Ontario Long-Term Care Clinician Conference 2023

Approach to non-motor symptoms of Parkinson disease

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Disclosures-GM

- No current or past relationships with commercial entities
- No relationship with commercial interests.

Speaking fees/ Honorariums:

- Received a speaker’s fee from OLTCC for this learning activity

DISCLOSURES - JL

Membership on advisory boards or speakers' bureaus	Caregiver-Centered Care Physician Education Advisory	Guide the co-design process for a Caregiver-centered care education mnodule and resource for family medicine (small honorarium)
Funded grants, research, or clinical trials	North Alberta Clinical Family Medicine Fund The NRV strategic clinical network research grant - MS, PD and Quality of Care in Alberta	$7500 2 year grant to develop course for Fam Med in Parkinson's care $20000 frant to develop evidence based electronic order set, rules and education

Commercial Support Disclosure

- This program has received no financial or in-kind support from any commercial or other organization

Objectives

- Recognize the importance and impact of non-motor symptoms in PD
- Be able to screen for and diagnose common non-motor symptoms
- Be able to manage the "low-hanging fruits" in your daily practice
  - Constipation & Urinary symptoms
  - Orthostatic hypotension
  - Sleep disorders (REM disorder/RLS)
  - Depression/anxiety
  - Bone health

Did you know….

Non-motor symptoms of Parkinson’s disease (PD) contribute to severe disability and impair quality of life. Which of the following symptoms is not related to PD?

a) Mood problem
b) Psychosis
c) Orthostatic hypotension with or without supine hypertension
d) Frequent nocturia
e) Constipation
f) All are related to PD

Parkinson Disease

Fastest growing neurological disease, affects 2-3% of the population with age > 65

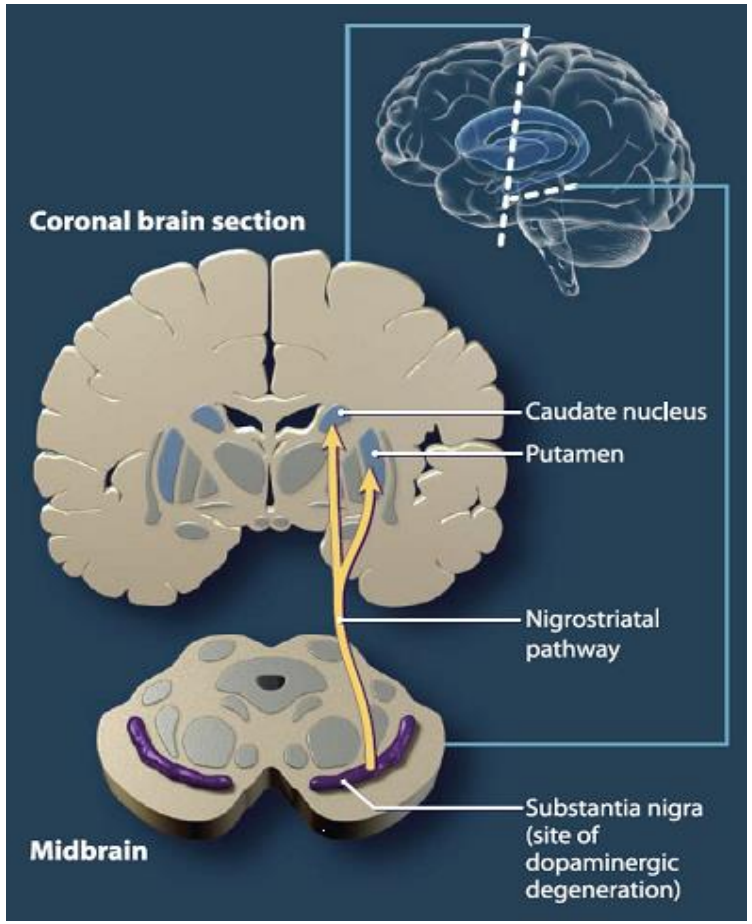
Globally, the number of people with PD will double from 6.9 M in 2015 to 14.2 M in 2040.

The Brain Disorders in Ontario Report (2015): 82%of people with Parkinson's disease (PD) were 65 years and older.

The number of Canadians seniors with PD is expected to more than double from 71,500 to 148,800 by 2031.

Poewe Lang et al 2017

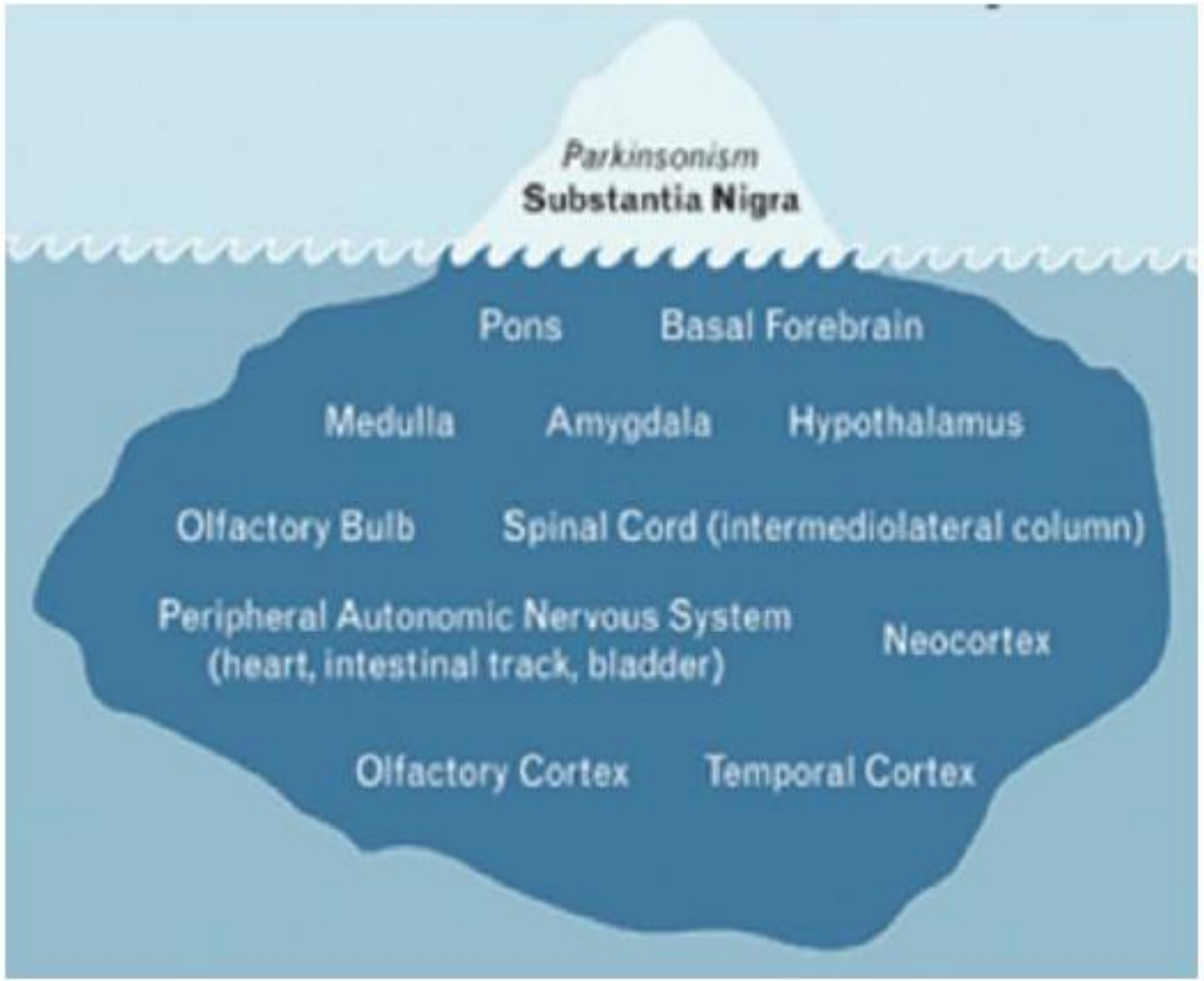
Pathophysiology of PD



- Progressive degeneration of dopamine producing neurons in substantia nigra
- By the time motor symptoms emerge, 70% - 80% of neurons are lost
- Deposition of alpha-synuclein in central, autonomic, peripheral nervous system → non motor symptoms

Guttman M, et al: CMAJ 2003; 168(3):293-301

Complex disease



Langston, Ann Neurol, 2006

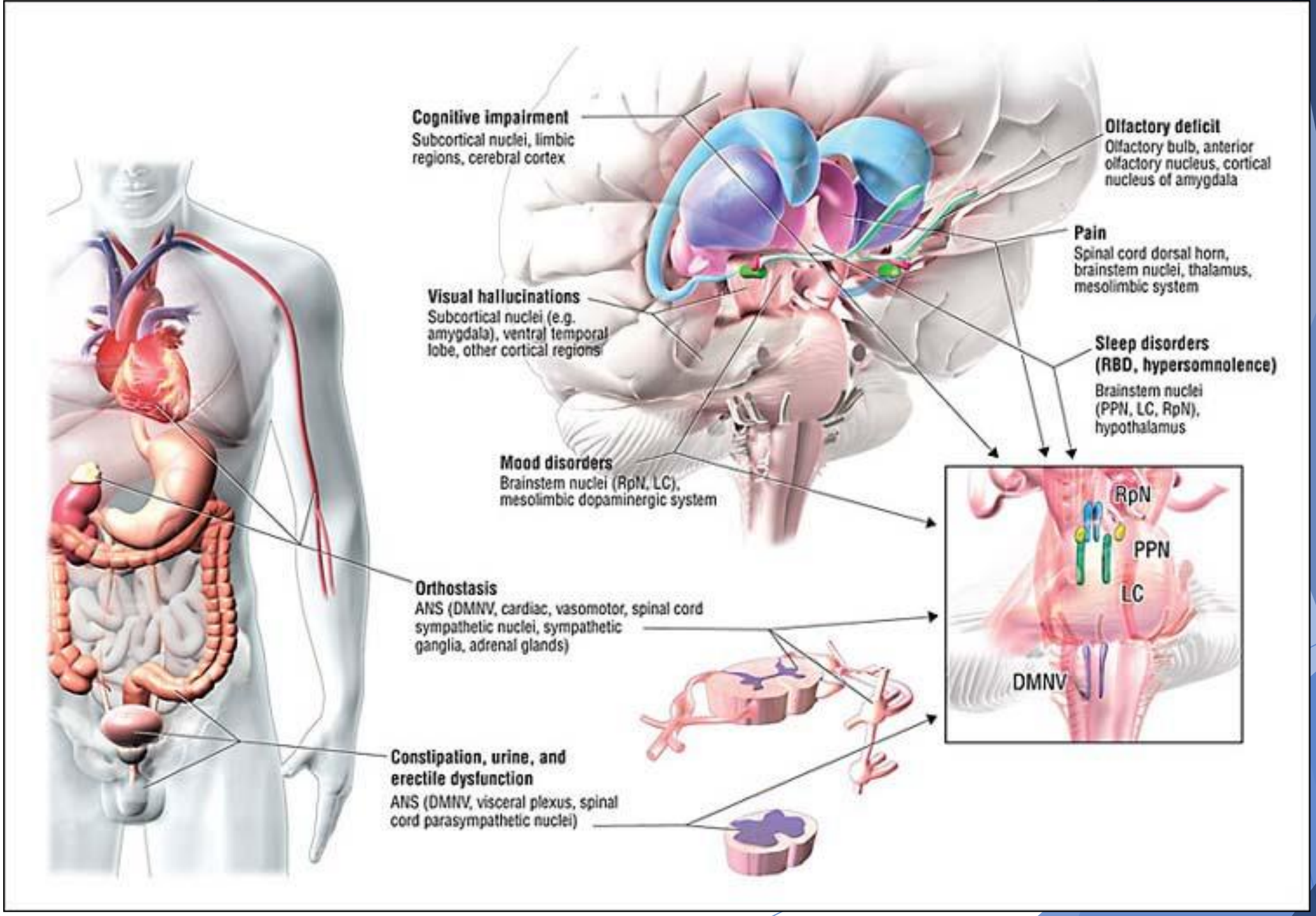
Motor

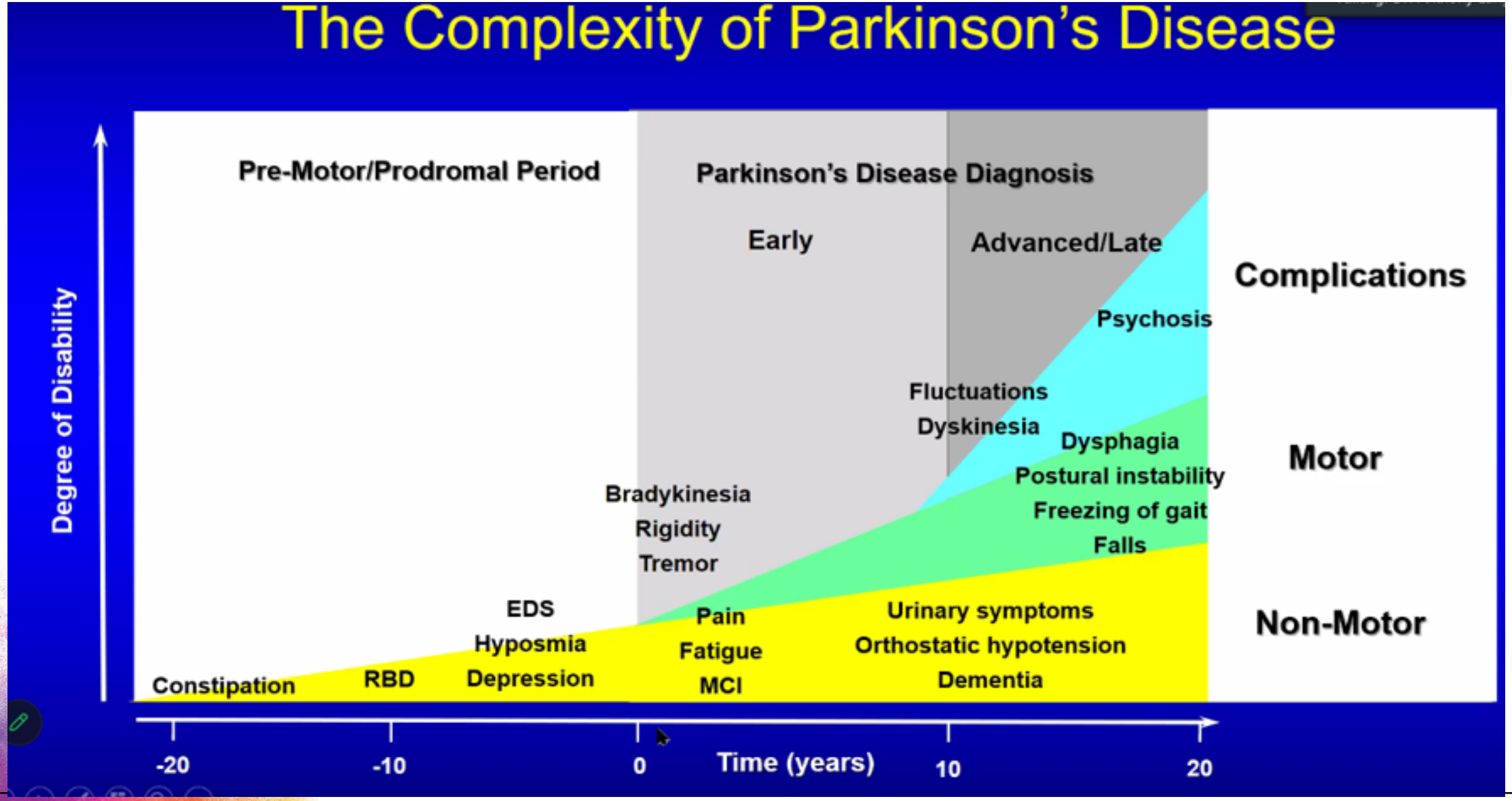
- Bradykinesia
- Rigidity
- Postural instability
- Tremor

Non-motor

- Cognition
- Personality
- Pain
- Fatigue
- Sensoric
- Continence
- Sleep
- Sexual
- Behavioral

Ann Neurol. 2006 Apr;59(4):591-6


Cognitive impairment
Subcortical nuclei, limbic regions, cerebral cortex
Olfactory deficit
Olfactory bulb, anterior olfactory nucleus, cortical nucleus of amygdala
Pain
Spinal cord dorsal horn, brainstem nuclei, thalamus, mesolimbic system
Visual hallucinations
Subcortical nuclei (e.g. amygdala), ventral temporal lobe, other cortical regions
Sleep disorders (RBD, hypersomnolence)
Brainstem nuclei (PPN, LC, RpN), hypothalamus
Mood disorders
Brainstem nuclei (RpN, LC), mesolimbic dopaminergic system
RpN
PPN
LC
DMNV
Orthostasis
ANS (DMNV, cardiac, vasomotor, spinal cord sympathetic nuclei, sympathetic ganglia, adrenal glands)
Constipation, urine, and erectile dysfunction
ANS (DMNV, visceral plexus, spinal cord parasympathetic nuclei)


The Complexity of Parkinson's Disease
Degree of Disability
Pre-Motor/Prodromal Period
Parkinson's Disease Diagnosis
Early
Advanced/Late
Complications
Psychosis
Fluctuations
Dyskinesia
Dysphagia
Postural instability
Freezing of gait
Falls
Motor
Bradykinesia
Rigidity
Tremor
EDS
Hyposmia
Depression
Pain
Fatigue
MCI
Urinary symptoms
Orthostatic hypotension
Dementia
Non-Motor
Constipation
RBD
-20
-10
0
Time (years)
10
20

What can Family Physicians do in PD?

- Diagnose parkinsonism, rule out 'red flags'
- Initiate therapy if functional impairment and long wait
- Refer to OT, PT, SLP and home care, support groups
- Longitudinal FU and support

Treat "low hanging fruits" of PD:

1. CONSTIPATION
2. ORTHOSTATIC HYPOTENSION
3. SLEEP DISORDER
4. MOOD DISORDERS
5. BONE HEALTH

Non Motor Features - Prevalence

- Early:
  - Hyposmia: 25 – 97%
  - Fatigue: 60%
  - Depression: 25%
  - RBD: 30%
  - Constipation: 30%
- Late:
  - Dysphagia: 50% (15y)
  - Freezing/falls: 90% (15y)
  - Anxiety/dep: 55%
  - Orthostasis: 15%
  - *Urinary urge: 35%
  - *Nocturia: 35%
  - **Urine incontinence: 33%
  - Sexual dysfunction: 20%
  - Cognitive impairment/dementia: 80% (10y +)

*Connelly, Lang. JAMA 2014; 311(16)1670-1683;
**Ruffion et al. Neuroepidemiology 2013;41:146–155

Impact of non-motor symptoms

Dominant reason for declining quality of life and function

(Poewe W. 2006; Seppi et al. 2011, Weintraub et al. 2004)

Often underdiagnosed and undertreated in routine neurology assessments

(Muzerengi 2006, Shulman 2002, Chaudhuri 2006, Martinez-Martin et al. 2018)

Cause significant caregiver burden

(Weintraub 2008, Oguh 2013, Schrag 2006, Campenhausen 2011)

Increase risk of hospitalization and poor outcomes

(Gerlach 2011)

Can J Neurol Sci. 2021; 00: 1–10

ORIGINAL ARTICLE

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Emergency Room Visit Prevention for Older Patients with Parkinsonism in a Geriatric Clinic

Joyce W. Lee, Greta Mah, Sumeet Kalia, Janis Miyasaki

Patient Characteristics

337 calls were received re: 114 patients

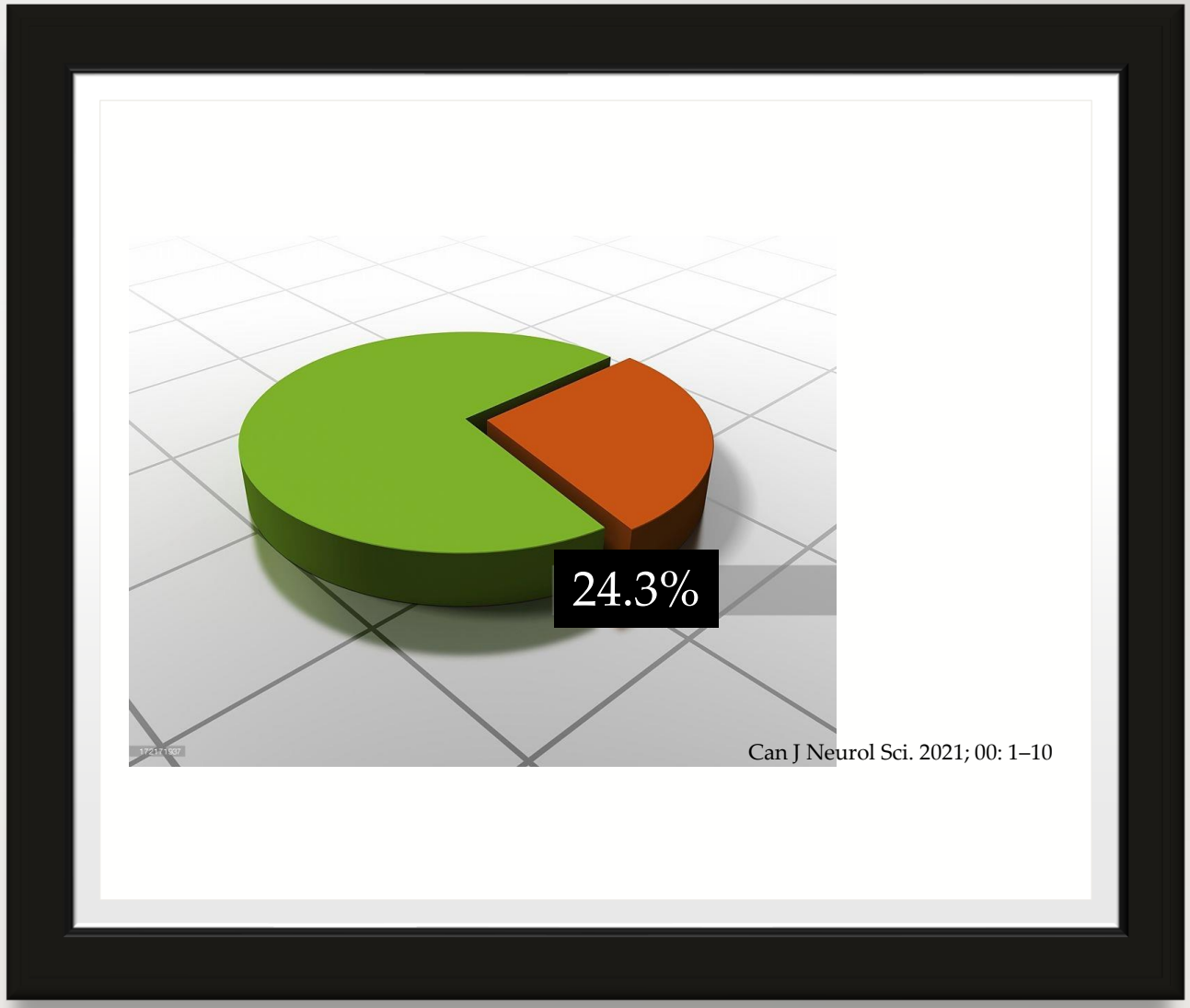
81% calls from caregivers

Male : Female	58% : 42 %
Avg Age	80 (61-95)
# of Medical Co-morbidities	9 (2-19)
(50% dementia, 61% anxiety/depression)	
Avg UPDRS (Part III)	34/108
Avg Duration of PD (Years)	9 (1-29)

Can J Neurol Sci. 2021; 00: 1–10

82 of 337 calls with intention to visit ED- “crisis calls”

-almost half of all users had an intention to visit ED in 1 year



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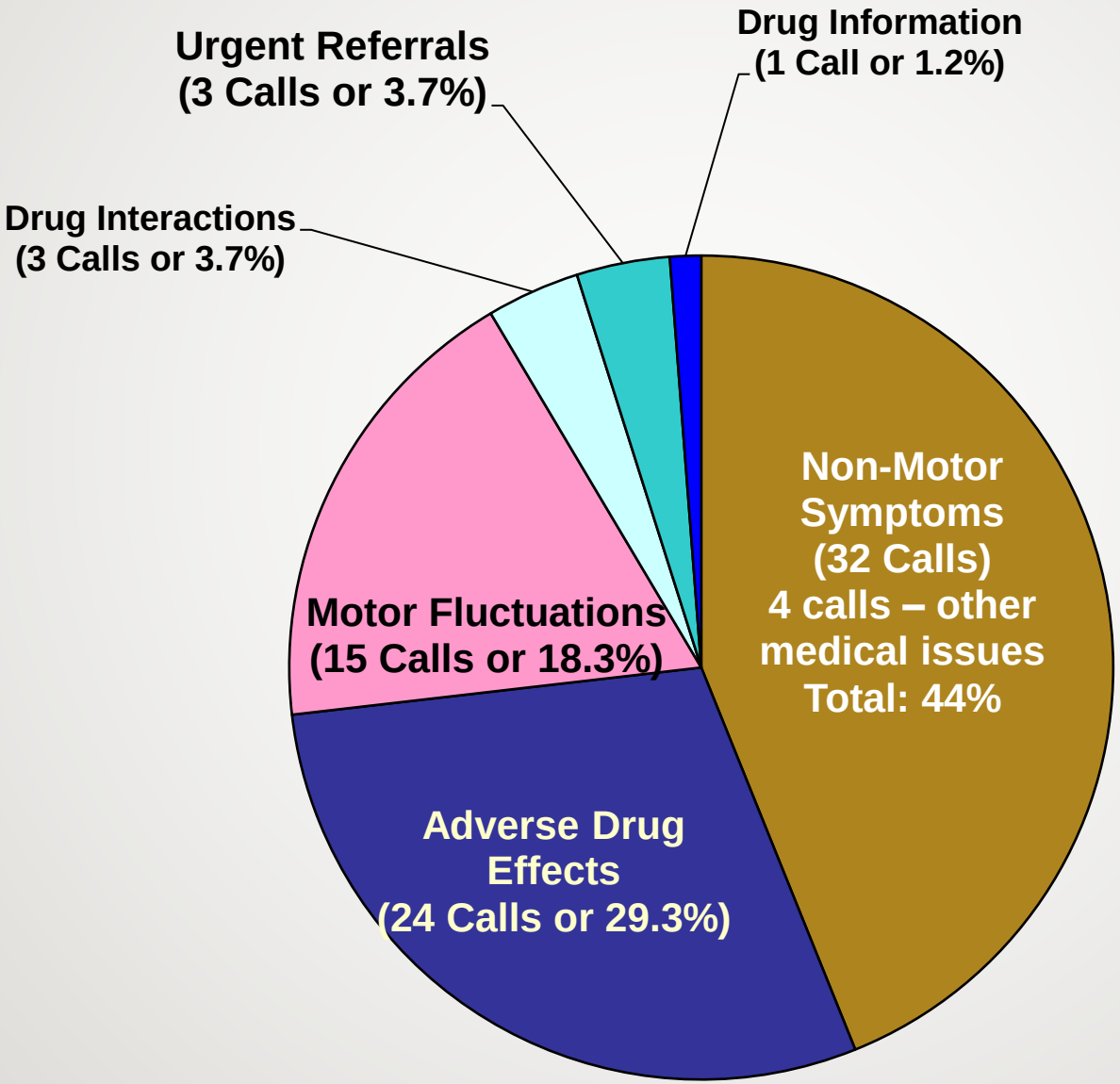
Reasons for Calls with intention to visit ED



Can J Neurol Sci. 2021; 00: 1–10

Distribution of 32 crisis calls related to non-motor symptoms:

Psychosis: 15 cases
Hypotension with dizziness: 6 cases
Pain: 5 cases
Anxiety: 2 cases (1 of the 2 cases resulted in ED visit)
Insomnia: 2 cases
Depression: 1 case
Constipation: 1 case

Can J Neurol Sci. 2021; 00: 1–10

PD is a New Geriatric Syndrome due to Age, Frailty and Complexity

Hospitalization risk is substantial with poor outcomes and high costs (1-2)

Geriatric Parkinson's Care and timely telephone intervention by a Geriatrics Pharmacist is effective in preventing ED visits /hospitalization (93% averted) (3)

Geriatric Parkinson's Care was highly acceptable to users with great feedback from referral sources (FPs, neurologists) (3)

Expert, evidence-based team-based rehab is an essential part of PD care, which must be performed in concert with medication and symptom management (4)

1. Woodford H, Walker R. Emergency hospital admissions in idiopathic Parkinson's disease. Mov Disord. 2005;20(9):1104–108. 12.
2. Klein C, Prokhorov T, Miniovitz A, Dobronevsky E, Rabey JM. Admission of Parkinsonian patients to a neurological ward in a community hospital. J Neural Transm. 2009;116(11):1509–12. doi: 10.1007/s00702-009-0302-1
3. Lee, J., Mah, G., Kalia, S., & Miyasaki, J. (2021). Emergency Room Visit Prevention for Older Patients with Parkinsonism in a Geriatric Clinic. *Canadian Journal of Neurological Sciences, 48*(5), 666-675. doi:10.1017/cjn.2020.253
4. Grimes D, Fitzpatrick M, Gordon J, et al. Canadian guideline for Parkinson disease. CMAJ. 2019;191(36):E989–1004

Canadian Guidelines on Parkinson's Disease (CGPD)2019

Grading scheme from NICE, EFNS and SIGN:

- Level A – High quality meta-analyses, or RCTs with low bias
- Level B – High quality case-control or cohort studies with very low bias, and high causality
- Level C – Case-control or cohort with low bias and moderate causality
- Level D – Case reports; Expert opinion
- GPP – Recommended best practice based on guideline development group

CMAJ 2019 Sept 9: 191: E989- 1004

Each patient experiences different non-motor symptoms

Parkinson Disease: M-A-N

Motor Symptoms:

Early

Slow Movement

Tremor Stiff Muscles Shuffling Gait

Moderate

Slower movement

Axial symptoms

Advanced

Freezing of Gait, Falls

Postural Instability

Swallowing Difficulty

Autonomic Dysfunction:

Bowel: Constipation (pre-motor)

- slow GI motility, GERD

Bladder: Nocturia, OAB

BP: Orthostatic Hypotension

Neuropsychiatric Symptoms:

Sleep disorders: RLS, RBD, OSA

Depression and/or Anxiety

Dementia, psychosis

RBD (often preceding PD by median of 14 years)

Case 1: Margaret

79 y.o. widow, retired accountant

Admitted to LTC 1 year ago after a fall with R hip fracture with post-operative complications of delirium, urinary retention, mobility and functional decline.

Needs asistance for ADLs except feeding, mobilizes with a walker short distance with PT assistance.

PMH: PD x 9 years, HTN and T2DM

Case 1: Margaret's medications

1. levodopa/carbidopa 100/25 1.5 tablets po qid and 1 tablet po hs
2. Levocarb CR 100/25 qhs
3. acetaminophen 650mg qid
4. perindopril 8 mg qam
5. bisoprolol 2.5mg qam
6. metformin 500 mg po bid
7. empagliflozin 10mg daily *
8. Vit D 1000iu daily
9. Quetiapine 12.5 mg hs (started in hospital during delirium)
10. Ondansetron 4 mg q8h prn

Case 1: Margaret

Complains sometimes levodopa doses don’t work

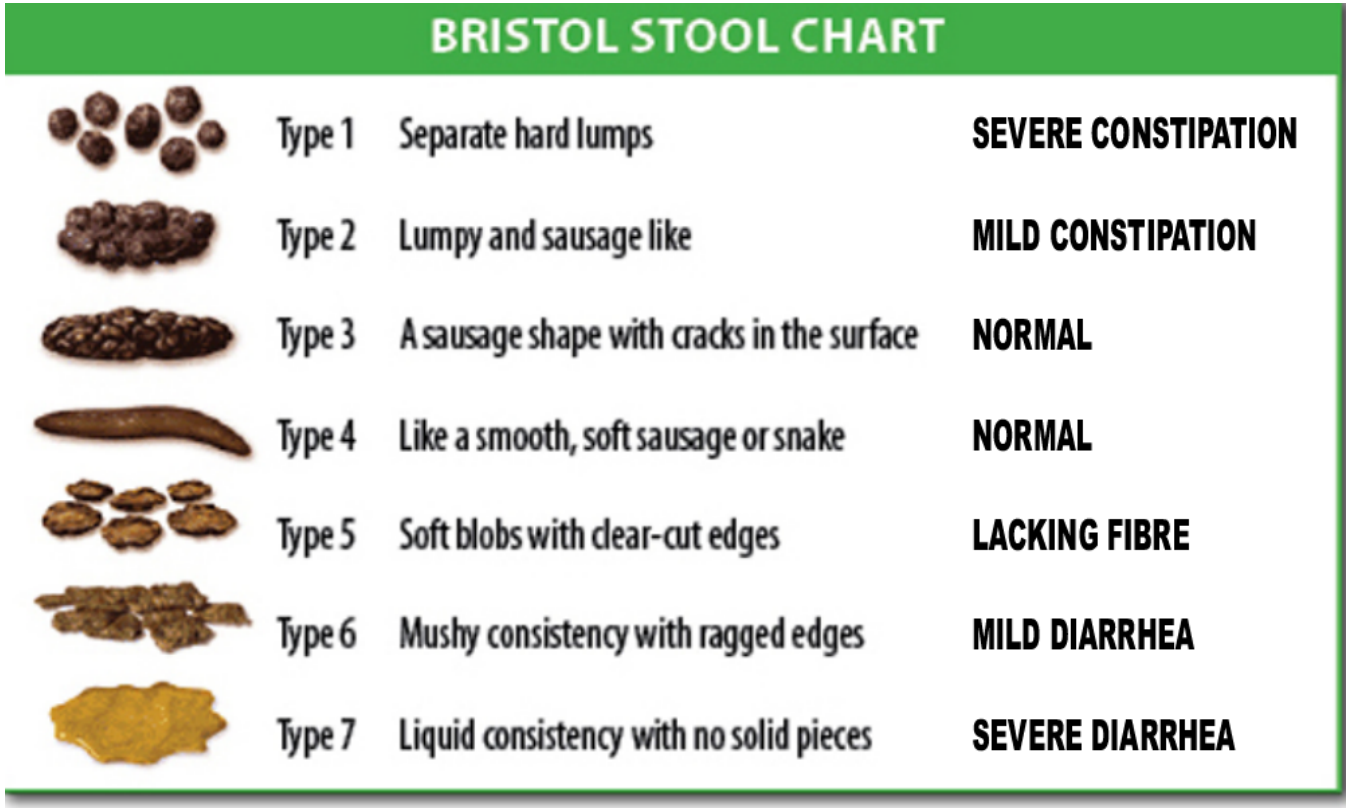
Bristol type 2 BM every 3-4 days, on Psyllium

Bladder: nocturia 3 times per night disturbs sleep

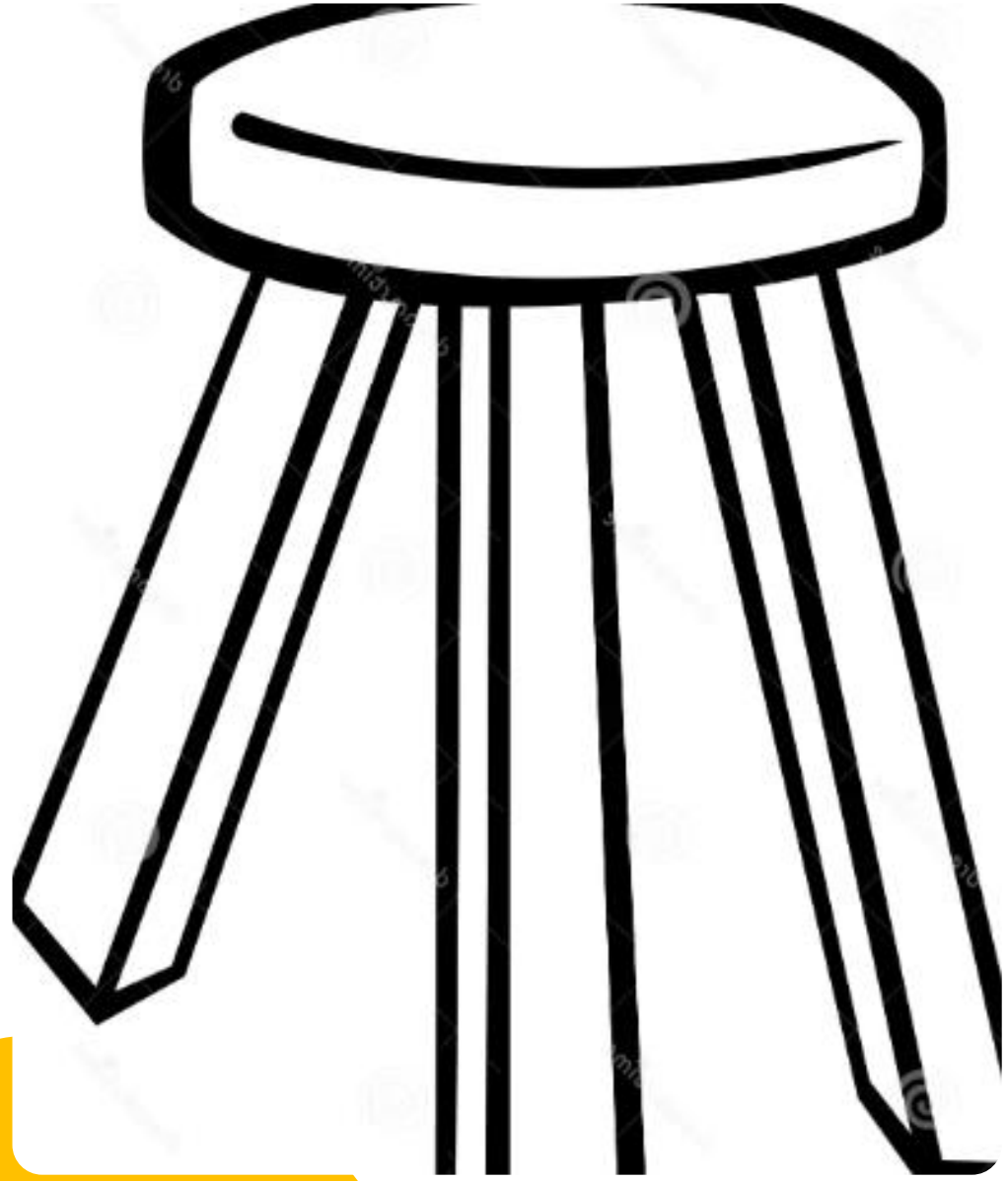
BP: 109/69 HR 65 sit, 100/65 HR 70 stand

Mood – OK, but tired, still participates in exercise. Embarrassed by her drooling. MoCA 20/30 Dec 2022

Constipation – simple but SERIOUS in PD



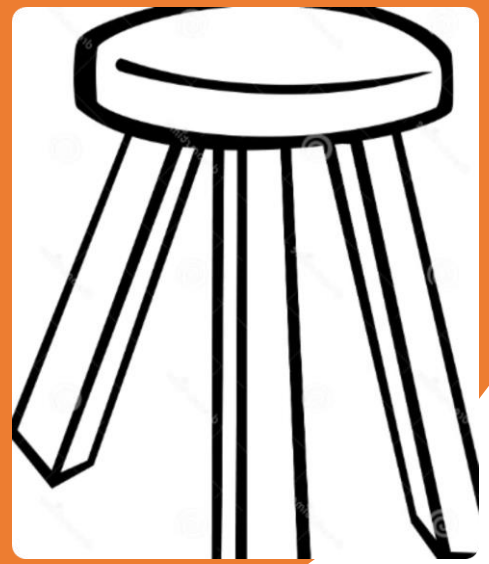
- Poor oral intake, dehydration → orthostatic hypotension, falls
- Poor levodopa absorption and worse motor symptoms/fluctuations
- Urinary retention and frequency/incontinence
- Volvulus
- Delirium
- AIM FOR AT LEAST 1 BRISTOL 3 – 4 STOOL DAILY/EVERY OTHER DAY



Constipation – the 3-legged stool

- Texture
- Motility
- Core Strength

Constipation



- General: Fluids, fiber, exercise, stop culprit meds
- TEXTURE:
  - PEG, lactulose, fluids
  - NO PSYLLIUM – ineffective due to poor fluid intake and GI motility in older patients with PD
- MOTILITY (LOW):
  - Disease states – DM, PD/parkinsonism, sedentary
  - Drugs – opioids, anticholinergic, antipsychotic, antinauseants
  - stimulants should be prescribed more regularly (e.g., four times weekly, up to daily).

Nocturia/ Urinary frequency

Assessment:

- Post void residual + assess for UTI
- Constipated? - Treat
- On diuretic? Cholinesterase inhibitor? Caffeine?

Management:

- **Tx constipation**
- Timed urination, avoid caffeine, fluids in evening
- Safety: offer options of commode, urinal, diaper, condom catheter

Overactive Bladder Syndrome in PD

- About 1/3 of patients
- Treatment options:
  - 1st choice: Mirabegron 25mg qhs, may increase to 50mg qhs after 1-2 months (unless moderate liver disease or renal impairment eGFR < 30 mL/min) – watch for uncontrolled HT or AF
  - 2nd choice: Fesoterodine 4 – 8 mg qhs (least anticholinergic & BBB penetration; tested in "vulnerable elderly patients" - no short term cognitive side effect), monitor constipation

Dengler K et al. *Urogynecology* 29(1S):p S1-S19, January 2023.

Tx Plan for Margaret:

Constipation

- Trial D/C quetiapine
- D/C ondansetron PRN
- D/C Psyllium
- PEG 3350 8.5g daily
- Senokot 1 – 2 tab qhs or 2 tab 4 times per week
- Fluids + exercise

Tx Plan for Margaret:

Urinary Sx:

- Tx constipation and see what happens
- PVR initially 450 cc → 50 cc after better BM
- Nocturia still troublesome?
  - D/C empagliflozin (diuretic)
  - Mirabegron 25 mg po hs trial

Tx Plan for Margaret:

Sialorrhea (drooling)

- Sugarless candies to stimulate swallowing of saliva
- Ipratropium spray to mouth ONLY if needed
- Ax for underlying swallowing problem, food texture and oral hygiene to prevent aspiration pneumonia.

Unexplained falls in the past few months

- Feeling weak & tired at times, not dizzy
- **BP (AM after breakfast) sit: 110/69 HR 63, BP stand 90/64 HR 65**
- **BW: HbA1C: 5.8%, CR 60, 25-OH vitamin D 55**
- Contributing factors to falls in PD:
  - OH, postural instability, freezing of gait and cognitive decline
  - DM and PD increase risk of autonomic dysfunction and OH
- She may not tolerate the same doses of antihypertensives as before.

Orthostatic hypotension

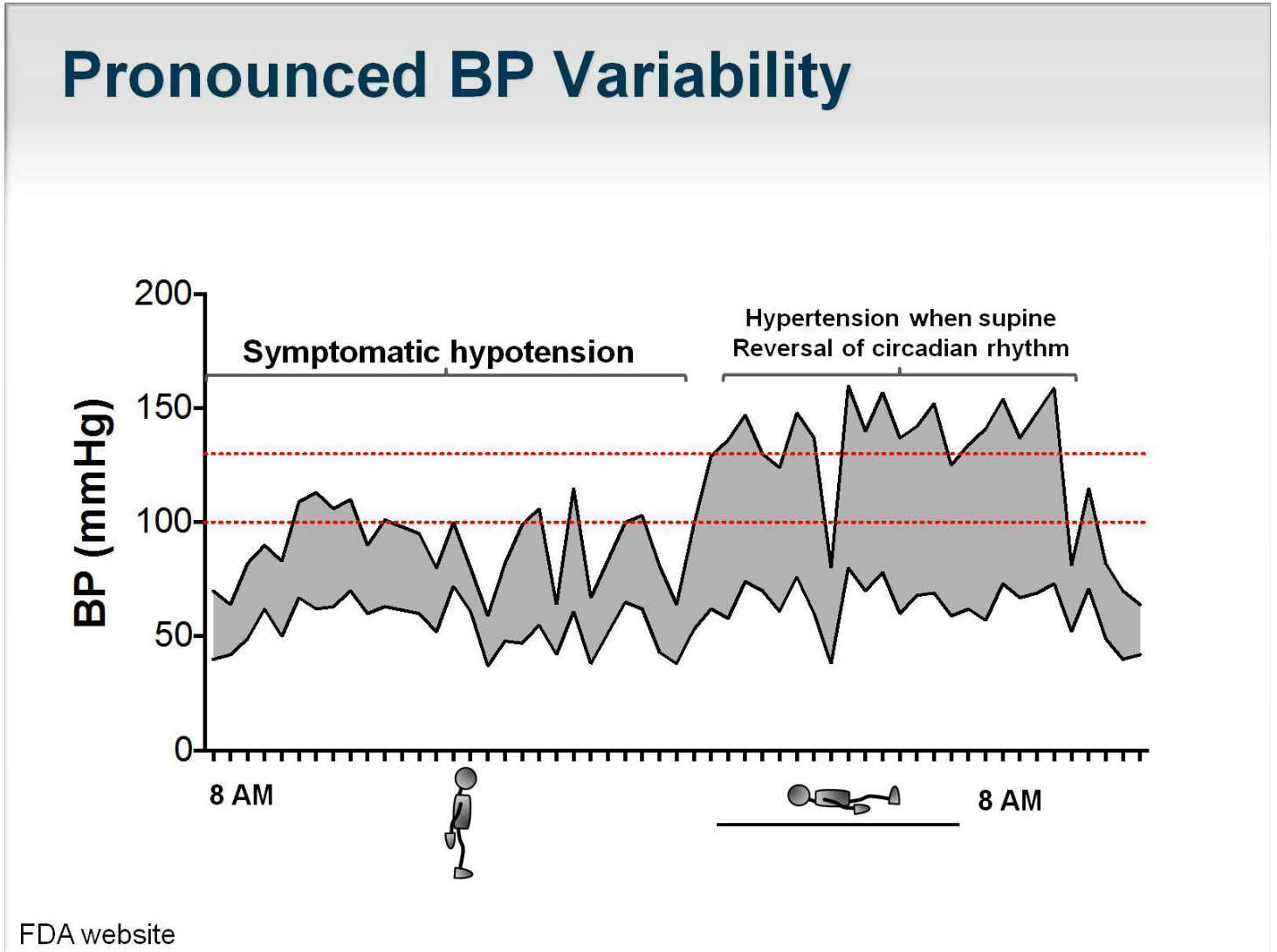
Practical maneuver:

- BP and HR sitting, then standing (immediate and after two minutes) should be part of the routine examination of a PD patient
  - **SBP drop ≥15 mmHg or a DBP drop ≥7 mmHg**
  - **best optimizes sensitivity and specificity of sit-to-stand test ***
- Watch for post-prandial OH
- A lack of adequate compensatory heart rate increase with blood pressure drop (<10 to 15 beats per minute) is suggestive of neurogenic OH.

*Shaw, Brett et al. J Hypertens. 2017 May ; 35(5): 1019–1025

OH/Supine HTN

- Check BP at night or before waking up while in supine position to assess for supine HTN
- Supine HTN increases nocturesis
- OH – falls, cognitive decline



Orthostatic hypotension

Medications which exacerbate OH:

- Dopaminergic agents, antihypertensives, α-blockers, β-blockers, SGLT-2 inhibitors, diuretic and tricyclic antidepressants
- BP meds should be reduced and given at bedtime to prevent supine hypertension and reduce impact on daytime BP

Non-pharmacological measures:

- Avoid alcohol & dehydration or warm environment.
- Increase fluid and salt intake in AM, raise head of the bed by 4 inches to ↓ nocturia & supine HT.
- Apply abdominal binder before getting up in the morning to maintain splanchnic circulation – remove at bedtime
- Pump legs – work on leg muscles

Case 1: Margaret's medications

1. levodopa/carbidopa 100/25 1.5 tablets po qid and 1 tablet po hs
2. Levocarb CR 100/25 qhs
3. acetaminophen 650mg qid
4. **perindopril 8 mg qam**
5. **bisoprolol 2.5mg qam**
6. metformin 500 mg po bid
7. **empagliflozin 10mg daily**
8. Vit D 1000iu daily
9. Quetiapine – stopped recently
10. PEG 3350 8.5 g daily
11. Senokot 2 tab po hs

Treatment for OH

If medication adjustment & nonpharmacologic measures are insufficient:

1. First choice: Midodrine 2.5 mg to 5 mg q 3.5 to 4 hours; eg, 8:00 am, 12:00 pm, 4:00 pm (no lying down for 4 hours after a dose) Last dose taken at least 4 hours before bedtime to prevent supine HTN

2. Fludrocortisone 0.05-0.1mg qam

- less effective than midodrine as monotherapy.
- Higher dose: 0.2mg could cause hypokalemia and peripheral edema and exacerbate supine hypertension.
- Contraindicated in CHF/CRF

3. Pyridostigmine 30 mg to 60 mg tid - modest benefit in OH without exacerbating supine HT

- Side effects of diarrhea, nausea, and sialorrhea.

4. AVOID DDAVP – risk of hyponatremia

Bone health in PD

- **Patients with PD have 2x risk of osteoporotic fractures and 3x risk of hip fracture (1)**
- **3M primary care patients in UK**
  - **Females with PD have 2x risk of hip fractures**
  - **Males with PD have 3x risk of hip fractures (Invernizzi et al., 2009, Sato et al., 2001) (2)**
- **Vitamin D levels are lower in PD subjects than those in healthy subjects (3, 4)**
- **Conventional risk scores (FRAX, CAROC) underestimate risk in PD**
- **NO DRUG HOLIDAY for PD patients with hx of falls**

1. Pouwels S, Bazelier MT, Boer A et al. Risk of fracture in patients with Parkinson's disease. Osteoporos Int 2013; 24:2283–90
2. Hippisley-Cox J, Coupland C. Derivation and validation of updated QFracture algorithm to predict risk of osteoporotic fracture in primary care in the United Kingdom: prospective open cohort study. BMJ 2012; 344: e3427.
3. Peterson et al. 2013
4. Rimmelzwaan et al. 2016

• Tx Plan for Margaret

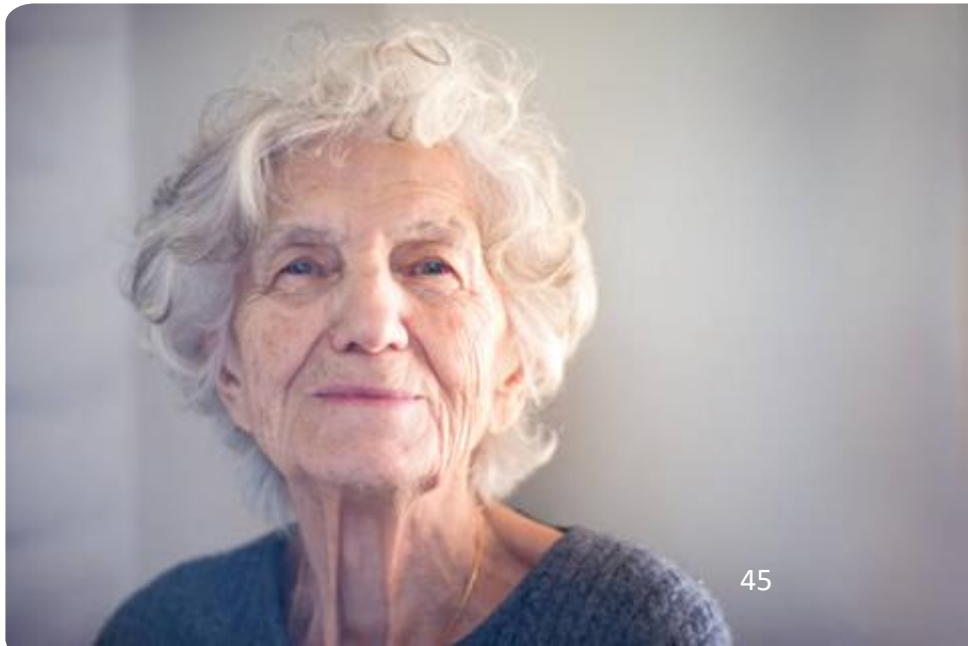
BP (AM after breakfast) sit: 110/69 HR 63, BP stand 90/64 HR 65
BW: HbA1C: 5.8%, eGFR 65 , 25-OH vitamin D 55

OH:

- D/C Empagliflozin & Bisoprolol (no indication for BB)
- Reduce Perindopril to 4mg and change time to qhs
- If not sufficient, d/c Perindopril & add Midodrine
- Wear abdominal binder before getting up

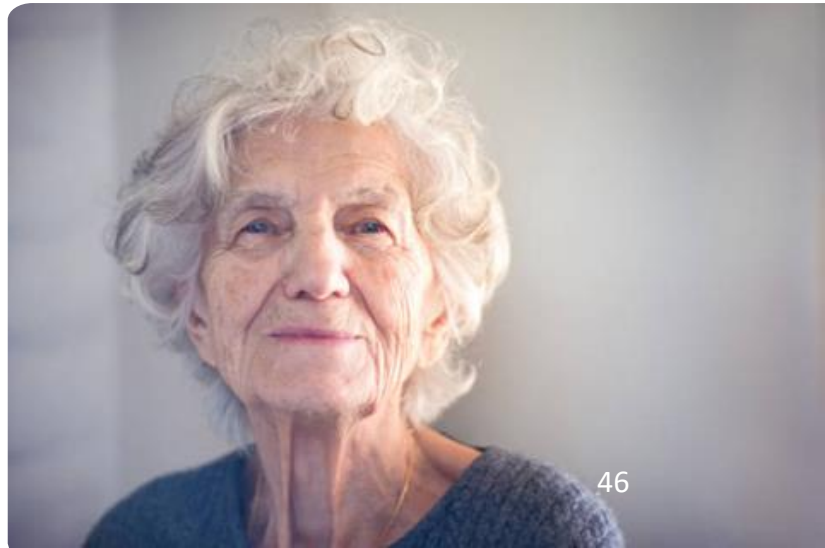
Bone health:

- Increase Vit D to 2000iu daily with calcium rich diet
- Add risedronate DR 35 mg weekly



Next few months…

- She slept better with much less nocturia
- No longer having frequent falls, but her BP at night and early morning became much higher. She complained of headaches occasionally
- BP 6am lying: 175/98 HR 78
- BP (10AM) sit: 117/69 HR 71, BP stand 102/67 HR 72



Supine Hypertension

- If one or both of the following after 5 minutes of lying down:
- a systolic blood pressure of ≥ 140 mm Hg
- a diastolic blood pressure of ≥ 90 mm Hg
- About 50% of patients with neurogenic orthostatic hypotension also have supine HT.
- Symptoms are: headache, nocturia, worse orthostatic hypotension in the morning
- Potential long-term risks: kidney problems, left ventricular hypertrophy, stroke, cognitive impairment

Management of supine HTN with short acting agents

Drug	Approximate Dose Equivalence
• Ramipril	2.5 mg daily
• Benazapril	10 mg daily
• Captopril	12.5 mg three times daily
• Cilazapril	2.5 mg daily
• Enalapril maleate	5 mg daily
• Fosinopril	10 mg daily
• Lisinopril	10 mg daily
• Quinapril	10 mg daily
• Perindopril	2 mg daily

Treatment Options:

- Losartan 25 mg -50mg po hs
- Captopril 6.25-25mg po qhs
- Nitro-patch 0.2 mg -0.4mg qhs

  (remove at least 30min before getting up)

Tx plan for Margaret:

- switch perindopril to captopril 25 mg qhs, monitor lying BP before getting up, BP sitting/standing after breakfast)

Case 2 Michael 78 years retired plumber

- He moved to LTC after wife died 2 years ago – could not manage on own.
- PD x 2 yr - Levodopa/Carbidopa 100/25: 1 po tid at 7,12,5, Rasagiline 0.5mg daily
- Anxiety – Sertraline 50mg qhs x 1 year

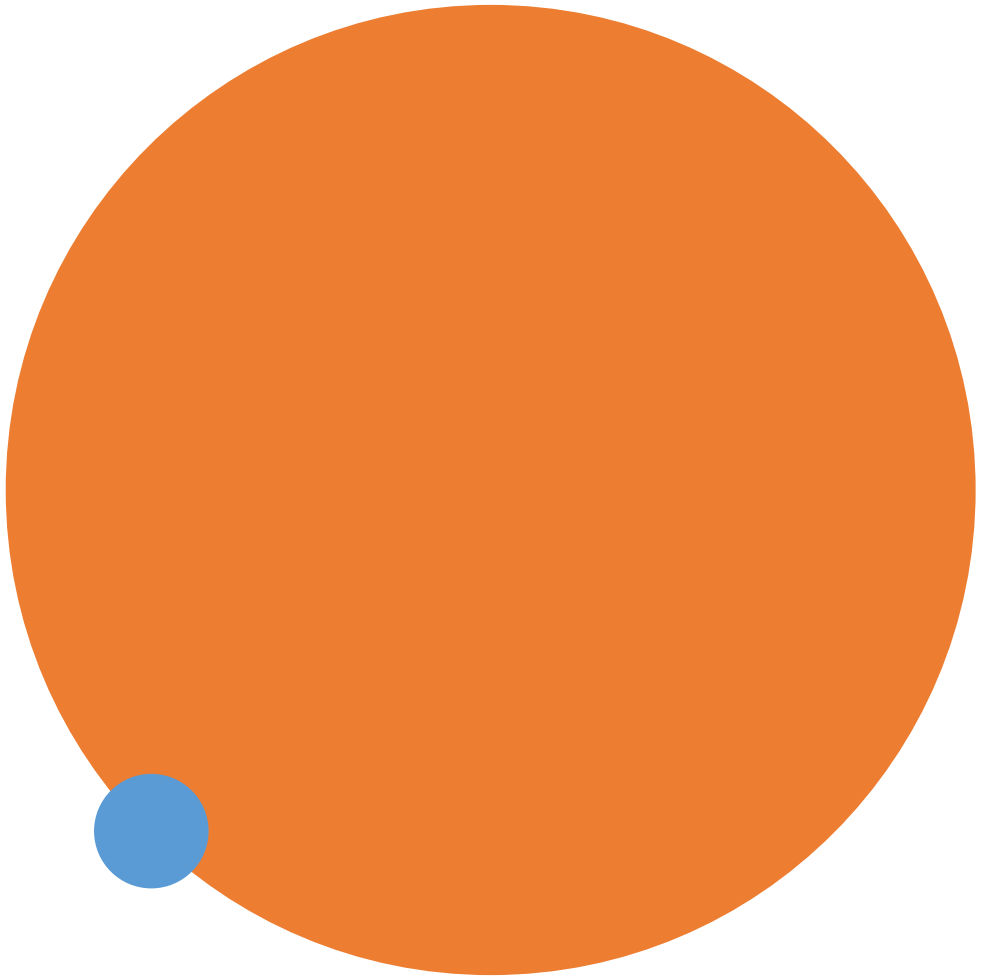
Motor: motor Sx well treated during the day.

Autonomic: BP is fine without postural drop. Regular and easy BM with PEG 3350 daily. He goes to bathroom because he can't fall asleep at night.

Case 2 Michael 78 years retired plumber

Sleep/Neuropsych: He stopped attending LTC activities and complains of feeling tired. He dozes off in front of TV during day. Complains of not feeling rested in morning.

- No history of OSA from past record.
- **Reports leg discomfort when trying to fall asleep – he has to get up and walk to get some relief for his legs but has fallen.**
- Staff reported him **screaming and acting out his dreams during the night. He has fallen out of bed** once.



What factors may be causing Michael's poor sleep?

Common sleep issues in PD

1. Sleep apnea should be suspected if client has severe daytime sleepiness, heavy snoring.
2. Insomnia with depression and/or anxiety
3. REM sleep behavioural disorder (RBD)
4. Restless legs syndrome
5. Pain or muscle stiffness/spasm (dystonia) from PD
6. Caffeine or medications (Selegiline, Amantadine, Pseudoephedrine, Alcohol etc)

Michael's issues

- Restless legs at bedtime
- REM sleep disorder
- Possible anxiety/depression

Case 2 Michael 78 years retired plumber

August 2022 – GDS 10; HAM-A Hamilton Anxiety Rating Scale - 13 (mild)

Aug 2023 - MMSE: 24/30, GDS: 6; HAM-A - 18 (moderate)

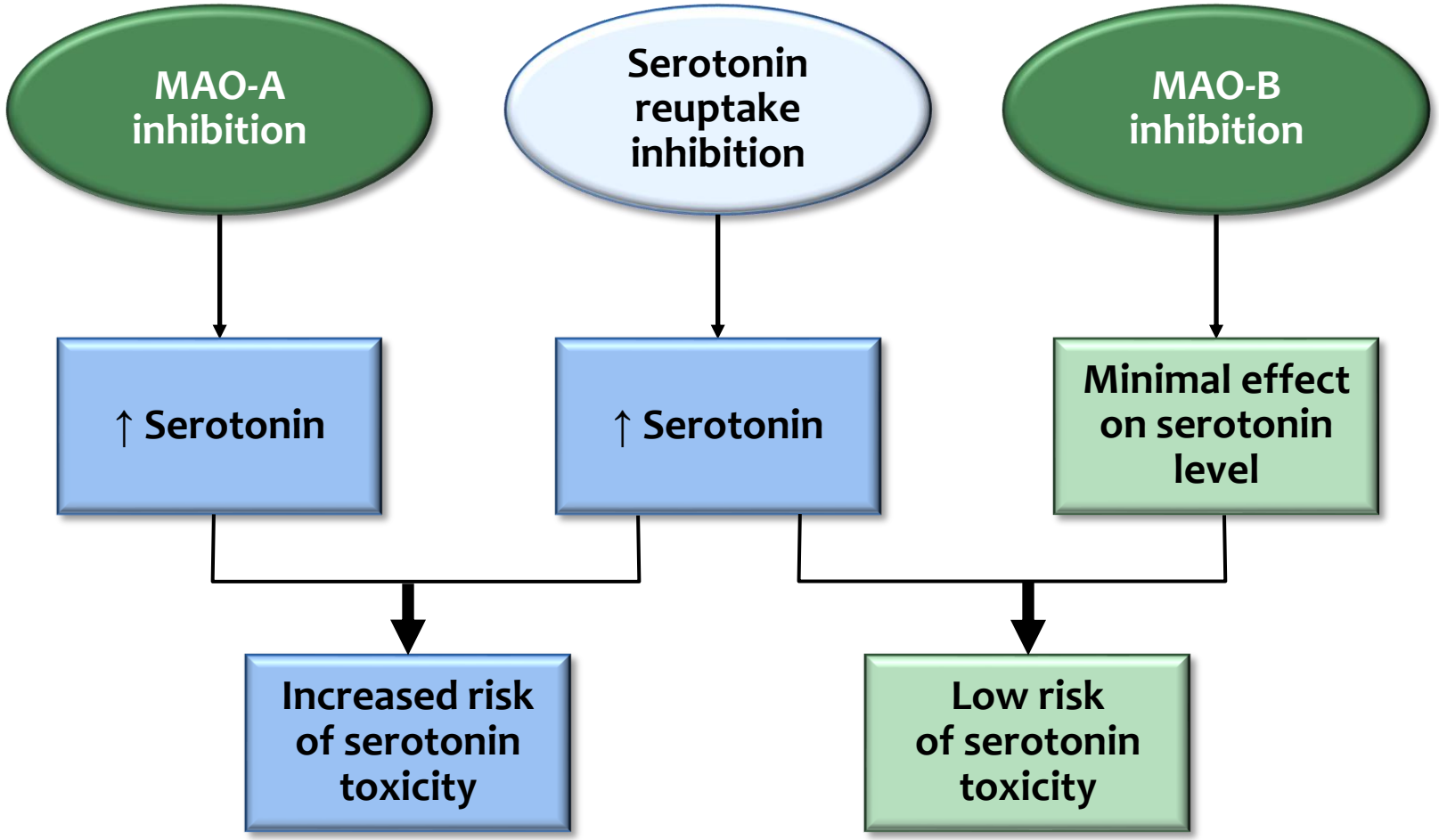
Jun 2023: Hgb 139, SCr 74, Na 140, K 4.9, B12 583,TSH 2.76, Vit D 138, **Ferritin** 100, A1C 6.8

Iron 22, Transferrin 1.85 (L), Iron Saturation 0.48

Depression & Anxiety in PD (25-55%)

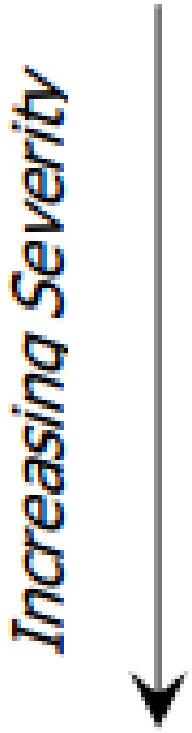
- **low threshold for diagnosis** of depression & anxiety (often under-diagnosed, misinterpreted as normal for PD)
- May be **pre-motor** before PD Dx
- Start with **low dose selective serotonin reuptake inhibitors (SSRI) escitalopram, sertraline or serotonin-norepinephrine reuptake inhibitors (SNRI):** duloxetine if in pain.
- Prefer taken **with breakfast or lunch** to avoid exacerbation of REM sleep behaviour disorder (RBD) or restless leg syndrome (RLS)

Rasagiline more selective than Selegiline



Adapted from *N Engl J Med* 2005; 352(11):1112-20.

Symptoms vary in type and severity (serotonin excess)



- Diarrhoea
- Restlessness
- Profuse sweating
- Tremor (including fine shaking of the hands)
- Shivering
- Involuntary muscle twitches or jerking
- Mental confusion and mental state changes
- Raised blood pressure and faster pulse (heart rate)
- Increased body temperature
- Seizures or convulsions (fits)

Prescriber's Letter 2012; 28(5):280528
What You Should Know About "Serotonin Syndrome"

Rasagiline + Antidepressants

Rasagiline trials (TEMPO & LARGO) allowed pts on antidepressants:

- amitriptyline=50 mg/day,
- trazodone=100 mg/day,
- citalopram=20 mg/day,
- sertraline=100 mg/day,
- paroxetine=30 mg/day.

- No adverse interactions were reported.

- ****ALWAYS TREAT DEPRESSION/ANXIETY, ok to stop MAO-B Inh if needed**

REM Behaviour Disorder (RBD) 30-50%

- lack of large muscle atonia during REM sleep and often disrupts sleep quality
- enactment of dreams or even falling out of bed (may predate PD dx by decades).
- ask patients and partners about **vivid dreams, yelling and moving in sleep, hypnopompic hallucinations (hallucinations upon waking)**
- exacerbated by antidepressants (TCAs, SNRIs, SSRIs, mirtazapine) with serotonergic/noradrenergic properties, especially when given at bedtime.
- Clonazepam is effective, but more adverse effects
- Melatonin dual action 10mg or time release 5 mg at bedtime is preferred.

Restless Leg Syndrome (RLS) 30%

- Subjective sensations of restlessness, discomfort, and paresthesia in the extremities while resting, accompanied by the urge to move
- Restless and desire to move the extremities to get temporary relief (walking or rubbing the legs)
- Symptoms are worse at rest and later in the day or at night.
- **In PD - this is a "wearing off" symptom**

Management of RLS

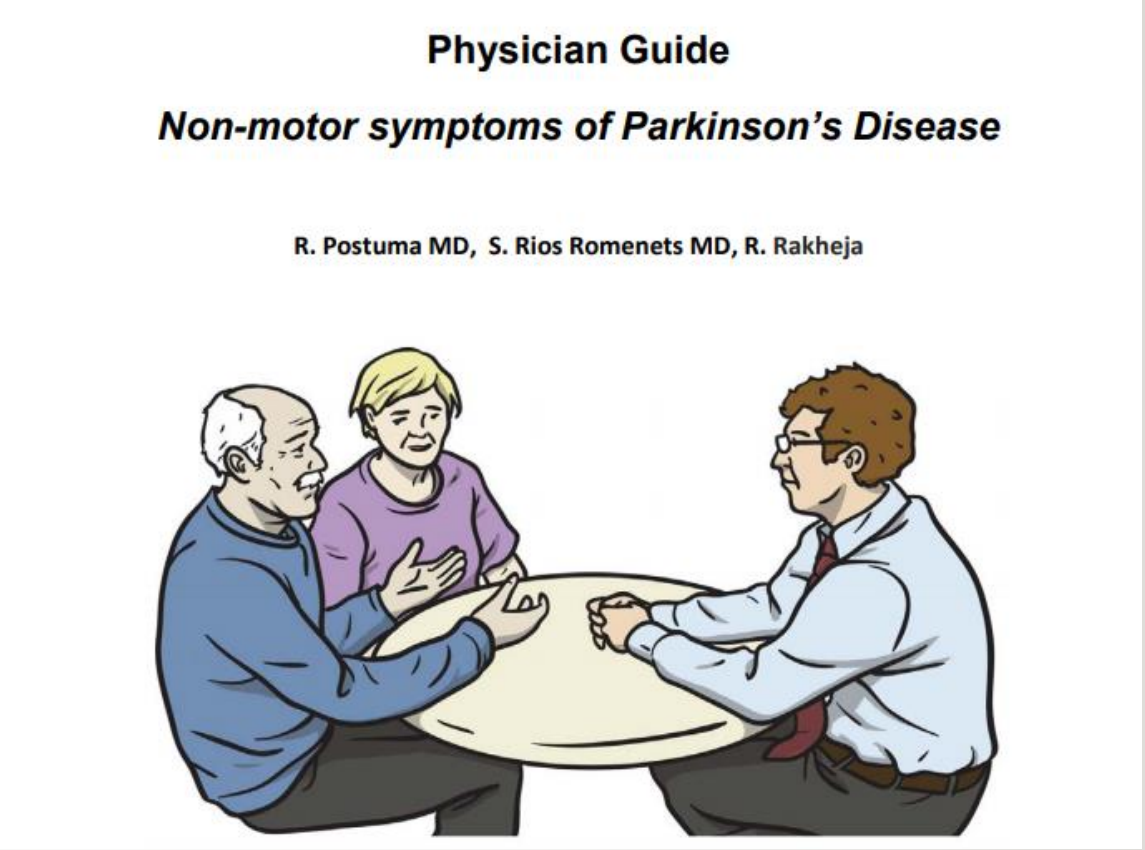
- Screen for iron deficiency & secondary causes
- Antidepressant and antipsychotics (incl quetiapine) taken at night often worsens RLS
- Address "wearing off" by adjusting levodopa – eg. Add bedtime dose or CR;
  - low dose pramipexole 0.125-0.25mg qhs or Rotigotine patch 2mg daily. (Need to rotate application site) is alternative and effective but **NOT when already impulsive, cognitive impairment or psychosis**
- Pregabalin 25mg-75mg qhs may be tried if patient also experiences anxiety.

Case 2 Michael 78 years retired plumber

Treatment Plan:

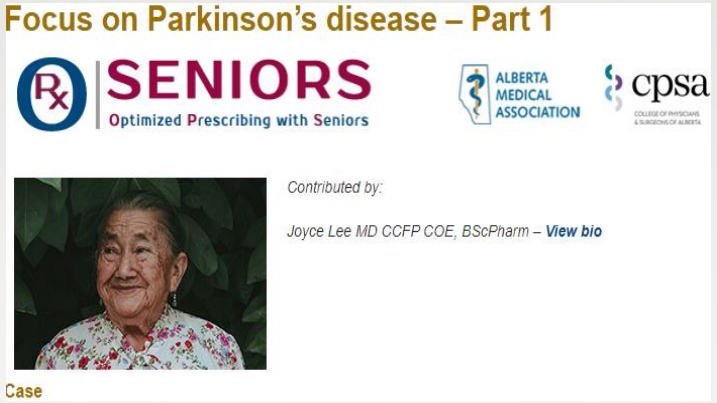
- Provide more daylight, minimize alcohol consumption, optimize relaxing environment in the evening
- Meds:
- Move Sertraline 50 mg to lunch time
- Add Melatonin Time Release 5mg qhs for RBD
- Add levodopa/carbidopa at bedtime – 100/25 1 tab po qid (30 min before meals and bedtime)
- If still RLS ++, add Pregabalin 25mg qhs
- Monitor mood – if needed and RLS, RBD controlled, increase sertraline to 75 mg ...

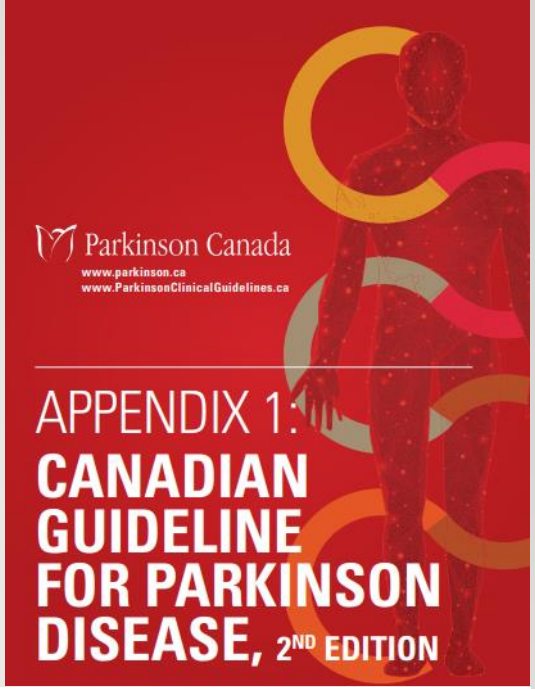
Resources

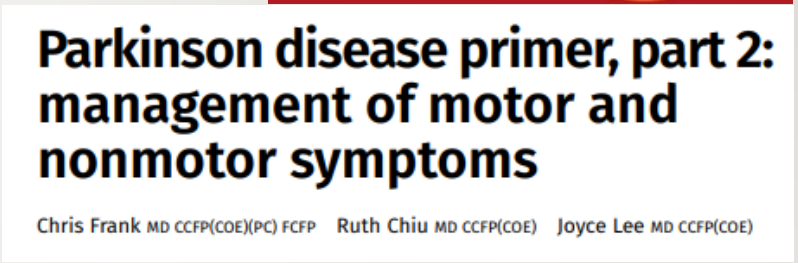


- http://www.parkinson.ca/wp-content/uploads/Physician_Guide_to_Non_Motor_Symptoms_of_Parkinson_Disease.pdf

Resources







- https://www.parkinsonclinicalguidelines.ca/guideline/
- Frank C, Chiu R, Lee J. Parkinson disease primer, part 2: management of motor and nonmotor symptoms Canadian Family Physician February 2023, 69 (2) 91-96; DOI: https://doi.org/10.46747/cfp.690291
- Lee J. Optimized prescribing with Seniors – Focus on Parkinson disease. Part 1. Focus on Parkinson's disease – Part 1 | Alberta Medical Association (albertadoctors.org)
- Mah G. Parkinson Disease A Management Update for Pharmacists. Pharmacy Practice + Business 2020 Vol 7 (10) 22-25

SUMMARY – PD CARE

Constipation: PEG 8.5 to 17 gm daily + stimulant (Senna 2 tab 3x/wk to nightly)

REM Sleep Disorder: Melatonin Time Release 5mg/Dual Action10 mg qhs,
SSRI and Cholinesterase Inh in am (not hs)

Orthostasis: Reduce BP meds, fluids, abdo binder, midodrine 2.5 - 10 mg at 0800,1200,1600, watch for supine HTN (may need losartan/captopril hs)

Depression: SSRI/SNRI in daytime, add melatonin if hx of RBD

Bone health – consider PD as risk factor for secondary OP, Vitamin D 2000 iu daily, BMD

BAD DRUGS: metoclopramide, anticholinergics, antipsychotics (quetiapine low dose OK)