

Pearls and Pitfalls of Hospitalization

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Case 1 – Put on your thinking caps.

An 86 year-old man was diagnosed with Parkinson's disease six years ago. He consistently takes Carbidopa/Levodopa 25/100 two tablets four times daily at 6 AM, 10 AM, 2 PM, and 6 PM and is doing well.

He was admitted to the hospital after slipping on ice and fracturing his right hip, requiring surgery. His surgery went well; however, three days later he was noticed to be tired, slow, stiff, and unable to participate with physical therapy as expected. A review of his hospital medications revealed that he had been receiving his Carbidopa/Levodopa 25/100 two tablets four times a daily at 6 AM, noon, 6 PM, and midnight.

Pre-Test

What is the most common cause of complication related to Parkinson's disease in the hospital?

- A. Fall
- B. Medication Change
- C. Dementia
- D. Choking / Aspiration / Pneumonia
- E. "Sun-downing"

Learning Objectives

At the end of this session, you should be able to:

- Discuss the importance of the home medication regimen.
- Identify three common complications in hospital: falls, swallowing (read: pneumonia), confusion.
- Describe ways to facilitate communication between the hospital and home care teams.

Outline

1. Reasons for Hospitalization
2. Common Complications of Hospitalization
3. Steps you and your care providers can take now and in the future to optimize hospitalization.

1. Reasons for Hospitalization

Primary Reason for Hospitalization

1. Acute

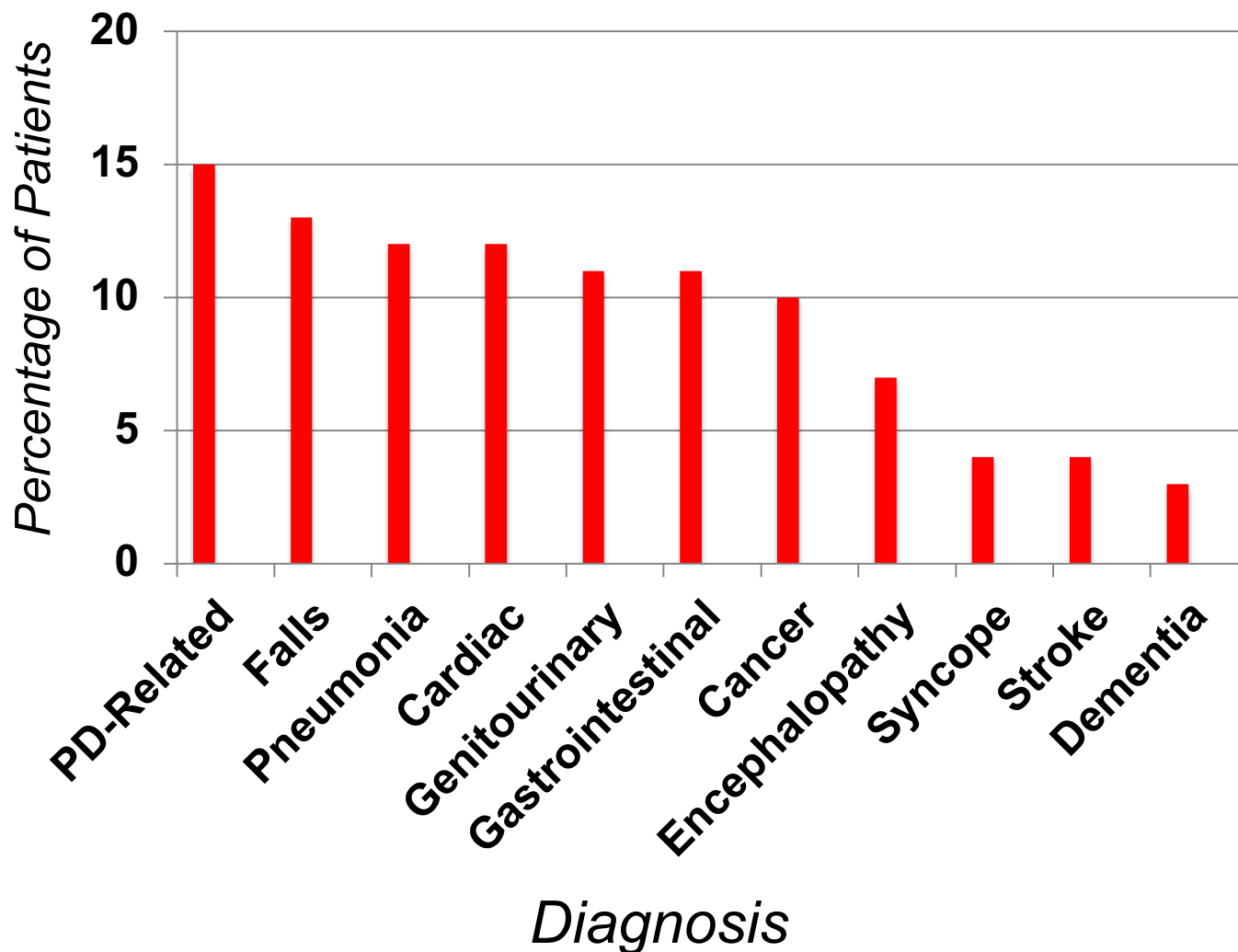
- Falls and Fractures → Surgery
- Pneumonia
- Confusion (Altered Mental Status / Delirium / Encephalopathy)
- Low Blood Pressure / Faint (Hypotension, Syncope)
- Heart and Gastrointestinal Disorders

2. Non-Acute

- Progressive Cognitive Impairment (Dementia)
- Failure to Thrive at Home
- Surgery

Hospital Admission Diagnoses

All Admissions (Australia, 761 PD patients, chart)



2. Common Complications of Hospitalization

Common Complications of Hospitalization: The Four “F-words”

- Pharmacy
- Falls
- Food (*Aspiration Pneumonia*)
- Flustered (conFusion; *Delirium, Dementia*)

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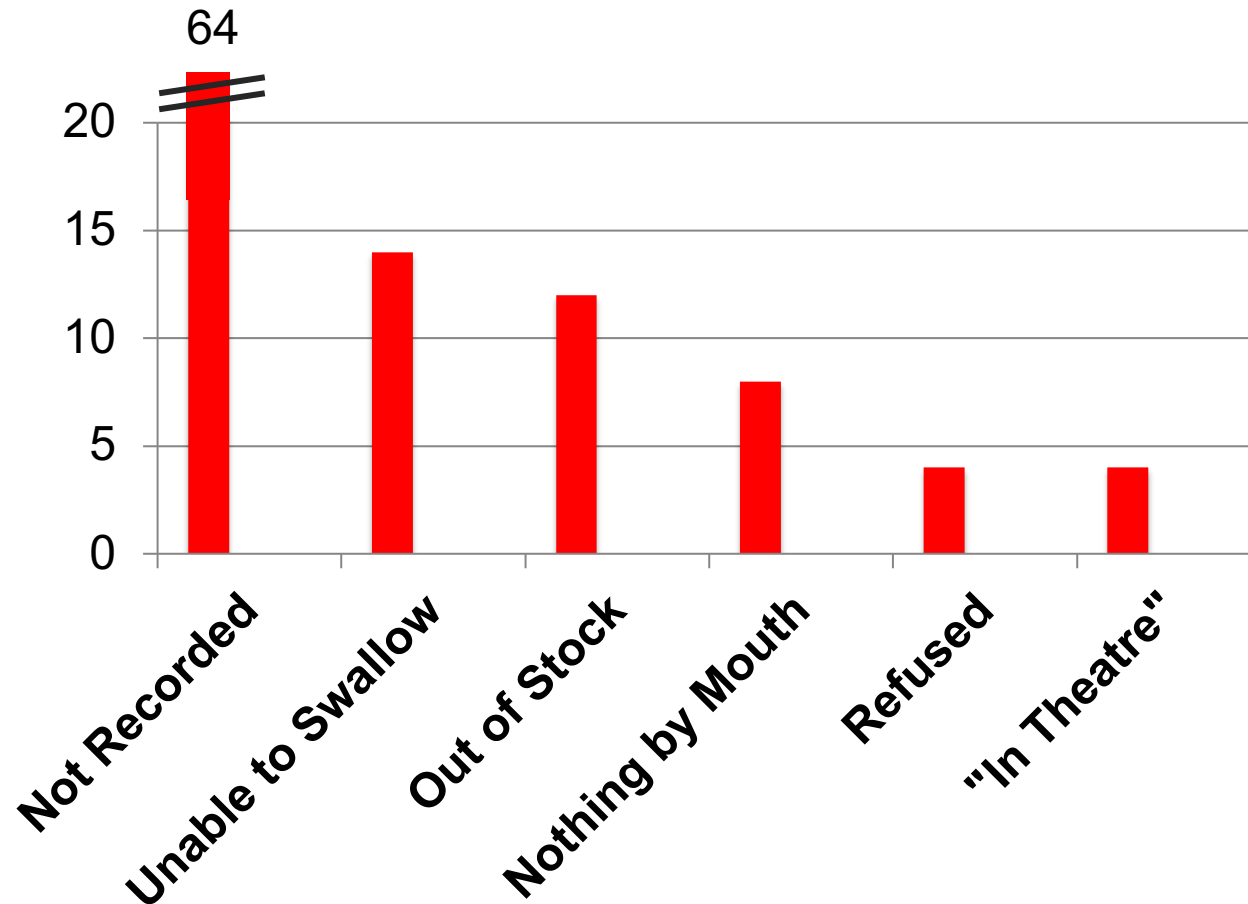
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Hospital-PD Risks Are Multi-Factorial

- *Primary Reason for Hospitalization*
- *PD Factors:* Swallowing Difficulty, Imbalance
Low Blood Pressure, Dementia
- *Medication Factors:* PD Rx Regimen
Hospital Rx
Hospital + PD Rx Interactions
- *Hospital Factors:* Delirium, Fall and Swallowing
Risk Status / Safety Orders;
Hospital Staff Experience

Why Are PD Medications Missed ?

(UK, 51 surgical PD patients, chart review)



Case 2

A 73 year-old man was diagnosed with Parkinson's disease five years ago. He takes Carbidopa/Levodopa 25/100 one tablet three times daily and is doing generally well.

He was admitted to the hospital for emergency gall bladder surgery. He did not get any medications in the hospital on the day of surgery. All of his regular medications were resumed the following day. On the third day of hospitalization he was confused and coughing. A chest x-ray revealed he had pneumonia.

Research / Studies

Complications during Hospitalization

USA (n = 89 PD)

- PD Medications Administration: 3873 doses
- Correct Administration: 83%
- Omitted: 8%
- Late by ≥ 30 min: 8%
- Early by ≥ 30 min: 1 %
- Contraindicated Medications: 19 patients

USA (elective surgery: n = 234 PD vs. 40,979 control)

- Longer Hospital Stays 11 vs. 9 days
- Aspiration Pneumonia 3.8x Risk
- Urinary Tract Infection 2x Risk

Acta Neurol Scand. 2001 Jan;103(1):7-11. Causes of death in a community-based study of PD. Beyer MK, Herlofson K, Arslan D, Larsen JP

J Am Geriatr Soc. 1999 Aug;47(8):967-72. Postoperative complications in Parkinson's disease. Pepper PV, Goldstein MK.

Assessment of appropriate medication administration for hospitalized patients with PD. Hou, Jyhong, Gabriel et al. Parkinsonism & Related Disorders 18 : 4 , 377 - 381

Case 3

An 88 year-old woman was diagnosed with Parkinson's disease 10 years ago and is doing well. She lives independently and uses a walker.

One night she fell over some books stacked on the floor at home and could not get up due to hip pain. She triggered her fall detector device and was taken to the emergency room by ambulance. She was found to have a broken hip and was admitted to the hospital for surgery. Her home medication regimen was adhered to scrupulously. She was also given pain and anti-nausea medication. The next day she was confused, agitated, and stiff.

3. Steps to Optimize Hospitalization

Some Public Awareness of Hospital Risk Associated with Parkinson's Disease



“Parkinson’s patients like Mr. Anderson, for example, must take medications at precise intervals to replace the brain chemical dopamine, which is diminished by the disease. ‘You don’t have much of a window,’ Mrs. Anderson said. ‘If you have to wait an hour, you have tremendous problems.’ Without these medications, people may ‘freeze’ and be unable to move, or develop uncontrolled movements called dyskinesia, and are prone to falls.”

How Do Doctors Know Things / Make Decisions

- *Experience*
- *Training*
- *Guidelines / Recommendations*
- *Research*
- *Continuing Medical Education*

NEW YORK TIMES BESTSELLER

If I Understood You, Would I Have This Look on My Face?



My Adventures
in the
Art and Science
of Relating and
Communicating

"Alda uses his
trademark humor and
a well-honed ability to get
to the point, to help us all
learn how to leverage
the better communicator
inside each of us."

—*Forbes*

Alan Alda

Optimal Hospitalization: Preparation



Go to:

www.awareincare.org

Click on [Parkinson's Hospital Kit](#) for Action Plan.

6-15 10 STEPS TO OPTIMUM CARE

6-9 Take Action at Home

1. Line up Help
2. Pack your **Aware in Care** kit
3. Prepare for the Unexpected
4. Find a Good Hospital

10-14 When You are In the Hospital

5. Be Vocal
6. Be Persistent
7. Get Moving
8. Stay on Top of Your Care

14-15 When You are Back Home

9. Follow up and Provide Feedback
10. Connect with Others in the Parkinson's Community

16-18 CHECKLIST FOR A PLANNED HOSPITAL STAY

19 CHECKLIST FOR AN EMERGENCY SITUATION

20-21 SPECIAL CONSIDERATIONS

- I have a Deep Brain Stimulation device.
- I have trouble swallowing.
- I have special dietary needs.
- I am dizzy or feel faint.
- I have balance issues.
- I feel disoriented or confused.

22 MEDICATIONS THAT MAY BE CONTRAINDICATED IN PARKINSON'S DISEASE

Ask Your PD Doctor for a Letter

Dear Doctor SURGEON,

I understand that surgery is planned for MY PATIENT, who has Parkinson's disease, for which she is under my care. As you may know, patients with Parkinson's disease suffer from muscle rigidity, slow movements, tremor, and postural instability. In order to try to avoid these types of symptoms progressing during and complicating her perioperative course, it is important that she maintain strict adherence to her Parkinson's disease-related medication regimen. This important aspect of her care may need to be explained to the nursing staff, as medication dosing may not fit their usual medication administration schedule.

Some medications may complicate her Parkinson's disease or adversely interact with her Parkinson's disease medications. Consulting a hospital pharmacist may also prevent complications during her hospitalization.

Appropriate fall and swallowing precautions should be used.

I encourage the anaesthesiologist to become familiar with any anaesthetic concerns related to Parkinson's disease. I recommend avoiding inhaled anesthetics and rather to use faster acting IV anaesthetics if not otherwise contraindicated.

I have asked MY PATIENT to bring a list of helpful information for your staff. You may also find the enclosed reference valuable.

Please contact me at ###-###-#### if you have any questions.

Sincerely,
Doctor NEUROLOGIST

Summary / Take-Home Messages

- Prepare for hospitalization in advance.
- Promote PD education.
 - Educate yourselves.
 - Encourage education of hospital staff.
 - Ask your PD doctor for a letter.
- Emphasize the importance of MEDICATION compliance.

Thank you for your attention !

Are you ready for a quiz?

Quiz Question 1

Worsening symptoms of Parkinson's disease are the most common reason for hospitalization.

A. True

B. False

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A. True

B. False

Quiz Question 2

What is the most common cause of a complication for a person with Parkinson's disease in the hospital?

- A. Fall
- B. Medication Change
- C. Dementia
- D. Choking / Aspiration
- E. Sun-downing

Quiz Question 2

What is the most common cause of a complication for a person with Parkinson's disease in the hospital?



A. Fall

B. Medication Change

C. Dementia



Delirium / Psychosis



D. Choking / Aspiration

E. "Sun-downing"

Quiz Question 3

Which complications are most common for a person with Parkinson's disease in the hospital?

- A. Fall
- B. Pneumonia
- C. Stroke
- D. Confusion (Delirium)
- E. Acid Reflux

Quiz Question 3

Which complications are most common for a person with Parkinson's disease in the hospital?

A. Fall

B. Pneumonia

C. Stroke

D. Confusion (Delirium)

E. Acid Reflux

Additional Slides

Hospital Management of Parkinson Disease Patients



Adolfo Ramirez-Zamora, MD*, Takashi Tsuboi, MD, PhD

KEYWORDS

- Parkinson disease • Hospitalization • Inpatient management • Surgery • Delirium • Falls

KEY POINTS

- Patients with Parkinson disease face a multitude of challenges during hospitalizations that requires specific management interventions.
- Management of complex dopaminergic regimens requiring frequent medication administration while hospitalized is a demanding task that can lead to errors.
- Adequate management of dopaminergic medications and avoidance of specific drugs are imperative to improve outcomes and minimize complications.
- Early implementation of fall precautions and rehabilitation therapies, including speech and swallowing assessment, is important to prevent complications and improve motor function.

"Hospital Management of Parkinson Disease Patients," A Ramirez-Zamora and T Tsuboi.

Clinics in Geriatric Medicine 36(1):173-181 (2019)

https://www.researchgate.net/profile/Takashi-Tsuboi-2/publication/335672667_Hospital_Management_of_Parkinson_Disease_Patients/links/5dd4336ea6fdcc37897a45e3/Hospital-Management-of-Parkinson-Disease-Patients.pdf

Complications during Hospitalization

UK (n = 51 PD, surgery)

- Overall Missed Doses 12% all doses
- Missed Doses 71% pts
- Anti-dopaminergic Rx 22% pts
- Complications 69% pts

UK (n = 35 PD, ER admissions)

- Missed / Incorrect Doses 74% pts
- Complications > 50% pts

Optimal Hospitalization: Provider Education

Important Medical Information for Health Care Professionals

- To avoid serious side effects, Parkinson's patients need their medication ***on time, every time*** – do not skip or postpone doses.
- Do not stop levodopa therapy abruptly.
- If an antipsychotic is necessary, use quetiapine (Seroquel®) or clozapine (Clozaril®).
- **Special Alert:** Drugs such as benzodiazepines, muscle relaxants, bladder control medications and other medications used for sleep and pain may lead to confusion, hallucinations and other symptoms.

Turn this card over for a list of contraindicated medications & important considerations if the patient has a brain device & needs a MRI/EKG/EEG.

Checklist / Guidance for Hospital Providers

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Common Hospitalization-Related Issues in Parkinson Disease (PD) and Strategies for Prevention and/or Their Management	
Hospitalization-Related Issues in PD	Strategies for Prevention and/or Management
General issues	Provide education about hospitalization-related issues in PD to patients and their families (discuss at routine clinic visits, distribute pamphlets, newsletters, discuss at support groups, present lectures at patients symposia)
Elective hospitalization	Initiate timely and comprehensive planning of the hospitalization
Upon admission	Arrange for an early neurological consultation Inform treating neurologist / movement disorders specialist
Medication-related issues	Advise patients/caregivers to always carry up-to-date medication list (including medication doses and schedules) Inform/educate the primary medical team and nursing staff on the importance of timely administration of antiparkinsonian medications Review hospital medication administration logs to assure the correct medication schedule Review hospital medication administration logs to assure that medication contraindicated in PD are not part of the medication regimen Do not discontinue dopaminergic medications abruptly
Motor manifestations of PD and hospitalization	Promptly initiate fall precautions Promptly initiate aspiration precautions Consult rehabilitation services soon after the admission Adjust antiparkinsonian medication if needed (worsening wearing off and/or dyskinesias)
Nonmotor manifestations of PD and hospitalization:	Review the medication regimen and adjust it accordingly (minimize/exclude medications with CNS active properties)
Mental status changes (encephalopathy, delirium, hallucinations, psychosis)	Search for infectious/toxic metabolic causes of impaired mentation Reorient patient to the hospital environment frequently
Autonomic dysfunction (orthostatic hypotension, urinary dysfunction, constipation)	Avoid sedative medications Do not administer typical neuroleptics for the treatment of mental status changes and agitation Obtain and monitor orthostatic vital signs
Cognitive dysfunction	Optimize hydration
Mood disturbances (anxiety, depression)	Adjust antihypertensive medications
Sleep dysfunction	Consider nonpharmacological and pharmacological treatment options for orthostatic hypotension
Surgery and PD	Arrange for a surgery early in the day Administer antiparkinsonian medication on the morning of surgery Resume antiparkinsonian medications as soon as possible postoperatively Consider switching to parenteral medication regimen to avoid delays in treatment Administer pulmonary toilet Mobilize patient as early as possible

Neurohospitalist

Neurohospitalist

Specific Medication Considerations

Medical Purpose:	Safe Medications:	Medications to Avoid:
Antipsychotics	quetiapine (Seroquel*), clozapine (Clozaril*)	avoid all other typical and atypical anti-psychotics
Pain Medication	most are safe to use, but narcotic medications may cause confusion/psychosis and constipation	if patient is taking MAOB inhibitor such as selegiline or rasagiline (Azilect*), avoid meperidine (Demerol*)
Anesthesia	request a consult with the anesthesiologist, surgeon and Parkinson's doctor to determine best anesthesia given your Parkinson's symptoms and medications	if patient is taking MAOB inhibitor such as selegiline or rasagiline (Azilect*), avoid: meperidine (Demerol*), tramadol (Rybix*, Ryzolt*, Ultram*), droperidol (Inapsine*), methadone (Dolophine*, Methadose*), propoxyphene (Darvon*, PP-Cap*), cyclobenzaprine (Amrix*, Fexmid*, Flexeril*), halothane (Fluothane*)
Nausea/ GI Drugs	domperidone (Motilium*), trimethobenzamide (Tigan*), ondansetron (Zofran*), dolasetron (Anzemet*), granisetron (Kytril*)	prochlorperazine (Compazine*), metoclopramide (Reglan*), promethazine (Phenergan*), droperidol (Inapsine*)
Antidepressants	fluoxetine (Prozac*), sertraline (Zoloft*), paroxetine (Paxil*), citalopram (Celexa*), escitalopram (Lexapro*), venlafaxine (Effexor*)	amoxapine (Asendin*)