Care Management in Hospitalized Patients with Parkinson Disease: Review and Recommendations

Gestão de Cuidados na Doença de Parkinson em Internamento: Revisão e Recomendações

Mafalda Delgado Soares[1], **Maria Inês Silva**[1], **João Lourenço**[1,2]

Abstract:

Parkinson's disease (PD) is one of the most common neurodegenerative diseases, characterized by motor symptoms such as tremor, rigidity, and gait disturbances, as well as a variety of non-motor symptoms that significantly impact the functionality of individuals living with this diagnosis. PD is more prevalent in older adults, and as the disease progresses, complications such as falls, neuropsychiatric changes, and autonomic dysfunctions arise, often leading to prolonged and complex hospitalizations.

Hospitalizations in PD can be categorized into three groups: complications directly related to the disease, such as motor fluctuations and neuropsychiatric symptoms; indirect complications, such as aspiration pneumonia and trauma; and causes unrelated to PD. Managing these cases in a hospital setting is challenging and requires a multidisciplinary approach.

This study is a literature review on the management of individuals with PD during hospitalization, aiming to develop evidence-based clinical recommendations to optimize inpatient care. A review of the available literature on hospital care in PD was conducted, addressing akinetic crisis, autonomic dysfunction, delirium, falls, infections, and therapeutic management. Based on the findings, clinical guidelines tailored to the Portuguese healthcare context were developed to improve the safety and efficacy of care provided to this vulnerable population.

Keywords: Hospitalization; Parkinson Disease/complications; Parkinson Disease/therapy; Patient Care Team.

Resumo:

A doença de Parkinson (DP) é uma das doenças neurodegenerativas mais comuns, caracterizada por sintomas motores como tremor, rigidez, e alterações da marcha, além de uma variedade de sintomas não motores que impactam significativamente a funcionalidade das pessoas que vivem com este diagnóstico. A DP é mais prevalente em idosos, e à medida que a doença progride, surgem complicações como quedas, alterações neuropsiquiátricas e distúrbios autonómicos, o que frequentemente leva a internamentos hospitalares prolongados e complexos.

As hospitalizações na DP podem ser categorizadas em três grupos: complicações diretamente relacionadas à doença, como flutuações motoras e sintomas neuropsiquiátricos; complicações indiretas, como pneumonia de aspiração e traumatismos; e causas não relacionadas à DP. A gestão hospitalar destes casos é desafiante, exigindo uma abordagem multidisciplinar.

Este estudo é uma revisão da literatura sobre a gestão de pessoas com DP durante a hospitalização, com o objetivo de criar recomendações clínicas baseadas em evidências para otimizar os cuidados hospitalares. Foi realizada uma revisão da literatura sobre cuidados hospitalares em DP, abordando crises de acinesia, disfunção autonómica, síndrome confusional, quedas, infeções e gestão terapêutica. Com base nos resultados, foram desenvolvidas orientações clínicas adaptadas para a realidade portuguesa, visando melhorar a segurança e eficácia dos cuidados prestados a esta população vulnerável.

Palavras-chave: Doença de Parkinson/complicações; Doença de Parkinson/tratamento; Equipa de Cuidados ao Doente; Hospitalização.

Introduction

Parkinson disease (PD) is the second most frequent neurodegenerative disease worldwide.[1] In Portugal, it is estimated to affect approximately 180 per 100 000 individuals aged over 50 years.[2]

It is primarily characterized by motor manifestations such as resting tremor, rigidity, bradykinesia, and postural instability. However, PD also presents a broad range of non-motor symptoms that significantly impact the functionality of individuals living with the disease. This combination creates unique challenges in clinical management, not only in daily outpatient care but also in hospital settings, regardless of whether hospitalization is related to PD.[1]

PD is more prevalent in the elderly, with its incidence increasing with age. As the disease progresses, balance and

[1]Neurology Department, São José Local Health Unit, Lisbon, Portugal
[2]NOVA Medical School, Lisbon, Portugal

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coordination difficulties worsen, leading to falls. Neuropsychiatric symptoms, feeding difficulties, and autonomic dysfunctions also aggravate. Together with age, these factors contribute to a high number of hospitalizations, which tend to be longer and more complicated compared to age- and sex-matched controls.[3]

Hospitalization reasons for PD patients can be grouped into three categories: complications directly related to PD (e.g., motor fluctuations, neuropsychiatric symptoms, autonomic dysfunction, or adverse effects of therapy); indirectly related complications (e.g., aspiration pneumonia due to swallowing difficulties or trauma from motor issues); and unrelated causes (e.g., requiring urgent or elective medical-surgical intervention).[3] Managing a hospitalized PD patient is complex, demanding a multidisciplinary approach tailored to the peculiarities of the disease and the patient's individual needs. Many medical and surgical specialties are often unfamiliar with these nuances.

Thus, the existence of specific clinical recommendations for such contexts is essential. These guidelines should cover the adjustment and precise administration of antiparkinsonian therapy to prevent falls and other motor complications, alongside addressing non-motor symptoms such as neuropsychiatric manifestations, autonomic complications, and infections, which are common in this population.[3]

This study is a literature review on managing hospitalized PD patients, exploring a variety of common clinical scenarios and challenges. The goal is to provide evidence-based recommendations to enhance the safety and efficacy of care for this vulnerable population.

Methods

A narrative review was conducted, targeting relevant articles to establish recommendations and action protocols for common or relevant situations identified by the team, concerning hospitalized PD patients for reasons related or unrelated to their neurological pathology.

Searches were conducted using the term "Parkinson disease" combined with "inpatient care", and in each round associated with one of the following: "akinesia crisis", "autonomic dysfunction", "delirium", "falls", "hyperpyrexia syndrome", "infections", "medication management", "neuroleptic malignant syndrome", and "rehabilitation" in the MEDLINE database on the 31st of August of 2024.

After eliminating duplicates and screening by title and abstract, articles that met the following inclusion criteria were selected for full review:

1. **Population:** individuals with Parkinson disease;
2. **Intervention:** hospitalization for any reason;
3. **Publication content:** focus on epidemiology, pathophysiology, or clinical aspects of one of the searched topics or recommendations for managing one of the researched clinical situations;
4. **Publication type:** clinical research, including reviews, meta-analyses, clinical trials, observational studies, case series, and case reports, regardless of publication year, in English or Portuguese.

Opinion pieces and basic research publications were excluded.

Finally, based on the available literature, the most consensual and relevant recommendations for the Portuguese reality were developed.

The initial search yielded 677 relevant publications, with 36 duplicates. After title and abstract screening, 51 articles were selected for full-text review regarding PD management for the addressed topics. Ultimately, 41 publications were included in this review and used to draft the recommendations.

Epidemiology and Reasons for Hospitalization

Several cohort studies have characterized hospitalization rates and morbidity/mortality in Parkinson disease (PD). A systematic review of available literature described that hospitalization in PD patients is 1.5 times more frequent than in those without PD. Annually, 16% to 45% of PD patients visit the emergency department, and 7% to 28% are hospitalized. Almost half of PD admissions involve patients in advanced stages of the disease.[4]

Additionally, besides Neurology and Neurosurgery, the main specialties where these patients are admitted include Internal Medicine, Orthopedics, General Surgery, and Cardiology. Various studies have almost unanimously described that during hospitalizations - whether in the emergency department or inpatient settings - PD patients often encounter professionals unfamiliar with the disease, contributing to the many challenges faced during their hospitalization.[3,4]

When hospitalization is elective, proper planning should involve the support of the attending neurologist if needed.[4] However, a large portion of hospitalizations are urgent and result from infectious complications, particularly urinary and respiratory tract infections.[5] In the latter case, there is a frequent association between sepsis and mortality in these patients.[6] Some studies have shown that the impact of these infections in PD patients is significantly higher, with more hospitalizations and longer hospital stays.[6] PD patients are twice as likely to be hospitalized for urinary tract infections (UTIs),[7] and pneumonias are more often aspiration-related, predisposing to ventilatory complications and higher mortality.[6] Interestingly, UTIs are thought to be underreported in this population because they are often interpreted as urinary disorders in the context of PD. Additionally, hospitalization for UTIs is frequently misclassified as another complication (e.g., a fall), which contributes to underestimating the true incidence and impact of UTIs associated with PD. Various factors predispose these infections, including dysautonomia and cognitive changes. Early

recognition of these situations is essential for two reasons: their atypical presentation in PD patients and their association with severe infections and worse outcomes.[6]

The vulnerability of the respiratory and urinary systems inherent in PD may explain this association. These patients also frequently experience gastrointestinal disturbances such as gastroparesis and constipation but appear to have fewer abdominal and gastrointestinal infections compared to controls.[6]

A systematic review and meta-analysis found a frailty prevalence of 92.6% in PD patients.[8] Philips *et al* (2023) analyzed hospital mortality in PD patients over 15 years and concluded that it occurs primarily in older patients, men, and those with more severe PD.[9] This data is corroborated by a Portuguese study describing hospital mortality in PD, with pneumonia being the leading cause of hospital death, more prevalent in patients with dementia and in advanced stages of the disease.[10]

Dopaminergic Therapy

The most frequently reported challenge was the administration of dopaminergic therapy. Delays in administering PD medication are common for various reasons: patients are typically independent in taking their medications and lose this autonomy when hospitalized; healthcare professionals may not be familiar with PD medications, and especially may not recognize the importance of their regular administration, which requires doses outside usual medication rounds; swallowing difficulties may pose a barrier to safe oral therapy, delaying it until speech therapy evaluation, and alternative routes like transdermal formulations may not be known to the team. The team of Corrado *et al* (2020) developed a training project for the medical and nursing team using alarms and reminders over 4 years, which resulted in a reduction in omission rates of anti-Parkinson medications from 15.1% to 0.6%. They also observed that these measures led to a significant decrease in readmission rates for PD patients.[11] Other studies found that the delay rates for anti-Parkinson therapy ranged between 39% and 55%.[5,12] To combat this, other authors suggested categorizing hospital dopaminergic therapy as “time-critical”, involving hospital pharmacists to ensure medication availability, establishing protocols for therapeutic equivalents, and issuing alerts for contraindications and drug interactions.[13,14] In addition to omission and delay, other common mistakes include reducing the dose of levodopa equivalents and switching between immediate-release and modified-release formulations, which also relate to clinical deterioration.[15-17]

The recommendations suggest:

1) Regular administration of dopaminergic therapy;
2) Dopaminergic medication should be taken before or after meals for maximum effectiveness, even in patients with a nasogastric tube;
3) The usual therapeutic regimen should be maintained;
4) Therapeutic adjustments should be made if motor fluctuations, or other conditions such as psychosis or orthostatic hypotension occur, which may benefit from reducing dopaminergic therapy;
5) If possible, avoid introducing new drugs, especially those whose full adverse effects or potential drug interactions are unknown;
6) Avoid abrupt discontinuation of dopaminergic therapy. If the oral route is unavailable, nasogastric tube use, transdermal rotigotine patches, levodopa infusions or subcutaneous apomorphine can be considered.[3]

In the context of worsening dyskinesias, levodopa overdose should be considered as a potential cause, and this is a situation difficult to manage quickly in the short term. However, in the long term, adjustments in levodopa (both in dosage and timing) should be made.[17]

Finally, the introduction of other drugs is also a relevant issue. The prescription of antiemetics, antihistamines, tricyclic antidepressants, antipsychotics, and ipratropium bromide is common, and these molecules, combined with polypharmacy in people with Parkinson disease (PD), can lead to anticholinergic toxicity phenomena, which worsen clinical outcomes in cognitive function, urinary retention, constipation, and falls. Some strategies suggested by several authors are: prefer ondansetron and domperidone as antiemetics, opt for trazodone and mirtazapine for insomnia (as they have lower anticholinergic risks), prefer clozapine and quetiapine at low doses for psychotic symptoms, and prefer second-generation antihistamines.[3,18]

Akinesia Crisis

Acute akinesia, or an akinetic crisis, is typically a transient state of motor worsening with no response to usual treatment or increases in dopaminergic therapy. This refractoriness helps distinguish acute akinesia from the usual OFF state. Some authors suggest that the definition involves a sudden worsening of 20 points on the motor component of the MDS-UPDRS scale, accompanied by a lack of response to the usual therapeutic regimen. In addition to motor symptoms, cognitive or psychotic disturbances, dysphagia, and opportunistic infections are commonly seen. The main causes are medical complications such as infections, fractures, gastrointestinal disturbances, or abrupt cessation of deep brain stimulation. Besides addressing the underlying etiology and treating it, amantadine at high doses or apomorphine may be administered, especially when significant dysphagia occurs, as this is a potentially life-threatening complication. It typically lasts for several days, even with unsuccessful therapeutic attempts.[19,20]

Acute Confusional Syndrome and Neuropsychiatric Complications

Acute confusional syndrome, also known as delirium, is a state that affects attention and cognition and is particularly

prevalent in the elderly hospitalized population. The most frequent etiologies include infectious, metabolic, hydroelectrolytic, traumatic, or iatrogenic events.[3,21] In people with dementia associated with PD, evaluating behavioral changes can be challenging, making identification less clear. For instance, hypoactive delirium is often interpreted as bradykinesia, and anxiety manifestations can be confused with psychosis or wearing-off.[22-25]

The DETERMINE-PD study found that 57% of hospitalized PD patients developed acute confusional syndrome.[26] Several studies have shown that having PD and being under dopaminergic therapy are clear risk factors for developing acute confusional syndrome, which explains the high prevalence.[27] Delirium is associated with longer hospital stays, worsened motor and cognitive symptoms, and higher mortality,[22,27,28] justifying the importance of early identification and the development of effective treatment strategies for this population.

It is widely agreed that the first step is to search for and treat the underlying precipitating cause, and then carefully review the therapy. It is known that anticholinergic drugs, dopaminergic agonists, MAO-B inhibitors, and amantadine are among the most problematic drugs for these patients and should be discontinued, though these recommendations are not based on robust evidence. Drugs with central actions, such as anxiolytics, antispasmodics, antihistamines, antiarrhythmics, and certain antibiotics, should also be avoided, and measures such as ensuring natural light and frequent reorientation conversations with the patient should be taken. Regarding levodopa and dopaminergic agonists, some experts advocate for temporarily simplifying or discontinuing the treatment, but they emphasize that sudden discontinuation may increase the risk of developing delirium.[3,22]

Due to the pharmacodynamic susceptibility of people with PD, some authors suggest that this clinical picture should only be treated symptomatically if there is a risk to the patient or others.[21] For the general population, the first-line pharmacological treatment is antipsychotics, but typical antipsychotics are contraindicated in PD: some authors suggest quetiapine and clozapine due to their low risk of extrapyramidal effects[22,24,29]; others suggest only short-acting benzodiazepines.[21] Common recommendations include starting with quetiapine at a low dose, titrating as needed, avoiding introducing multiple new medications at once, regularly reviewing the treatment, providing written instructions to the team, and avoiding using one medication to treat the side effects of another.[3,21]

For insomnia, which is commonly exacerbated during hospitalization, nighttime doses of levodopa may help prevent nocturnal bradykinesia, although other causes include nocturia, sleep apnea, and sleep-wake cycle disturbances. The use of hypnotics is acceptable but should be done with caution, and concomitant use with benzodiazepines should be avoided.[3]

In Portugal, no antipsychotics are specifically approved for PD, which complicates the management of these cases. Atypical antipsychotics are used but may worsen the motor component of the disease and increase the risk of tardive dyskinesia, which can be potentially irreversible. However, there is currently no treatment that is superior in terms of efficacy and safety, which is a problem.[24,29]

In terms of cognitive dysfunction, the literature describes the safety of donepezil, which may be administered to control behavioral and cognitive symptoms in this context, as well as rivastigmine.[29]

Indeed, PD patients are often polymedicated and elderly, which increases the risk of drug interactions. Serotonin syndrome (SS) can develop from interactions between antidepressants and anti-dopaminergic drugs with serotonergic activity. At the same time, abrupt discontinuation of usual dopaminergic therapy and the introduction of antipsychotics for behavioral control - both common in hospital settings - put PD patients at risk for neuroleptic malignant syndrome (NMS).[14,30] SS generally has a rapid onset and includes hyperreflexia and generalized tremor, while NMS evolves more slowly and is characterized by rigidity, bradykinesia, and hyporeflexia. Both can have hyperthermia, though temperatures are higher in NMS. Due to psychomotor agitation, both conditions may show elevated CK levels. It is important to differentiate SS from NMS, as treatments are distinct, although the risks are equally serious.[30]

Finally, the coexistence of other psychiatric conditions is also common in PD, such as major depression and substance abuse.[23]

Gastrointestinal and Autonomic Dysfunction

PD is an α-synucleinopathy that promotes the early accumulation of Lewy bodies in the central and enteric nervous systems. This pathological accumulation in the gastrointestinal system has implications for pharyngeal coordination, esophageal and gastric motility, intestinal permeability, and colonic peristalsis. Additionally, it can result in poor absorption of therapy, which interferes with PD itself, and can lead to aspiration pneumonia and other complications. The water glass test at the patient's bedside is not a good screening tool for dysphagia in PD, so the oral route should be carefully evaluated. The most evidence-based therapy is swallowing and behavioral therapy by speech therapists to develop more robust swallowing mechanisms. For sialorrhea, there are various treatment options: anticholinergic medication like sublingual atropine, and botulinum toxin therapy in the parotid and submandibular glands, both effective. For constipation, ensuring hydration and an adequate diet, as well as promoting mobility, are crucial.[31] Regarding gastroparesis, it is important to recognize that increasing levodopa doses can worsen gastric emptying, so a directed

solution like domperidone should be preferred. Finally, therapies that bypass the gastrointestinal tract, such as subcutaneous apomorphine and transdermal rotigotine, can be good solutions to ensure effective dopaminergic therapy.[32]

Neurogenic orthostatic hypotension (OH) is common in PD and associated with poorer prognosis. Ambulatory blood pressure monitoring (ABPM) over 24 hours has proven to be a useful diagnostic tool, detecting at least two episodes of a drop in systolic blood pressure of 15 mmHg or more compared to the average of the other 24 hours. Various studies have focused on these hypotensive episodes in PD, finding that their presence is associated with early falls, fractures, increased hospitalizations, inability to walk autonomously, and dementia.[33,34]

At the patient's bedside, assessment of OH can and should be done as an alternative, but it is important to understand that a single measurement is less reliable, and some asymptomatic patients may still exhibit these hypotensive periods. In the context of hospitalization, some factors can predispose to orthostatic hypotension, such as prolonged immobility, and this clinical condition may be temporary. If it persists, it is recommended to review the patient's antihypertensive therapy, consider the use of compression stockings, and implement rehabilitation measures such as adopting a position with crossed legs, elevating the lower limbs, reinforcing muscle strength, along with managing the fluid balance by encouraging adequate hydration, dietary salt supplementation, and reducing nocturia by elevating the head of the bed. Reducing dopaminergic therapy should be considered if necessary, and in extreme cases, starting midodrine and/or fludrocortisone may be considered, but non-pharmacological measures are always preferred for OH.[35,36]

Falls

The occurrence of falls is associated with greater disability, fear of walking, depressive mood, and reduced quality of life in people living with PD. Although falls are a recognized challenge in managing advanced PD, their correlation with greater disease severity and duration is limited, meaning that other potentially modifiable fall risk factors exist. Some authors have observed that the degree of axial impairment and balance, the presence of dyskinesias, freezing of gait, and dystonia are more relevant to fall risk than global motor severity.[37]

The most consensual recommendation in the literature for falls is their prevention, and prescribing motor rehabilitation as soon as the patient is admitted.[4]

Rehabilitation in Hospitalization

Several studies focus on the importance of rehabilitation as an essential part of the multidisciplinary management of PD, with dedicated multidisciplinary teams providing training for hospital teams, emergency services, and other functional units. Some clinical trials with intensive, personalized inpatient rehabilitation plans have shown superior outcomes in motor, cognitive, and quality-of-life outcomes compared to outpatient rehabilitation.[38-42] Similarly, the frequency and intensity of physical exercise seem to be related to a lower likelihood of future hospitalization.[43]

In non-elective hospitalizations, motor rehabilitation is equally important. According to the literature, it should be planned as soon as the PD patient is admitted, implemented as early as possible, including daily physiotherapy, speech and swallowing therapy, and occupational therapy, when possible, even in the postoperative context. Physiotherapy prevents motor and non-motor complications and accelerates postoperative recovery.[3,4,31]

Pre- and Post-Surgical Care

Pre-surgical guidelines have been found. If elective, surgery should be scheduled for the early morning, and anti-Parkinsonian medication should be taken on the day of surgery and resumed as soon as possible post-operatively, even through a nasogastric tube if necessary, to reduce the risk of complications, or considering switching to other formulations if the oral route is unavailable. MAO-B inhibitors are the only class to consider discontinuing in the pre-surgical period (1-2 weeks before) due to the risk of drug interactions that can contribute to serotonin syndrome. Local anaesthesia is always preferred over general anaesthesia, though the latter may be a better option for patients with evident dyskinesias to prevent these movements from interfering with the surgical procedure. It is important to note that propofol can exacerbate dyskinesias, and fentanyl can worsen motor symptoms. In case of postoperative pain, opioids should be used cautiously, especially if MAO-B inhibitors were not discontinued. For urinary retention, catheterization should be avoided longer than necessary, with a low suspicion of UTIs, and evaluated and treated if needed. In addition to reintroducing therapy, early motor, speech, and swallowing rehabilitation should also be initiated to prevent immobility and motor worsening, avoiding falls, thromboembolic events, and pressure ulcers. Physiotherapy accelerates postoperative recovery.[3,4,25,31]

Finally, in patients undergoing deep brain stimulation, it is important to remember that the system must be turned off for specific and frequent exams like ECGs and surgeries involving electrical catheterization.[3]

To summarize the most appropriate recommendations based on available evidence, the following Table 1 has been structured, organized for each challenge in the case of hospitalization in Parkinson disease.

Conclusion

Managing Parkinson disease in hospital settings represents a complex challenge. The recommendations presented in this publication emphasize the need for a multidisciplinary

Table 1: Summary of issued recommendations for the most frequent clinical challenges in hospitalized PD patients.

Topic	Problem	Recommendations
Dopaminergic Therapy	Frequent delays, omissions, and errors in administering usual therapy, which can lead to serious complications such as worsening motor symptoms and neuroleptic malignant syndrome.	- Ensure regular administration at defined times: team training; use alarms/reminders; consider labelling therapy as "time-critical"; - Do not abruptly stop levodopa and dopaminergic agonists; - If no oral route, opt for a nasogastric tube, transdermal rotigotine, or subcutaneous apomorphine; - In case of motor fluctuations, adjust levodopa dose and timings as needed.
Akinetic Crisis	Sudden worsening of motor symptoms, resistant to usual dopaminergic therapy, often associated with infections and other disorders.	- Identify and treat the underlying cause; - Consider high-dose amantadine or apomorphine, especially in cases of dysphagia.
Acute Confusional Syndrome and Other Neuropsychiatric Symptoms	Confused state with altered attention, often hyperactive, frequent in hospitalized Parkinson disease patients, worsening motor and cognitive symptoms, and increasing mortality.	- Identify and treat underlying complications or iatrogenic causes; - Avoid anticholinergic and centrally acting drugs; - Simplify dopaminergic therapy temporarily; - Consider quetiapine or clozapine in low doses for psychotic symptoms; - Consider short-acting benzodiazepines for anxiety control.
Gastrointestinal Dysfunction	Parkinson disease affects the enteric nervous system. Symptoms such as dysphagia, sialorrhea, constipation, and gastroparesis affect medication absorption and increase complication risks.	- Carefully assess swallowing ability and oral route; - In dysphagia, implement speech therapy early; - In sialorrhea, administer sublingual atropine or botulinum toxin; - In constipation, adjust diet, hydration, and mobilization; - In gastrointestinal dysfunction, prefer ondansetron or domperidone over other antiemetics, and consider transdermal or subcutaneous routes or gastric bypass for dopaminergic therapy (PEG-J).
Autonomic Dysfunction	Orthostatic hypotension is frequent, associated with syncope, falls, and functional incapacity.	- The best diagnostic exam is 24-hour ambulatory blood pressure monitoring (ABPM), as isolated evaluations are not very sensitive or specific; - Review antihypertensive therapy; - Use compression stockings; - Ensure adequate fluid and salt intake; - Consider reducing dopaminergic therapy.
Falls	Associated with greater disability and worsened quality of life, especially due to dyskinesias, motor fluctuations, and axial involvement.	- Prevention is the best approach, through control of dopaminergic therapy with adjustments as needed; - Start physiotherapy as early as possible.
Rehabilitation	Plays a crucial role in recovery and maintaining motor function, with a direct impact on post-hospitalization outcomes.	- Plan and start rehabilitation immediately upon admission; - Include physiotherapy, speech therapy, and occupational therapy.
Pre and Post-Surgical Care	There are specific risks associated with Parkinson disease therapy and particular anesthetic complications.	- Schedule surgeries early in the morning; - Administer dopaminergic therapy on the morning of surgery and resume as soon as possible in the postoperative period; - When possible, avoid general anesthesia, although it may be more beneficial for controlling dyskinesias; - Avoid opioids if MAO-B inhibitors have not been stopped; - Initiate early postoperative rehabilitation.

and proactive approach encompassing the strict administration of dopaminergic therapy, management of behavioral changes, close monitoring of motor fluctuations and akinetic crisis, prevention of autonomic and gastrointestinal complications, and early integration of rehabilitation. Most complications can be prevented through healthcare professional education. By anticipating and adhering to these practices, it is possible to minimize risks, prevent clinical deterioration, and significantly improve post-hospitalization outcomes for this population. ■

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MDS - Designing and drafting the article, analysing and interpreting the data, writing the manuscript and approving the final version.

MIS - Critical revision of the content, approval of the final version.

JL - Design and preparation of the article, data analysis and interpretation,

critical revision of the content and approval of the final version.
All authors approved the final version to be published.

Declaração de Contribuição

MDS – Desenho e elaboração do artigo, análise e interpretação de dados, redação do manuscrito e aprovação da versão final.
MIS – Revisão crítica do conteúdo, aprovação da versão final.
JL – Desenho e elaboração do artigo, análise e interpretação de dados, revisão crítica do conteúdo e aprovação da versão final.
Todos os autores aprovaram a versão final a ser publicada.

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Corresponding Author / Autor Correspondente:

Mafalda Delgado Soares - mafalda.ds3@gmail.com
Neurology Department, São José Local Health Unit, Lisbon, Portugal
Rua José António Serrano, 1150-199 Lisboa

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