BRITISH JOURNAL OF HOSPITAL MEDICINE

DOCTORS IN TRAINING

How to Manage an Individual Living with Parkinson's Disease Who Acutely Cannot Swallow

Mayu Teranaka[1,*], Wakana Teranaka[2], Howell T Jones[3,4]

[1]Department of Geriatric Medicine, Watford General Hospital, Hertfordshire, UK
[2]Department of Geriatric Medicine, Homerton University Hospital, London, UK
[3]Department of Geriatric Medicine, Royal Free Hospital, London, UK
[4]Institute for Global Health, University College London, London, UK
*Correspondence: mayu.teranaka@nhs.net (Mayu Teranaka)

Abstract

Parkinson's disease (PD) is a common neurodegenerative condition that can lead to problems swallowing. Individuals living with PD may be unable to take medications orally for various reasons including acute or chronic dysphagia, non-PD related causes and being placed nil-by-mouth for elective reasons. This article outlines a five-step approach to managing an individual living with PD who is unable to take oral medication acutely. This includes assessment for the appropriateness of nasogastric tube insertion and the conversion of an individual's usual medication regimen to either a dispersible one or to a topical patch if a nasogastric tube is not possible. A patient-centred multidisciplinary approach is important, with shared decision-making involving the individual and their next of kin with key members including the Speech and Language Therapy and dietetic teams. The patient should be reviewed daily with their medication titrated according to clinical response, aiming to restart their usual regimen as soon as possible.

Key words: Parkinson's disease; geriatrics; frail older adults; neurology; dysphagia

Submitted: 9 August 2024 Revised: 12 September 2024 Accepted: 24 September 2024

Introduction

Parkinson's disease (PD) is a neurodegenerative disease where there is early prominent death of dopaminergic neurones in the substantia nigra pars compacta (Kalia and Lang, 2015). The resultant dopamine deficiency within the basal ganglia leads to the principal symptoms of tremor, stiffness, and slowness of movement (Kalia and Lang, 2015; Clarke, 2007). On examination one may find the clinical signs of resting tremor, rigidity on passive movement and bradykinesia (Clarke, 2007). These features tend to be unilateral at onset, but become bilateral as the condition progresses (Clarke, 2007). Late symptoms include postural instability and falls, orthostatic hypotension, and dementia (Clarke, 2007). PD can also lead to dysphagia and subsequent aspiration pneumonia with the latter being a main contributor to mortality (Lethbridge et al, 2013).

PD affects approximately 150,000 individuals in the United Kingdom, with 1 in 37 people alive today expected to be diagnosed with Parkinson's in their lifetime (Parkinson's UK, 2018). It is associated with significant mortality and morbidity

How to cite this article:
Teranaka M, Teranaka W, Jones HT. How to Manage an Individual Living with Parkinson's Disease Who Acutely Cannot Swallow. Br J Hosp Med. 2025. https://doi.org/10.12968/hmed.2024.0518

and was the most common neurological condition leading to death between 2001 and 2014 (Public Health England, 2017).

Individuals living with PD may be unable to take medications orally for a variety of reasons (Fig. 1). Firstly, there can be acute situations where an individual living with PD cannot swallow. This can be due to sudden changes such as missed medication doses or concurrent illness such as infection (Alty et al, 2016). PD does impact swallowing as the condition progresses, but dysphagia can present earlier with Parkinson's plus syndromes (Müller et al, 2001). There may also be occasions where factors other than PD impact swallowing such as an acute stroke or situations where an individual living with PD is scheduled to be nil-by-mouth prior to surgery (Gerlach et al, 2011).

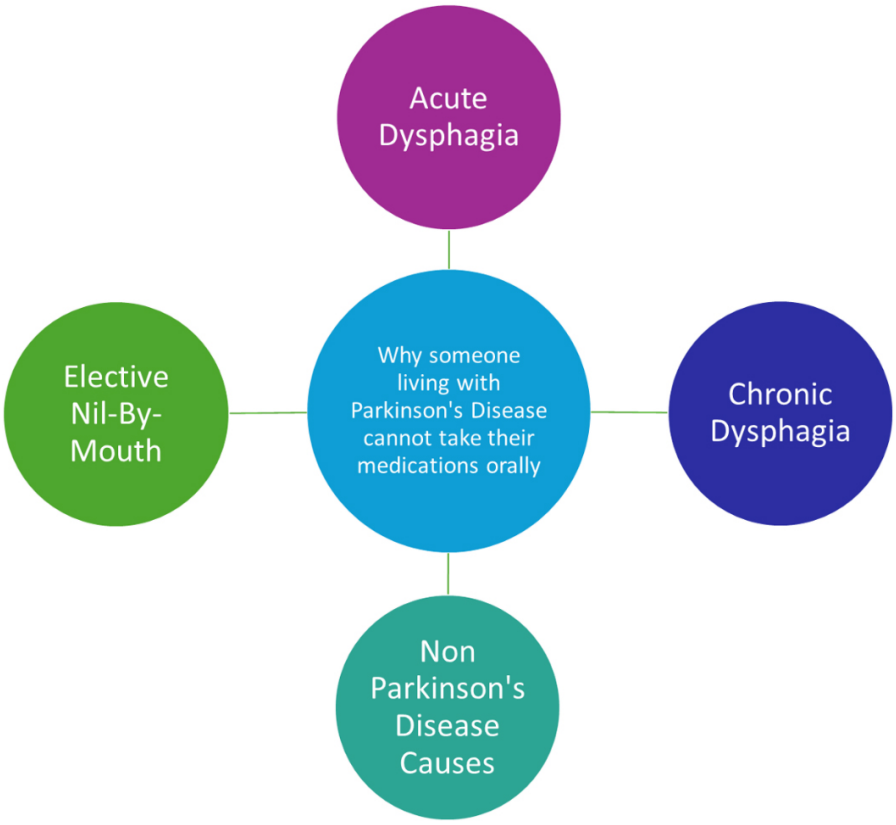

Fig. 1. Reasons why an individual living with Parkinson's disease may not be able to take their medication orally.

It is important to manage each of these situations with a holistic approach with each case requiring different members of the multidisciplinary team (MDT) (Table 1). Where available, the involvement of a specialist Parkinson's team should be considered.

One key priority is to establish an appropriate alternative regimen of PD medications, as omission or delay in their medications can lead to significant morbidity. Firstly, their PD symptoms may rapidly deteriorate triggering worsening motor and non-motor symptoms, increasing the risk of complications such as falls and aspiration pneumonia. Secondly, abruptly stopping PD medications can cause an abrupt

Table 1. Multidisciplinary team involvement in managing an individual with Parkinson's disease who is unable to tolerate oral medications.

Team member	Indication
Speech and Language Therapy	• Formal swallow assessment and recommendations including nasogastric tube insertion • Swallow rehabilitation as appropriate
Occupational Therapy	• Identification of functional barriers to oral intake, e.g., reduced grip strength • Recommendations regarding additional support or equipment
Physiotherapy	• Chest physiotherapy to aid the clearance of secretions
Pharmacist	• Advice regarding PD medication regimens and formulations
Dietetics	• Enteral nutritional support
Palliative care team	• Support discussions regarding advance care planning • Symptom management

PD, Parkinson's disease.

reduction in the stimulation of dopaminergic neurons. This in turn can increase the risk of neuroleptic malignant-like syndrome, a life-threatening condition characterised by hyperthermia, muscle rigidity and altered mental status (Alty et al, 2016).

How to Manage Acute Dysphagia in an Individual Living with Parkinson's Disease

In an acute setting, an individual with PD may experience decompensation of symptoms and impaired swallowing (Alty et al, 2016). In this case, an urgent review by the Speech and Language Therapy (SALT) team should be arranged to ascertain whether it is safe to continue eating, drinking and taking medications orally, and if so if any modifications are recommended. Discussions about making someone living with PD nil-by-mouth (NBM) should always involve them, their next of kin and when possible, the SALT team (Royal College of Speech and Language Therapists, 2021). However, if the SALT team are not available and you are concerned regarding acute dysphagia, it is safer to place someone with PD NBM as long as you have a strategy in place.

This article describes a five-step process for the management of acute dysphagia in someone living with PD (Fig. 2) with an emphasis on establishing an alternative PD medication regimen (Alty et al, 2016; Healthcare Improvement Scotland and Right Decision Service, 2024). A hypothetical case example (Fig. 3) demonstrates how this approach may be applied in clinical practice.

There are additional ethical considerations outside the scope of this article, such as mental capacity and end-of-life care. These should be considered when making the care decisions outlined in this framework.

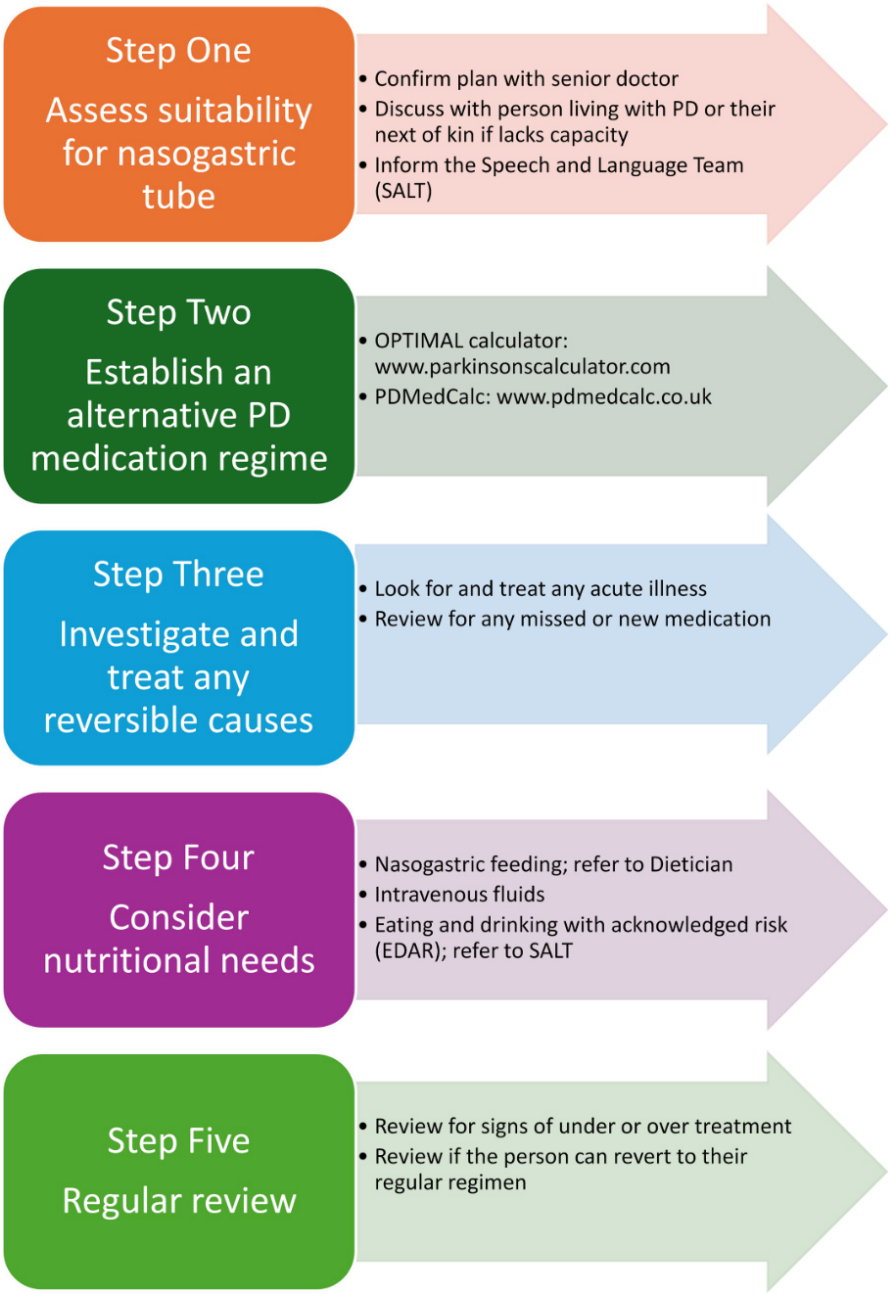

Fig. 2. How to manage acute dysphagia in living with Parkinson's disease (PD).

Step 1: Assess Suitability for Nasogastric Tube Insertion

The insertion of a nasogastric tube (NGT) is often the preferred option as it allows the administration of PD medications as similar to the patient's usual oral regimen as possible. When appropriate a NGT should be inserted at the earliest opportunity. However, NGT insertion is not without risks including misplacement, aspiration pneumonia, oesophageal perforation and pneumothorax (Yardley and Donaldson, 2010). There are also contraindications to NGT insertion such as maxillofacial trauma, basal skull fracture, nasopharyngeal or oesophageal obstruction, uncorrected coagulation abnormalities or recent oesophageal intervention, such as oesophageal banding (Vadivelu et al, 2023).

Table 2. Class-specific considerations for Parkinson's disease medications.

Apomorphine	• If admitted on apomorphine pump, this should be continued until advised to deter by an on-call neurologist or pharmacist • The manufacturer also provides a 24-hour telephone advice helpline
Monoamine oxidase B inhibitors (MAOB-I), e.g., Rasagiline, Selegiline	• Usually safe to omit short-term
Amantadine	• Usually safe to omit short-term • Small risk of acute dystonic reaction associated with rapid withdrawal
Catechol-O-methyltransferase (COMT) inhibitors, e.g., Entacapone, Tolcapone	• Usually safe to omit short-term

The decision to insert an NGT should be made by a senior clinician, and the patient and their next of kin should be counselled appropriately on the risks and benefits. If there are concerns regarding the patient's capacity, a formal capacity assessment should be performed in accordance with the Mental Capacity Act 2005. In cases where capacity is lacking, it is important to confirm if there are any pre-existing wishes, which may have been informally discussed with their next of kin, or formally documented in the form of Advance Decisions or Directives. These should be taken into account when making a decision in their best interests, and a Deprivation of Liberty Safeguard (DoLS) should be completed (McSorley, 2020).

Step 2: Establish an Alternative Parkinson's Disease Medication Regime

Adjustments to a patient's medication should be guided by their regular clinician, with input from a pharmacist. However, at times when this is not possible, there are two online calculators that can be used to formulate a new medication regimen:

- OPTIMAL Calculator (https://www.parkinsonscalculator.com).
- PDMedCalc (https://pdmedcalc.co.uk/).

Both tools can be used to calculate the equivalent levodopa dose from the patient's usual PD regimen, which can then be converted into options for whether an NGT has or has not been inserted.

If an NGT is inserted, the patient's usual regimen should be converted into an equivalent one of dispersible levodopa such as co-beneldopa (Madopar). Doses should be administered at the same times as the patient would have taken their oral medication.

In cases where an NGT is not inserted, the patient's usual medication should be converted to the transdermal route using a rotigotine patch. The dosage should be rounded to the nearest 2 mg (up to a maximum dose of 16 mg/24 hours). A reduced dose may be appropriate in patients with concurrent delirium or underlying dementia (Ibrahim et al, 2021). Less commonly, it may be appropriate to consider a subcutaneous administration of apomorphine. However, this should be performed

Table 3. Common reversible triggers of acute Parkinson's disease decompensation.

Acute illness	• Delirium • Infection • Dehydration • Constipation • Electrolyte disturbances • Stroke
Missed medication	• Delayed prescription • Unavailable medication
New anti-dopaminergic medication	• Antiemetics—metoclopramide, prochlorperazine, chlorpromazine • Typical antipsychotics—promethazine, haloperidol, flupentixol • Atypical antipsychotics—risperidone, olanzapine, quetiapine, aripiprazole • Antidepressants—St Johns Wort, amoxapine • Analgesics—tramadol • Antibiotics—linezolid • Decongestants—pseudoephedrine, phenylephrine, ephedrine • Antihypertensives—methyldopa

under specialist supervision (Thomas et al, 2003). Most other PD medications are safe to withhold in the short-term (Table 2).

Step 3: Investigate and Treat any Reversible Causes

An acute deterioration of swallowing is often triggered by concurrent acute issues. Reversal of these triggers may lead to an improvement in swallowing, allowing a person's usual PD medication regimen to be reinstated (Table 3).

Step 4: Consider Nutritional Needs

If an NGT is inserted the patient living with PD should be started on an appropriate enteral feeding regimen. This should be established with the involvement of a dietitian. If an urgent dietitian review is not possible, follow local guidance regarding emergency enteral feeding regimens.

If an NGT is not available, a shared decision-making process may be necessary to consider the appropriateness of eating and drinking with acknowledged risks (Royal College of Speech and Language Therapists, 2021). This process should include discussions with the patient living with PD to explain the risks and benefits, as well as discussing their wishes (Royal College of Speech and Language Therapists, 2021). If they lack the capacity to consent, guidance on clinically assisted nutrition and hydration may be consulted ensuring to involve any next of kin or proxies (British Medical Association and Royal College of Physicians, 2018).

Step 5: Regular Review

While the individual with Parkinson's disease is experiencing swallowing difficulties, their medication and management plan should be reviewed at least once daily. The aim is to restart their regular PD medication regimen as soon as possible.

If this is not possible you should assess for undertreatment by looking for the classical signs of PD or for over-treatment causing dyskinesia or delirium (Kalia and Lang, 2015).

Regular reassessment by the SALT team may be helpful for swallow rehabilitation, and to guide an appropriate time when oral intake may be safely resumed. It is important for the patient and their family to be updated on this progress.

Background
Mrs Brown is a 76-year-old woman living with Parkinson's Disease (PD). Her son, Paul, called for an ambulance when he visited her at home and found her confused. She usually takes co-careldopa 62.5 mg four times daily at 6 am, 10 am, 2 pm and 6 pm. She is due to take her 2 pm dose, but the Emergency Department (ED) nurse performs a bedside swallow assessment and deems her unsafe to take oral medications. Unfortunately, the Speech and Language Therapy (SALT) team are unavailable as she is admitted on the weekend.

Step 1 Assess suitability for nasogastric tube (NGT) insertion
On assessment, Mrs Brown appears to have increased rigidity in her arms and is bradykinetic. Due to her confusion, she is felt to lack the capacity to consent to NGT insertion. This is discussed with her son, Paul, who feels that she would want the medical team to proceed with any treatments for reversible causes of acute deterioration. A decision is made to insert an NGT in her best interests. This is discussed with the medical consultant, who agrees.

Step 2 Establish an alternative Parkinson's disease medication regime
Mrs Brown's usual PD physician is unavailable as it is the weekend. Her case is discussed with the on-call neurology team who agree with the plan to insert a NGT and initiate an alternative medication regimen using the OPTIMAL calculator. Unfortunately, the equipment for NGT is unavailable in ED, so she is initially started on a transdermal rotigotine patch. The appropriate conversion dose is 4 mg/24 hours in individuals with delirium. This is prescribed and administered. At the earliest possible opportunity, an NGT is inserted and the rotigotine patch is changed to dispersible Madopar 62.5 mg, at the same times as her usual co-careldopa regimen.

Step 3 Investigate and treat any reversible causes
Mrs Brown is found to have raised inflammatory markers. A bladder scan also confirms urinary retention. Following a clinical assessment, she is diagnosed with a urinary tract infection and is started on antibiotics according to local guidelines. A urinary catheter is also inserted to treat the retention. Her son Paul confirms that there have been no recent changes to her medications.

Step 4 Consider nutritional needs
There is no dietitian available as it is the weekend, so Mrs Brown is started on an out-of-hours emergency enteral feeding regimen via the NGT, according to local guidelines.

Step 5 Regular review
The medical consultant reviews Mrs Brown the following day. She has improved significantly and is no longer confused. Her PD symptoms are well-controlled, with no adverse effects. The consultant explains the events of the previous day and the current medical plan. An urgent referral is made to the SALT team, who review her promptly and deem her safe to resume oral intake. The NGT is removed and her usual PD regimen is resumed. Paul is concerned that she is not at her baseline mobility, so she is also reviewed by the physiotherapists. She continues to recover well and is discharged home two days later.

Fig. 3. Case example. This is a hypothetical case and does not represent a real patient. The purpose of including a hypothetical case is to demonstrate how the 5-step approach may be implemented in practice.

Conclusion

In conclusion, individuals living with PD often present with problems swallowing when acutely unwell or there have been changes to their medication. This

requires a multidisciplinary, patient-centred approach to its management. This typically involves the conversion of their normal medication to either a dispersible form administered via an NGT or to a transdermal rotigotine patch. Prompt identification and management of the underlying cause is essential to reduce morbidity and mortality.

Furthermore, the patient's mental capacity may fluctuate during periods of acute illness, which may be formally assessed in accordance with the Mental Capacity Act 2005. Where capacity is lacking, there should be shared decision-making in their best interests, taking into consideration any pre-morbid opinions.

It is important to holistically reassess the effectiveness of treatment with regular SALT and other MDT input, and the usual oral PD medication regimen should be reinstated at the earliest possible opportunity. Throughout this process, it is vital that the patient living with PD and their next of kin remain central to all care decisions.

Key Points

- Dysphagia is a common symptom for individuals living with PD and can be both acute and chronic, and if not managed effectively is associated with high levels of morbidity and mortality.
- All decisions made should involve the patient living with PD or their next of kin should they lack capacity.
- Multidisciplinary team input is recommended for individuals living with PD who develop acute dysphasia.
- Suitability for nasogastric tube insertion should be assessed urgently and conversion to a soluble medication regimen undertaken where possible or conversion to a transdermal rotigotine patch.
- Alternative medication regimens should aim to replicate the patient's usual regimen where possible and abrupt cessation of dopaminergic agonists should be avoided as there is a high risk of worsening Parkinson's disease symptoms and neuroleptic malignant-like syndrome.

Curriculum Checklist

- Able to deal with ethical and legal issues related to clinical practice.
- Communicates effectively and is able to share decision-making, while maintaining appropriate situational awareness, professional behaviour and professional judgement.
- Managing an acute unselected take.
- Providing continuity of care to medical inpatients, including management of comorbidities and cognitive impairment.
- Managing a multi-disciplinary team including effective discharge planning.

Availability of Data and Materials

All the data of this study are included in this article.

Author Contributions

MT, WT and HTJ made substantial contributions to the conception of the work. MT and WT drafted the manuscript under the supervision of HTJ. All authors contributed to important editorial changes of important content in the manuscript. All authors read and approved the final manuscript. All authors have participated sufficiently in the work and agreed to be accountable for all aspects of the work.

Ethics Approval and Consent to Participate

Not applicable.

Acknowledgement

Not applicable.

Funding

This research received no external funding.

Conflict of Interest

The authors declare no conflict of interest.

References

Alty J, Robson J, Duggan-Carter P, Jamieson S. What to do when people with Parkinson's disease cannot take their usual oral medications. Practical Neurology. 2016; 16: 122–128. https://doi.org/10.1136/practneurol-2015-001267

British Medical Association and Royal College of Physicians. Clinically assisted nutrition and hydration (CANH) and adults who lack the capacity to consent. 2018. Available at: https://www.bma.org.uk/media/1161/bma-clinically-assisted-nutrition-hydration-canh-full-guidance.pdf (Accessed: 9 August 2024).

Clarke CE. Parkinson's disease. BMJ (Clinical Research Ed.). 2007; 335: 441–445. https://doi.org/10.1136/bmj.39289.437454.AD

Gerlach OHH, Winogrodzka A, Weber WEJ. Clinical problems in the hospitalized Parkinson's disease patient: systematic review. Movement Disorders. 2011; 26: 197–208. https://doi.org/10.1002/mds.23449

Healthcare Improvement Scotland, Right Decision Service. Parkinson's disease - inpatient management. 2024. Available at: https://rightdecisions.scot.nhs.uk/tam-treatments-and-medicines-nhs-highland/therapeutic-guidelines/nervous-system/parkinsons-disease/parkinsons-disease-inpatient-management-inc-nil-by-mouth-guidelines/ (Accessed: 9 August 2024).

Ibrahim H, Woodward Z, Pooley J, Richfield EW. Rotigotine patch prescription in inpatients with Parkinson's disease: evaluating prescription accuracy, delirium and end-of-life use. Age and Ageing. 2021; 50: 1397–1401. https://doi.org/10.1093/ageing/afaa256

Kalia LV, Lang AE. Parkinson's disease. Lancet. 2015; 386: 896–912. https://doi.org/10.1016/S0140-6736(14)61393-3

Lethbridge L, Johnston GM, Turnbull G. Co-morbidities of persons dying of Parkinson's disease. Progress in Palliative Care. 2013; 21: 140–145. https://doi.org/10.1179/1743291X12Y.0000000037

McSorley A. Deprivation of Liberty Safeguards. InnovAiT. 2020; 13: 53–58. https://doi.org/10.1177/1755738019885398

Müller J, Wenning GK, Verny M, McKee A, Chaudhuri KR, Jellinger K, et al. Progression of dysarthria and dysphagia in postmortem-confirmed parkinsonian disorders. Archives of Neurology. 2001; 58: 259–264. https://doi.org/10.1001/archneur.58.2.259

OPTIMAL Calculator. Available at: https://www.parkinsonscalculator.com (Accessed: 9 August 2024).

Parkinson's UK. The incidence and prevalence of Parkinson's in the UK. Results from the Clinical Practice Research Datalink 2018. Available at: http://www.parkinsons.org.uk (Accessed: 9 August 2024).

PDMedCalc. Available at: https://pdmedcalc.co.uk/ (Accessed: 9 August 2024).

Public Health England. Deaths associated with neurological conditions in England 2001 to 2014. 2017. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/683860/Deaths_associated_with_neurological_conditions_data_analysis_report.pdf (Accessed: 9 August 2024).

Royal College of Speech and Language Therapists. Eating and drinking with acknowledged risks: Multidisciplinary team guidance for the shared decision-making process (adults). 2021. Available at: https://www.rcslt.org/wp-content/uploads/2021/09/EDAR-multidisciplinary-guidance-2021.pdf (Accessed: 9 August 2024).

Thomas A, Iacono D, Luciano AL, Armellino K, Onofrj M. Acute akinesia or akinetic crisis in Parkinson's disease. Neurological Sciences. 2003; 24: 219–220. https://doi.org/10.1007/s10072-003-0139-6

Vadivelu N, Kodumudi G, Leffert LR, Pierson DC, Rein LK, Silverman MS, et al. Evolving Therapeutic Roles of Nasogastric Tubes: Current Concepts in Clinical Practice. Advances in Therapy. 2023; 40: 828–843. https://doi.org/10.1007/s12325-022-02406-9

Yardley IE, Donaldson LJ. Patient safety matters: reducing the risks of nasogastric tubes. Clinical Medicine. 2010; 10: 228–230. https://doi.org/10.7861/clinmedicine.10-3-228