Gloucestershire Hospitals NHS Foundation Trust

Parkinson's Disease: management of inpatients (including those with swallowing difficulty)

1. Introduction

Parkinson's disease (PD) is the second most common neurodegenerative disorder, characterised by bradykinesia, resting tremor and rigidity with a life time risk of 2% in men and 1.3% in women. PD patients are hospitalised in varying frequencies between 7-28% per year. They are 1.5 times more likely to be hospitalised than non-PD patients and are likely to stay on average 2-14 days longer than non PD cohort. Hospital admissions of PD patients are often problematic especially so if admitted to a non-specialist ward. Problem areas include exact timing or lack of medication, administration of contra-indicated drugs, complications due to immobilization, and psychiatric disorders triggered by hospital admissions.

These guidelines are aimed pre-dominantly at junior doctors to enable them to manage patients with Parkinson's disease when they are admitted acutely (either under the medical or surgical teams).

2. Key Messages

- Avoid abrupt withdrawal of anti-Parkinson's medications – it can be life threatening
- DO NOT prescribe dopamine antagonists e.g. Haloperidol, Metoclopramide, Prochlorperazine (Stemetil®), Promethazine (Phenergan®). Alternative drugs such as Domperidone or Ondansetron should be considered for nausea and vomiting. Follow this link for updated advice about Domperidone following recent MHRA recommendations. https://www.gloshospitals.nhs.uk/gps/treatment-guidelines/domperidone/
- Please seek early input from the Mental Health Liaison Team if the patient has presented with acute confusional state. Preferred drug of choice for acute agitation (which cannot be managed by non-pharmaceutical measures) is Lorazepam (0.5 -1mg prn). *For further information refer to the Trust emergency sedation policy.* https://intranet.gloshospitals.nhs.uk/policies-and-guidelines/a0143-emergency-sedation-policy/
- Seek early specialist advice click here.
- Actively look for infections and their source, constipation, electrolyte abnormalities and recent changes to medications. DO NOT increase or change Parkinson's medications at this stage. Managing above factors and allowing time is often sufficient to return a patient to their baseline.
- Establish patient's usual PD medication regime as soon as possible and prescribe accurately on the prescription chart. Prescription of drugs should reflect patients' usual drug timings rather than usual hospital drug rounds.
- For peri-operative management of patients with PD refer to Table 4.

3. Clinical management in first 48 hours

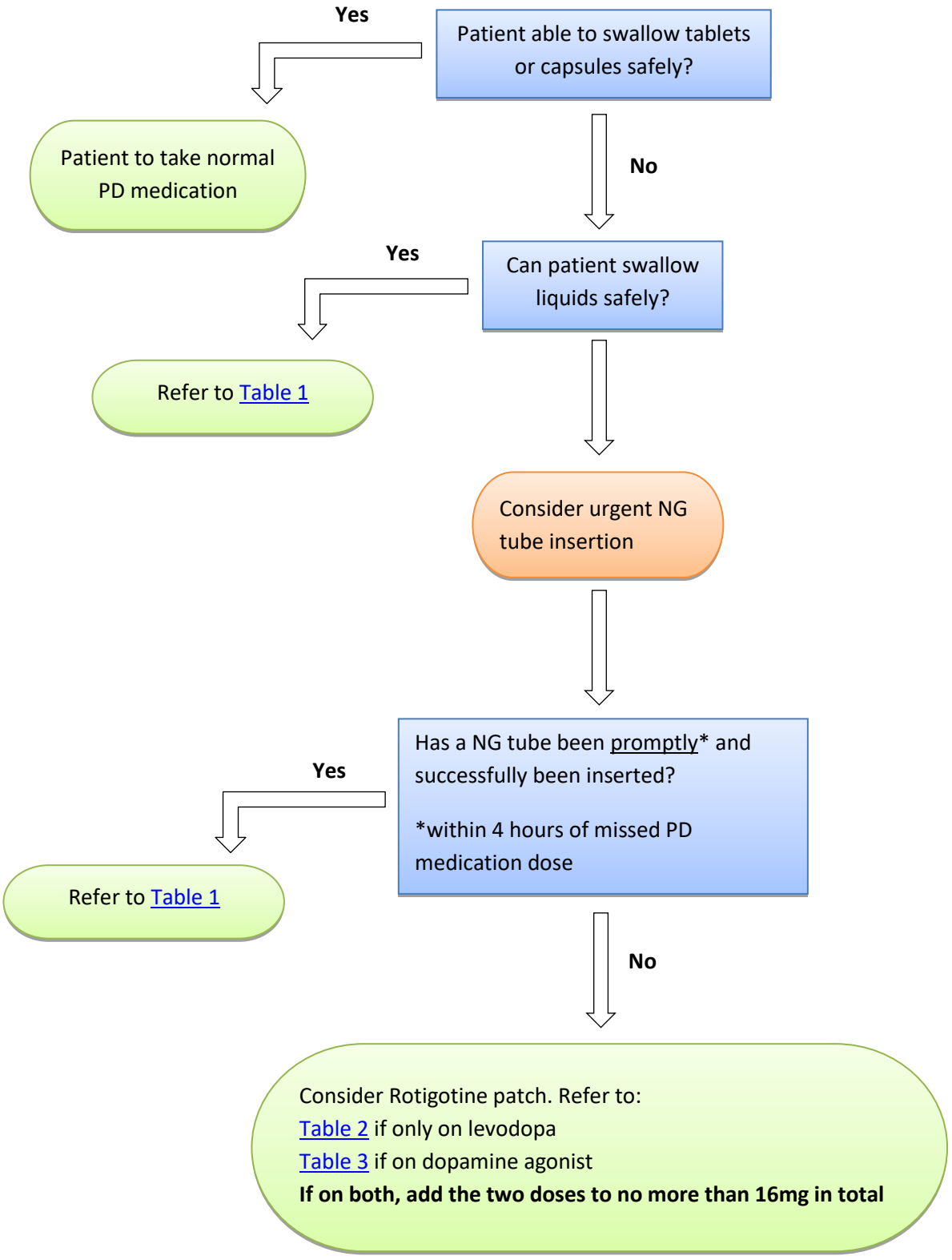

Table 1. Management of Parkinson's disease patients with swallowing difficulties or feeding tubes in situ.

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 (plain release)	Continue current regime, plain 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 immediate 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 (plain release)	Continue current regime, plain release tablets will disperse in water
	Modified Release Tablets	Convert to plain release tablets. Convert total daily dose to TDS regime
Ropinirole	Tablets (plain release)	Continue current regime, plain release tablets will disperse in water
	Modified Release Tablets	Convert to plain 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 CR preparation see red box below	**Rotigotine equivalent Normal cognition**	**Rotigotine equivalent Dementia/Delirium**
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	4mg /24 hours
Madopar or Sinemet 62.5 mg QDS	6 mg /24 hours	4mg /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	4mg /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 CR is approximately equivalent to 2mg/24 hours Rotigotine, therefore if patient is on CR levodopa preparations please increase equivalent by 2mg/24 hours. E.g. if patient is on Madopar 62.5 mg TDS and Madopar CR 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
0.5 mg 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. Perioperative management of patients with Parkinson's disease

Operating list: Place first on the list.
Review dosing regimen: If timing of PD medication is going to clash with surgery the regimen needs to be altered. Please contact PD Team for advice regarding alteration of timings.
Review regular medication prior to surgery. Ensure morning doses of all PD medications are prescribed. Clearly mark drug chart that they must be given prior to surgery.
If the total duration of surgery or NBM status is going to be longer than 6 hours please contact PD Team. Rotigotine transdermal patch may need to be considered for this period.
Deep Brain Stimulation: Ensure surgeon is aware of this as diathermy will be contra-indicated.

For further advice contact:

1. Elderly-Care-CGH-Referral-Form
   http://www.elderlycarecgh.erefer.glos.nhs.uk/
2. Elderly-Care-GRH-Referral-Form
   http://www.elderlycaregrh.erefer.glos.nhs.uk/
3. Neurology Referral Form (Trust wide)
   http://www.neurology.erefer.glos.nhs.uk/
4. If urgent advice is needed out of hours consider contacting the on call pharmacist.
5. Medicines information CGH ext 3030 or GRH ext 6108 during normal working hours.

References:

1. Brennan et al. Managing Parkinson's disease during surgery. BMJ Nov 1;341:990-993
2. Gerlach et al. Clinical Problems in the Hospitalised Parkinson's disease Patient: Systematic Review. Mov Disorder. Feb 1, 2011; 26(2): 197–208
3. http://www.parkinsonscalculator.com/

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