times as these may sit outside the regular administration medication times.
    - Inclusion of standardised additional information on medication orders for time-critical medications (e.g.,***"Time-critical: must be administered at prescribed time"***).

References

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3. Hirano, M., Isono, C., Fukuda, K., Ueno, S., Nakamura, Y., Yasuda, S. (2019). Effects of the rotigotine transdermal patch versus oral levodopa on swallowing in patients with Parkinson's disease. Journal of the Neurological Sciences, 404, pp 5-10.
4. Lance, S., Travers, J. and Bourke, D. (2020). Reducing medication errors for hospital inpatients with Parkinsonism. Internal Medicine Journal, 51(3).
5. Ortiz, M.S. (2020). 'On time - every time' A new strategy for dosing levodopa in hospital. Journal of Pharmacy Practice and Research, 50(4), pp.339–344.
6. Parkinson Disease [published 2017 Nov, accessed 2018 Mar]. In: Therapeutic Guidelines. Melbourne: Therapeutic Guidelines Limited. https://www.tg.org.au

Required actions for the Local Health Districts/Networks

1. Distribute this Safety Notice to all relevant clinicians and clinical departments.
2. Implement strategies to optimise the medication management of patients with Parkinson disease within your LHD/SHN considering the recommendations provided in this Safety Notice.
3. Ensure a system is in place to document actions taken in response to this Safety Notice.
4. Report any incidents associated with Parkinson medications via the local incident management system (e.g., ims+).
5. Acknowledge receipt and distribution of this Safety Notice within **72 hours** via email.