Gloucestershire Hospitals
NHS Foundation Trust

Parkinsonism Guidelines

What's new /Latest updates
OPTIMAL Calculator no longer valid
See caution regarding using PDMedCalc
New Drugs added to guidelines: Inbrija®, Produodopa®

Audience
For use by: All GHNHSFT and GHC clinical staff

Introduction
Parkinson's disease (PD) is the second most prevalent neurodegenerative disorder in the United Kingdom. Individuals diagnosed with Parkinsonism are 1.5 times more likely to be admitted compared to those without the condition. Furthermore, their length of stay in hospital exceeds that of non-PD patients, averaging between 2 and 14 days longer.

Key Safety Messages

- **Parkinson's medicines are time-critical.**
  Give doses **at the patient's usual times**; do not delay or omit. Missed or late doses are associated with deterioration, longer length of stay, and increased mortality.
- **Never stop dopaminergic therapy abruptly.**
  Sudden withdrawal can precipitate **acute akinesia** and a **neuroleptic malignant–like syndrome**; seek urgent specialist advice if doses are missed.
- **Avoid contraindicated drugs.**
  Do not prescribe dopamine-blocking agents (e.g. **haloperidol, metoclopramide, prochlorperazine, chlorpromazine**). Consider documenting these as "allergies" on EPR to prevent inadvertent use.
- **Use safer alternatives when needed.**
  For nausea/vomiting, use **domperidone, cyclizine or ondansetron** (check QTc where appropriate).
  For agitation/delirium, prioritise non-pharmacological measures and **seek specialist advice**.
- **Preserve the patient's established regimen.**
  Prescribe the **same formulations and timings** as in the community. Use the patient's own supply, emergency cupboard, or on-call pharmacist to avoid missed doses.
- **Act promptly if swallowing is impaired or the patient is NBM.**
  Do not delay treatment—switch to appropriate alternatives (e.g. dispersible/enteral routes or transdermal options) and involve pharmacy/SALT and specialists early.
- **Escalate early.**
  Contact **Care of the Elderly/Neurology** via EPR for medication changes or deterioration; out of hours, involve the **on-call medical registrar** and pharmacist.
- **Prioritise PD patients on admission.**
  Early identification and prioritisation reduce medication errors and complications.

Purpose of This Guideline

This guideline does not offer an exhaustive approach to the management of these complex patients. Rather, it serves as a practical resource aimed at supporting non-specialist teams to ***get it right first time*** when caring for individuals with Parkinsonism. It is intended for staff to access the required section directly through Quick Content below.

Applicability to Parkinsonism and Related Disorders

It is important to note that several conditions can mimic Idiopathic Parkinson's Disease and are often managed with the same classes of medication. The treatment recommendations outlined in this guideline apply to all patients with parkinsonism who are receiving dopaminergic drugs. This includes, but is not limited to, those diagnosed with Progressive Supranuclear Palsy, Multi-System Atrophy, Corticobasal Degeneration, vascular parkinsonism, and Lewy-Body Dementia. The document uses "PD" to refer broadly to idiopathic PD and related syndromes.

Quick Content:

- Referral
- Day to Day Care
- Medication (including out of hours, tables, and advanced therapies)
- Surgery
- Further advice and support
- References

Referral

Key Points for Referral of Individuals Suspected to Have Parkinson's Disease

Early referral is paramount for people who are suspected to have Parkinson's disease (PD). It is recommended that patients be referred promptly, before the initiation of treatment, to a clinician with relevant expertise in PD. This specialist should be involved not only in the commencement of drug therapy, but also in the ongoing monitoring and adjustment of treatment as the disease progresses.
Upon diagnosis of Parkinson's disease, all patients should be referred without delay to the Parkinson's nurse team. This ensures that individuals receive comprehensive support and guidance from the outset of their care journey.

Referral Pathways Based on Age

Adults under the age of 75 years with suspicion of PD: These patients should be referred to the Neurology Outpatients Clinic, where they will be seen at either Gloucester Royal Hospital or Cheltenham General Hospital.
Adults over 75 years and or those with Clinical Frailty Score of 6 (Living with moderate frailty) or above: In general, these individuals should be referred to the Care of Elderly service. Parkinson's clinics for this group are held at both acute hospitals and at Forest Hospital, Tewkesbury Hospital, North Cots Hospital, Moreton and Marsh, Cirencester, and Stroud Community Hospital.

Multi-Disciplinary Approach to Therapy

Therapy for Parkinson's disease should involve a multi-disciplinary team. While drug treatment remains a vital component, it is only one aspect of a broader therapeutic approach. Physiotherapy, speech and language therapy, occupational therapy, pharmacy, and other disciplines may also play essential roles in the patient's care.

Drug Therapy Considerations

The primary goal of drug treatment for PD is to alleviate symptoms whilst reducing the risk of developing complications associated with dopaminergic therapy. Decisions regarding the initiation and ongoing monitoring of drug therapy should always involve a clinician with specific expertise in PD. Information about the drugs used in the treatment of PD can be found in the Hospital Formulary.

It is important to note that tremor, one of the hallmark symptoms of PD, typically responds poorly to most drug treatments. Therefore, realistic expectations should be set with patients and carers from the outset regarding the efficacy of available therapies for tremor.

Day-to-Day Care for Patients with Parkinson's Disease

Prioritisation of Patients

Patients with Parkinson's disease should be prioritised on the take list. This helps to prevent delays in prescribing and administering their time-critical medication and facilitates timely identification of the need for alternative routes of administration if required.

Medication Administration

Prescribe Parkinson's medications at the patient's own specified time of administration as recorded in the community. This information may be obtained from the patient, their carer, prescription records, letters, and external documents available on EPR and Infoflex.

Allergy Status

On admission, complete an allergy status on EPR for patients with Parkinsonism, specifically for the following medications:

- Haloperidol
- Metoclopramide
- Prochlorperazine
- Chlorpromazine

Swallowing Assessment and Management

It is important to promptly identify and manage dysphagia in patients with Parkinson's disease, as this increases the risk of silent aspiration or aspiration pneumonia, malnutrition, dehydration, and difficulty in taking oral medications. Suspected or identified dysphagia should be referred to Speech and Language Therapy. Do not stop the patient's parkinsonian medication if they are able to swallow it. If the patient is unable to swallow, consider alternative routes, such as a nasogastric (NG) tube or a Rotigotine patch.

Constipation

Constipation and faecal impaction can exacerbate the symptoms of Parkinson's disease. Patients should have their bowel chart reviewed daily and proactive prescription of laxatives should be considered. Faecal incontinence is usually due to overflow around faecal impaction; if this is suspected, perform a digital rectal examination and consider glycerine suppositories or a phosphate enema as appropriate.

Delirium

All patients admitted to hospital should have an Abbreviated Mental Test (AMT) and 4AT documented in their notes. For patients with Parkinson's presenting with confusion or hallucinations, delirium and other underlying causes for cognitive worsening should be ruled out. The PINCH ME acronym may be used to identify and address potential contributing factors.
delirium_check_list_Dec_19.pdf
Antipsychotic medications should not be used for sedation, as they are associated with increased length of stay and higher risk of mortality. For acute agitation that cannot be managed with non-pharmacological measures, Lorazepam 0.5 to 1 mg PRN is the preferred option. Mental Capacity Assessment should be completed on EPR, with Deprivation of Liberty Safeguards considered if appropriate.

Nausea and Vomiting

Antidopaminergic antiemetics, including prochlorperazine, metoclopramide, and haloperidol, should not be used as they may worsen Parkinsonian symptoms, increase length of stay, and precipitate a Parkinsonian crisis. Suitable alternatives include Domperidone, Cyclizine, and

Ondansetron. All patients receiving Domperidone or Ondansetron should have an ECG to check the QTc interval, as these medications can prolong it.

Orthostatic Hypotension

Measure lying and standing blood pressure in all patients with Parkinson's disease. Use fluid charts to ensure adequate oral fluid intake. Consider if other medications, such as antihypertensives, are contributing to hypotension. Midodrine may be considered as a pharmacological intervention, with attention to contraindications and slow titration at weekly intervals. Refer to intranet guidelines for further details.

Medication Administration for Patients with Parkinson's Disease

Obtaining and Documenting Medication Regimens

Upon admission, ensure that an accurate list of the patient's current medications is obtained directly from the patient. This list should include the specific timings, dosages, and usual preparations for each medication. Maintaining this information is essential for continued effective management of Parkinson's disease.

Maintaining Medication Timings

It is critical to preserve the patient's routine medication schedule. This may involve using the patient's own supply of medication, accessing the emergency drug cupboard, or contacting the on-call pharmacist to source the required drugs.
If the patient has not brought their home medications, The Parkinson's disease (PD) medication box can be used to access commonly required medications.

Timely Administration

Parkinsonian medications should be administered within 30 minutes of the prescribed time to ensure optimal management and avoid symptom deterioration.

Consultation and Specialist Advice

If there is a need to review or change the patient's Parkinson's medication regimen, refer to the patient's usual Parkinson's Specialist for guidance.
Only initiate or modify anti-parkinsonian medications based on specialist advice. **DO NOT** abruptly discontinue any anti-parkinsonian medication, as this may precipitate acute akinesia or neuroleptic malignant syndrome.

Out-of-Hours and Alternative Administration

If it is out of hours and the patient is unable to take their oral Parkinson's medication, consider alternative delivery methods to maintain continuous treatment.

Supportive Measures for Medication Administration

For patients experiencing swallowing difficulties, consider placing tablets individually on a teaspoon with soft food or thickened fluids such as yoghurt.

- Never crush or split modified release tablets (CR, MR, XL, or PR).
- Consider dispersible or liquid preparations of levodopa as alternatives.

Alternative Routes for Medication Delivery

If the patient remains unable to take oral medication, there are four common alternative methods to consider if a person with Parkinson's disease cannot take their usual oral Parkinson's medications:

- dispersible preparations with thickened fluids
- enteral tube
- transdermal patch
- subcutaneous injection (specialist only).

Close monitoring of the patient's response to alternative medication routes is crucial, and any signs of increased rigidity, confusion, or worsening Parkinsonian symptoms should prompt immediate review and specialist input.

Urgent Referral for Swallowing Assessment

If dysphagia is identified, refer the patient to Speech and Language Therapy as a priority. Clearly state that the patient has Parkinson's disease and is unable to swallow their usual medication to ensure prompt assessment and intervention.

Alternative Methods of Administering Dopaminergic Medications

When a patient with Parkinson's disease is unable to take their usual oral dopaminergic medications, it is essential to consider alternative methods of administration to maintain symptomatic control and prevent deterioration.

Guidance Resources

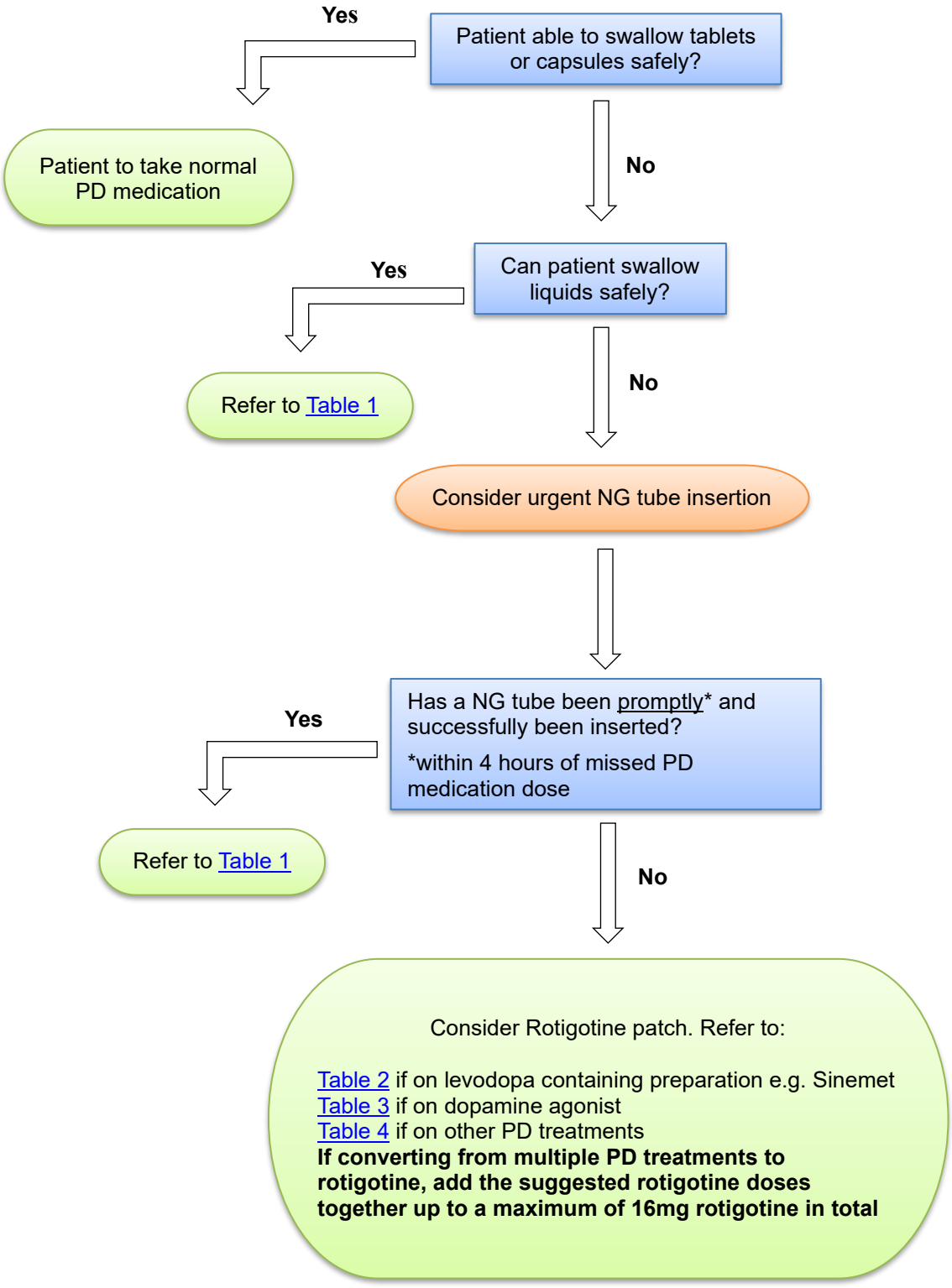

Table1. Management of Parkinson's disease patients with swallowing difficulties or feeding tubes in situ.

Medicine	**Formulation**	**Recommendation**
Co-Beneldopa (e.g. Madopar®)	Dispersible tablets	Continue no change required
	Capsules	Use dispersible tablets
	Modified Release Tablets	Keeping the same total daily dose, convert to dispersible tablets.
Co-Careldopa (e.g. Sinemet®)	Tablets (standard release)	Continue current regime, standard release tablets will disperse in water. For NG tubes switch to equivalent dose of dispersible Co-Beneldopa.
	Modified Release Tablets	Keeping the same total daily dose, convert to standard release tablets. For NG tubes switch to equivalent dose of dispersible Co-Beneldopa.
Cabergoline	Tablets	Continue current regime, tablets can be crushed and mixed in water. Not stocked at CGH and limited supply at GRH
Pramipexole	Tablets (standard release)	Continue current regime, standard release tablets will disperse in water
	Modified Release Tablets	Convert to standard release tablets. Convert total daily dose to TDS regime
Ropinirole	Tablets (standard release)	Continue current regime, standard release tablets will disperse in water
	Modified Release Tablets	Convert to standard release tablets. Convert total daily dose to TDS regime
Rasagiline	Tablets	Continue current regime, tablets can be crushed and mixed in water
Selegeline	Tablets	Continue current regime, tablets will disperse in water.
	Orodispersible tablets	Note: 1.25 mg of Orodispersible tablets =10 mg standard tablet. No change required if buccal route is safe.
Entacapone	Tablets	Continue current regime. Place tablet in an oral syringe and add 10 ml of water. It will slowly disperse. Do not crush as the dust will stain skin and clothing*
Co-Careldopa + Entacapone (e.g. Stalevo®, Sastravi® etc.)	Tablets	Continue by changing prescription to individual components (Co-Careldopa + Entacapone). See above for details*. If NG tube, switch Co-Careldopa to dispersible Co-beneldopa.
Amantadine	Capsules	Continue current regime, capsules can be opened and contents will dissolve in water.

Table 2. Rotigotine conversion table if only on levodopa (with or without COMT inhibitor) preparation

Before commencing this drug in a dopamine agonist naïve patient, caution needs to be exercised as it can cause nausea, vomiting, skin reaction, hypotension, hallucinations and increased confusion. Start low and go slow in patients with dementia/delirium. Specialist opinion needs to be sought as soon as possible. Once commenced on the patch the strength needs to be monitored on a regular basis. At the earliest available opportunity, consider putting the patient back on usual drug regime.		
Current levodopa regime *For Modified Release preparation see red box below	**Rotigotine equivalent Normal cognition**	**Rotigotine equivalent Dementia/Delerium**
Madopar or Sinemet 62.5 mg BD	2 mg /24 hours	2 mg /24 hours
Madopar or Sinemet 62.5 mg TDS	4mg /24 hours	4 mg /24 hours
Madopar or Sinemet 62.5 mg QDS	6 mg /24 hours	4 mg /24 hours
Madopar or Sinemet 125 mg TDS	8 mg /24 hours	6 mg /24 hours
Madopar or Sinemet 125 mg QDS	10 mg /24 hours	6 mg /24 hours
Madopar or Sinemet 187.5 mg TDS	12 mg /24 hours	8 mg /24 hours
Madopar or Sinemet 187.5 mg QDS	14 mg /24 hours	10 mg /24 hours
Madopar or Sinemet 250 mg TDS	16 mg /24 hours	12 mg /24 hours
Madopar or Sinemet 250 mg QDS	16 mg /24 hours	12 mg /24 hours
Stalevo / Sastravi / Stanek 50/12.5/200 TDS	6 mg /24 hours	4 mg /24 hours
Stalevo / Sastravi / Stanek 100/25/200 TDS	10 mg /24 hours	6 mg /24 hours
Stalevo / Sastravi / Stanek 100/25/200 QDS	14 mg /24 hours	10 mg /24 hours
Stalevo / Sastravi / Stanek 150/37.5/200 TDS	16 mg /24 hours	12 mg /24 hours
Stalevo / Sastravi / Stanek 200/50/200 TDS	16 mg /24 hours	12 mg /24 hours
Maximum dose of Rotigotine is 16 mg/24 hours. Patches are available in 2mg/4mg/6mg/8mg strengths. Do not cut patches to achieve correct dose. *100 mg of levodopa modified-release (MR) is approximately equivalent to 2mg/24 hours Rotigotine, therefore if patient is on MR levodopa preparations please increase equivalent by 2mg/24 hours. E.g. if patient is on Madopar 62.5 mg TDS and Madopar MR nocte: equivalent Rotigotine dose = 6 mg/24 hours.		

Table 3. Switching guidelines from oral dopamine agonist to Rotigotine transdermal patch

Pramipexole (salt content)	Ropinirole Standard release	Ropinirole Modified Release	Rotigotine transdermal patch
0.125 mg TDS	Starter pack	NA	2 mg/24 hours
0.25 mg TDS	1mg TDS	4 mg/day	4 mg/24 hours
0.5mg TDS	2 mg TDS	6 mg/day	6 mg/24 hours
0.75 mg TDS	3 mg TDS	8 mg/day	8 mg/24 hours
1 mg TDS	4 mg TDS	12 mg/day	10-12 mg/24 hours
1.25 mg TDS	6 mg TDS	16 mg/day	14 mg/24 hours
1.5 mg TDS	8 mg TDS	24 mg/day	16 mg/24 hours
Maximum dose of Rotigotine is 16 mg/24 hours. Patches are available in 2mg/4mg/6mg/8mg strengths. Do not cut patches to achieve correct dose. Caution needs to be exercised in patients with dementia/delirium. It is advisable to start low and go slow with this particular group. For further information please refer to product SPC			

Table 4. Switching guidelines from other Parkinson's Disease drugs to Rotigotine transdermal patch

Drug	2mg Rotigotine Patch Equivalence
Rasagiline	1mg
Selegiline	10mg
Safinamide	Do not convert -Discuss with Specialist team
Entacapone	Do not convert -Discuss with Specialist team
Opicapone	Do not convert -Discuss with Specialist team
Tolcapone	Do not convert -Discuss with Specialist team
Amantadine	Do not convert -Discuss with Specialist team

Online Parkinson's Medication Calculators

The use of online Parkinson's medication calculators is **not** recommended.
There are two commonly used online calculators designed to assist with the conversion of Levodopa to topical Rotigotine:

- PDMedCalc
- OPTIMAL

It is important to note that these calculators employ different formulae for conversion, which may lead to significant dose discrepancies. This is especially relevant when the total daily Levodopa dose is less than 500 mg, as 'PDMedCalc' often produces a lower equivalent dose compared to other tools.
The current 'OPTIMAL' calculator has been found to have issues with intra-calculator variability and is not UKCA marked. As such, its use is not recommended by our team. Always exercise caution and consult with a specialist when interpreting calculator results.

Advanced Therapies

Patients receiving advanced therapies for Parkinson's disease should be managed on wards with access to specialist movement disorder expertise, unless there is an overriding necessity to be under a different medical team, such as for surgical procedures like a laparotomy.

Inbrija

What it is Inbrija® is an inhaled formulation of levodopa used to treat **"OFF" episodes** in Parkinson's disease — the periods when oral medication wears off and motor or non-motor symptoms return. It bypasses the gut (important in PD, where gastric emptying is often delayed), giving faster symptom relief than oral top-up doses.
Who it's for Patients already established on oral levodopa/dopa-decarboxylase inhibitor plus a COMT inhibitor, who can recognise their OFF symptoms and operate (or have a carer to operate) the inhaler. It is a **3rd-line rescue option**, used before escalation to apomorphine or Produodopa. It will be initiated and monitored by the Parkinson's specialist.
Dose 2 capsules (each 33 mg levodopa) inhaled per OFF episode, up to 5 times per day. Maximum 10 capsules (330 mg) in 24 hours.
Shared Care Guideline

Apomorphine

Apomorphine may be administered either intermittently or as a continuous subcutaneous infusion. Management of patients on Apomorphine should follow the Hospital Guideline for Apomorphine https://www.gloshospitals.nhs.uk/gps/gloucestershire-joint-formulary/treatment-guidelines/apomorphine-in-parkinsons-disease/. Continue Apomorphine at the prescribed dose and frequency or infusion rate, ensuring the following:

- **DO NOT** alter the pump settings.
- Change the infusion line every 12 hours.

Duodopa® (levodopa / carbidopa)

Duodopa is an intestinal gel formulation of levodopa administered via infusion. The medication should be continued at the prescribed rate, provided that gastric emptying is not delayed and the PEJ (percutaneous endoscopic jejunostomy) tube remains patent. If these conditions are not met, discontinue the infusion and commence Rotigotine patches. For assistance:

- During working hours, contact Parkinson's Disease Nurses or the Neurology SPR.
- Out of hours, contact the Medical Registrar and/or Neurology SPR at Southmead Hospital.
- The Duodopa National Helpline is 0800 458 4410(2).
- **DO NOT** change the pump settings.

Deep Brain Stimulation (DBS)

Patients with Deep Brain Stimulation should continue their usual medication regimen. An oral drug list will be available as a contingency should DBS fail, enabling the patient to revert to oral medication. **DO NOT** adjust DBS device settings without specialist advice.

Produodopa® (foslevodopa / foscarbidopa)

Produodopa (Foslevodopa) is a subcutaneous infusion of levodopa delivered over 24 hours. Patients may select a high, normal, or low flow rate on the pump, typically opting for a lower setting during sleep. Key considerations include:

- **DO NOT** alter the clinician pump settings without approval from a movement disorders specialist.
- An oral drug list will be provided for use in case of pump failure.
- The subcutaneous delivery device can be used for 1 to 3 days; ideally, rotate the site on the abdomen daily to minimise skin reactions.
- If absorption from the abdominal subcutaneous tissue is a concern or if the abdomen cannot be used (e.g., due to oedema or recent abdominal surgery), consider alternative sites such as the top of the thighs or the triceps region of the arms.

Surgical Considerations for Patients with Parkinson's Disease

Preoperative and Perioperative Planning

For elective surgical procedures, it is important to consider both preoperative and postoperative requirements, particularly if the patient is to remain nil by mouth (NBM) following surgery. Elective patients should be identified during their clinic visit and again during their pre-operative assessment. The Enhanced Recovery After Surgery (ERAS) approach should be utilised, involving a multidisciplinary team that includes anaesthetists, surgeons, nurses, neurologists, psychiatrists, and allied health professionals.

A pre-operative order set tailored to surgical patients with Parkinson's disease should be employed. Patients are permitted to take their oral medication with clear liquids up to two hours prior to surgery. Where feasible, schedule patients at the beginning of operating lists and earlier in the day. It is essential to confirm the timing of the operation with the anaesthetist. Regional anaesthesia should be considered wherever possible, as it allows patients to continue their oral medication regimen.

For longer surgical procedures, it may be necessary to calculate the levodopa equivalent dose (LEDD). In such cases, consider short-term nasogastric administration with soluble levodopa or topical conversion to a Rotigotine patch.

Postoperative Considerations

Certain circumstances require additional attention, including abdominal surgical procedures that necessitate a longer postoperative fasting period, peri- or postoperative intestinal absorption disorders such as ileus, and situations where nutrition via nasogastric tube is indicated, for example following prolonged ventilation.

Deep Brain Stimulation (DBS) During Surgery

For patients with Deep Brain Stimulators, the devices should be switched off immediately prior to surgery. Diathermy should be avoided, and bipolar electrosurgical devices are preferred over monopolar devices; they should be used at the lowest energy setting possible and in brief bursts.
Given these complexities, meticulous coordination across the multidisciplinary team is essential to optimise outcomes and minimise risks for patients with Parkinson's disease undergoing surgery. Proactive planning, clear communication of medication adjustments, and vigilant monitoring for complications can significantly improve recovery trajectories, support patient safety and facilitating earlier discharge where appropriate.

Patients with Parkinson's disease are at increased risk of postoperative complications, experience longer hospital stays, and have a higher overall mortality rate. Common complications include pulmonary aspiration, urinary tract infection, wound infection, respiratory insufficiency, hypotension, delirium, and pressure sores.

Supportive Measures

Supportive interventions such as early mobilisation, rehydration, and assessment for dysphagia should be implemented promptly. These measures facilitate a rapid return to oral pharmacotherapy for patients' post-surgery.

Further Advice and Support

For additional guidance regarding the management of patients with Parkinson's disease, please seek advice from the Care of the Elderly or Neurology teams through the Electronic Patient Record (EPR) system.

Out of Hours Contacts

If support is required outside of normal working hours, contact the on-call Medical Registrar via Bleep 2290 at Gloucestershire Royal Hospital (GRH) or 1689 at Cheltenham General Hospital (CGH).

Urgent Medicines Advice

Should urgent advice on medications be needed out of hours, the on-call pharmacist is available to assist.

Medicines Information

For medicines information during normal working hours, contact CGH extension 3030 or GRH extension 6108.

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