PARKINSON'S DISEASE IN THE RESIDENTIAL CARE SETTING

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Disclosures

- I have participated in clinical trials sponsored by Roche, TauRx, Lilly, AstraZeneca, Intelgenx
  - None are related to Parkinson's disease
- I am on the volunteer Board of Directors of Headway (Victoria Epilepsy and Parkinson Centre)
- I will be discussing off-label use of medication

Desired Learning Outcomes

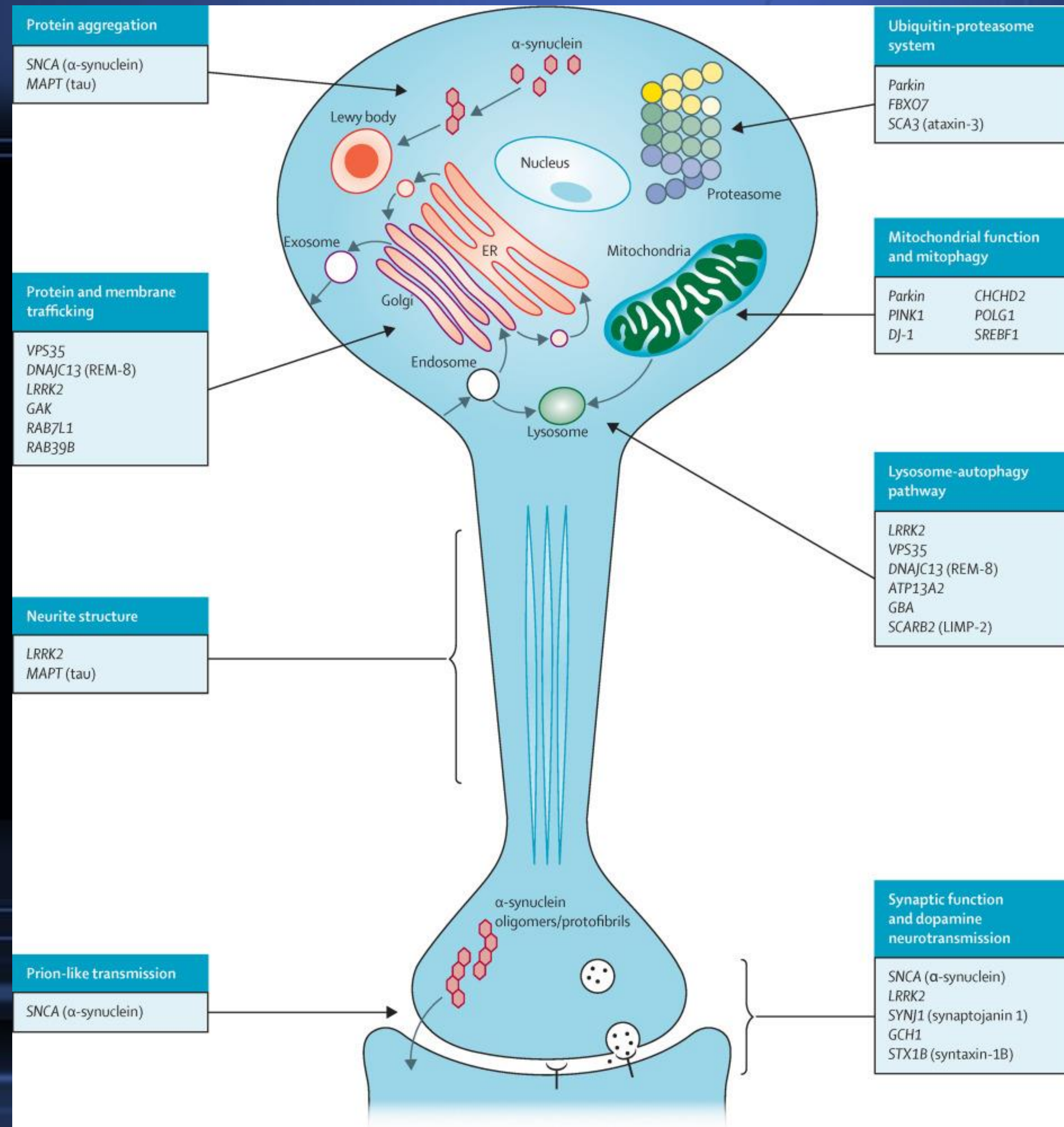
- By the end of this presentation you will be able to:
  - Describe the estimated prevalence of PD in residential care centres
  - List many of the symptoms of PD
  - Provide a systematic approach for evaluating patients with PD in the residential care setting
- Presentation w embedded Q&A – questions welcome!

Parkinson’s Disease in Residential Care

- 25% of US patients with PD reside in residential care
  Safarpour *et al.* *Neurology* 2015: 85(5); 413-419
  - Only 1/3 still have any contact with outpatient neurology
- Presence of dementia and hip fracture predispose to LTC
- Up to 10% of residential care patients may have PD
  Weerkamp *et al.* JAMDA 2014: 15(2); 90-94

What is PD?

- Neurodegenerative disease(s)
- Hallmarks:
  - Lewy bodies
  - Loss of dopaminergic neurons in SNpc



Kalia and Lang. *Lancet* 2015: 386 (9996); 896-912

What are the Symptoms of PD?

Motor

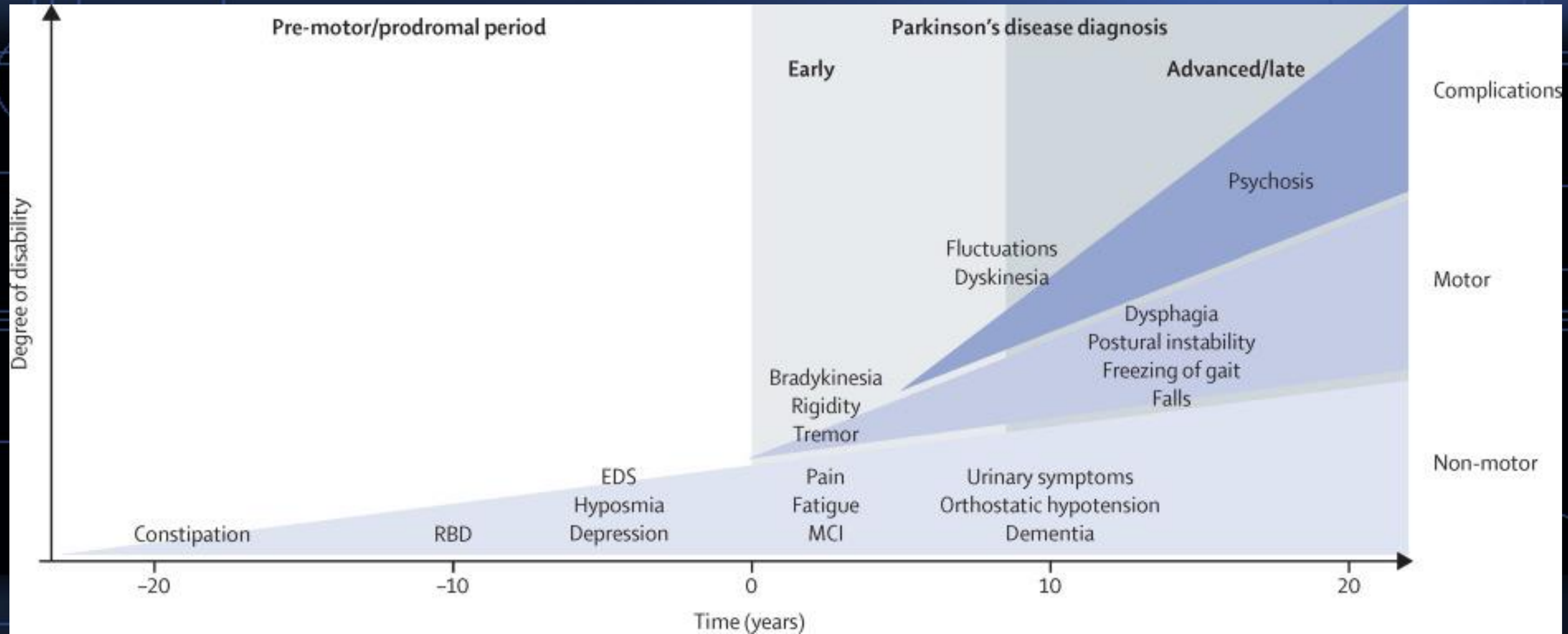
- Tremor
- Rigidity
- Akinesia
- Gait impairment
- Falls
- Speech probs

Somatic Non-Motor

- Sleep disturbances incl. RBD
- Olfactory dysfunction
- Visual disturbances
- Constipation
- Excessive daytime somnolence
- Dysphagia
- Autonomic dysfunction
  - Orthostasis, urinary symptoms, sialorrhoea, hyperhidrosis
- Pain
- Appetite & weight changes

Neuro-Psychiatric

- Cognitive dysfunction
- Dementia
- Hallucinations
- Anxiety
- Depression
- Apathy
- Delusions
- Impulse control disorders



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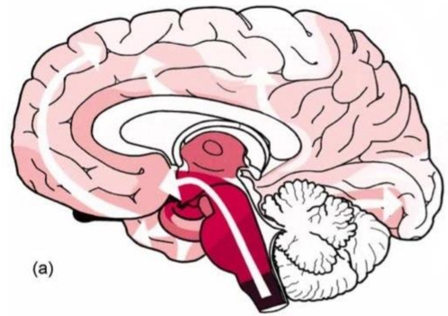
Progression of PD-related intraneuronal pathology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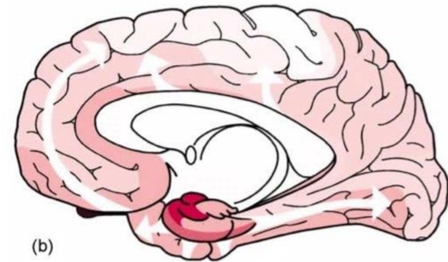
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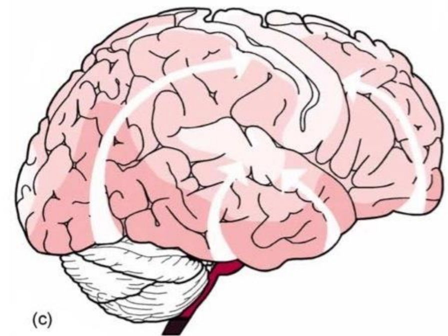
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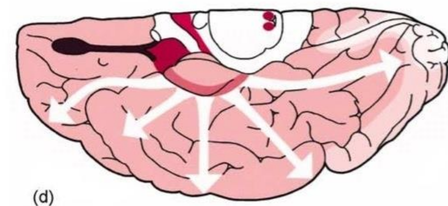
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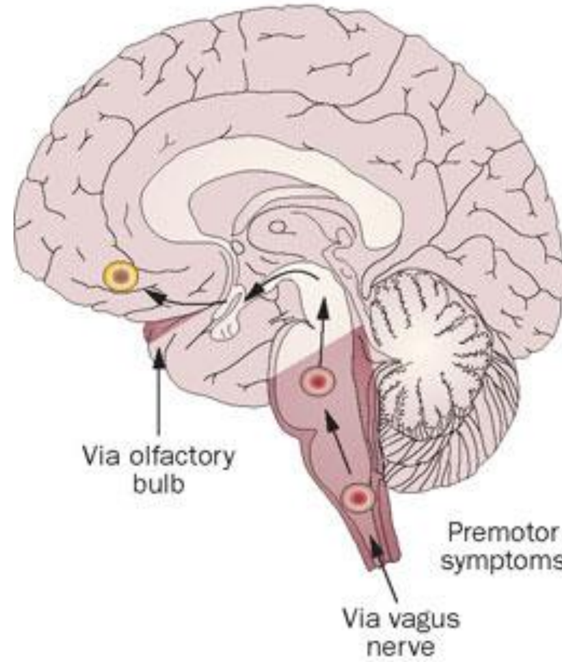
(i)

PD-stages	dm	co	sn	mc	hc	fc
	1					
	2					
	3					
	4					
	5					
	6					

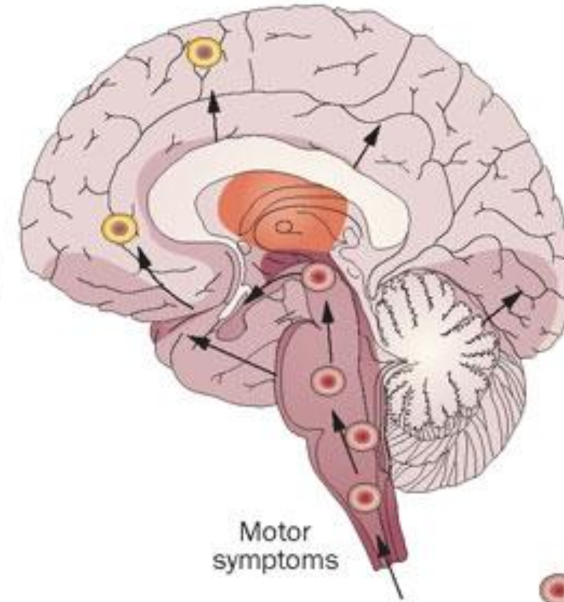
Braak stages 1 and 2

Autonomic and olfactory disturbances



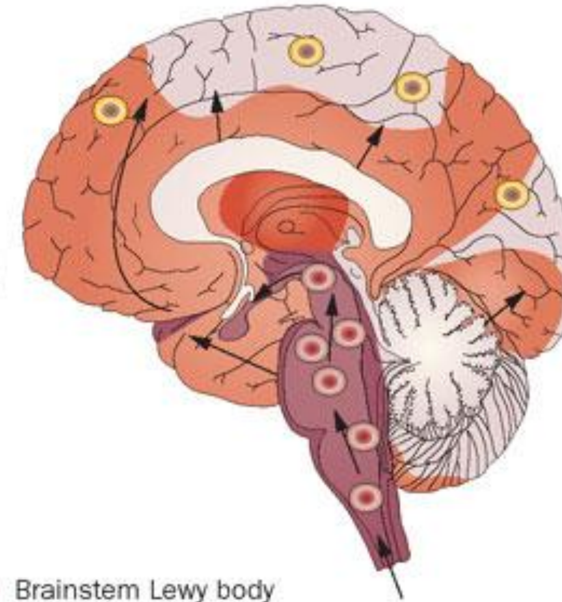
Braak stages 3 and 4

Sleep and motor disturbances



Braak stages 5 and 6

Emotional and cognitive disturbances



Halliday *et al. Mov. Disord.* 2011; 26: 1015–1021.

Braak *et al.* *Neurobiol Aging.* 2003; 24(2):197-211.

PD as a Highly Protean Illness

- Some patients complain mainly of motor symptoms that are successfully treated for years
- Others have early and debilitating non-motor symptoms including psychiatric symptoms

Question / Discussion

What are some challenges you have had treating motor symptoms of PD patients in a residential care setting?

PD Treatment – Motor Symptoms

- Levodopa + carbidopa / benserazide
  - The mainstay of treatment; still the most effective
- Dopamine agonists
  - Pramipexole, ropinirole, rotigotine patch
  - Bromocriptine rarely used due to adverse effects
- MAO B inhibitors: rasagiline, selegiline
- COMT inhibitors: entacapone
- Anticholinergics
- Amantadine

Reducing Medications

- Patients often have co-morbid symptoms that are aggravated by medications used to treat motor symptoms
  - Orthostasis, psychosis, confusion
- Principle of treatment: reduce medications trying to compromise motor function as little as possible
- GO SLOW! Reassess frequently

Reducing Medications

- Dopamine agonists: used to minimize levodopa-related fluctuations or to augment therapy
  - Generally less effective than levodopa
  - Can often start by cutting down here!
- Anticholinergics: worsen cognitive impairment
  - Should usually be minimized / eliminated
  - Are no longer routinely used anyway
- Amantadine: can worsen cognitive impairment

What types of motor fluctuations exist in patients with PD?

Treatment of Motor Fluctuations

- Wearing off:
  - End-of-dose wearing off:
    - More frequent dosing
    - Add MAOB inhibitor (e.g., rasagiline 5mg OD)
      - Beware drug interactions
    - Add COMT inhibitor
      - May need to decrease levodopa doses
      - Diarrhoea
  - Unpredictable and “missed dose” phenomenon
    - Avoid protein with levodopa
    - Use “rescue dose” of levodopa
      - Crushed with soda works best

Treatment of Motor Fluctuations

- Freezing
  - Use rescue doses
  - Have clear nursing plan to avoid falls
- Dyskinesias
  - Unpredictable
    - Decrease total dopaminergic drug burden
    - May try adding amantadine but not if cognitive impairment
  - Peak-dose
    - Give smaller doses more frequently

Treatment of Motor Fluctuations

- Are these really motor fluctuations or are they something else?
  - Non-motor symptoms, esp. anxiety
  - Behavioural
- Need behavioural charting, with specific attention to PD symptoms to really determine what is going on!

Question / Discussion

What are some challenges you have had treating psychiatric symptoms of PD patients in residential care?

Treatment – Cognitive Impairment

- 2 Patterns of cognitive impairment
  - Subcortical – slow thought processing, concentration difficulties, executive dysfunction
    - Same pathophysiology as motor symptoms
    - May fluctuate with motor function and treatment
  - Cortical – visuospatial and memory dysfunction
    - More often associated with psychosis
    - Due to cortical Lewy body pathology

Treatment – Cognitive Impairment

- Remove anticholinergic medication
- Rx Cholinesterase inhibitors
- May be worsened by orthostatic hypoperfusion

Treatment – Psychosis

- If sudden in onset, look for delirium
- Behavioural charting: Look for triggers
- Ask if the symptoms really need to be treated: are they bothersome?
- First, slowly reduce dopaminergic medication as tolerated

Treatment – Psychosis

- Consider trial of cholinesterase inhibitor and memantine
  - Beware paradoxical reaction with memantine
- Mixed evidence for quetiapine
  - BUT safest and easiest to use, generally first-line
- Best evidence for clozapine: Need blood monitoring
- Evidence that the following do **NOT** work and make symptoms worse: **olanzapine, risperidone, aripiprazole**

Treatment - Anxiety

- Episodic anxiety may or may not be directly due to motor fluctuations
- Behavioural charting! With concomitant note of motor and psychological symptoms
- Chronic anxiety is very common in PD (40%)
  - Less ruminative and more paralytic
  - If concomitant depression, try SSRI
  - Use benzodiazepines judiciously and reassess frequently
    - Falls, confusion

Treatment - Apathy

- Very difficult to treat
- Ensure no co-morbid depression
- Increasing dopaminergic medication may help
- Stimulants can be tried
  - Methylphenidate – side effects
  - Modafinil - expensive

Treatment - Insomnia

- Review sleep hygiene
- Night-time motor symptoms: give levodopa at HS or throughout night
- Treat urinary symptoms
- Melatonin up to 10mg HS
- Doxepin 3-10mg ac HS (anticholinergic)
- Zopiclone, trazodone

Treatment – REM Behaviour Disorder

- May not need treatment
- If severe, patient can injure self
- Antidepressants may worsen
- Melatonin 3-12mg QHS
- Clonazepam 0.25 – 2mg QHS (beware)

Question / Discussion

What are some challenges you have had treating other non-motor symptoms of PD patients in a residential care setting?

Orthostatic hypotension

- Can be worsened by dopaminergic medication
  - Consider slow monitored reduction
- Eliminate anti-hypertensives
- Increase salt and water intake
- Domperidone antagonizes peripheral action of dopamine
  - 10mg TID
- If concomitant constipation, consider physostigmine 30-60mg QID (start low, go slow)
- Midodrine 2.5-10mg TID; fludrocortisone 0.1-0.3mg / day
  - Supine hypertension

Constipation

- Hydrate, exercise routine
- Fiber, laxatives (PEG)
- Domperidone
- Physostigmine

Urinary symptoms

- Look for typical causes first (e.g., BPH in men)
- May be aggravated by dopaminergic medication
- Usually due to detrusor-sphincter dissynergy
- Mainstay used to be anticholinergic but these worse cognition
- Mirabegron 25-50mg OD increasingly used

Sialorrhoea

- Many patients will have success with gum chewing!
- May improve with increasing dopaminergic therapy
- Consider sublingual atropine drops
- Botulinum toxin for severe cases

Pain

- What is the cause:
  - Is it related to freezing / wearing off, dystonia?
    - Need careful symptom charting!
  - Orthostatic hypotension: coat hanger headache
  - Central neuropathic pain is common
    - Pregabalin, gabapentin, antidepressants can be used

Table 5. Treatment of Nonmotor Symptoms of Parkinson Disease

Nonmotor Symptom	Medication	Dosage	Level of Recommendation[a]	Adverse Effects
Nausea	Domperidone[b]	10 mg thrice daily; max, 20 mg 4 times daily	U	Cardiac arrhythmia, sudden cardiac death, breast pain, drowsiness, dry mouth, headache, hot flashes, and nausea
RBD	Clonazepam	0.25-2 mg at bedtime	U	Sedation and confusion
	Melatonin	3-15 mg at bedtime	U	Daytime sleepiness, dizziness, and headache
Depression	Citalopram	10-20 mg once daily	U	Akathisia, anorexia, nausea, drowsiness, and sexual dysfunction
	Fluoxetine	10-50 mg once daily	C	Same as citalopram
	Paroxetine	20-40 mg once daily	U	Same as citalopram
	Sertraline	25-200 mg once daily (rarely >100 mg)	U	Same as citalopram
	Venlafaxine extended release	37.5-225 mg once daily	B	Drowsiness, insomnia, sexual dysfunction, and gastrointestinal symptoms
	Nortriptyline	25-150 mg/d single or divided	C	Anticholinergic effects[d], orthostatic hypotension, ventricular arrhythmias, heart block, drowsiness, sexual dysfunction, and weight gain
	Desipramine	25-150 mg/d single or divided	B	Same as nortriptyline
Hallucinations	Clozapine	6.25-150 mg at bedtime or divided (often effective in very low doses)	B	Agranulocytosis, seizure, myocarditis, cardiomyopathy, and sedation
	Quetiapine	12.5-400 mg at bedtime or divided	C	Extrapyramidal symptoms and sedation
	Rivastigmine[c]	1.5-6 mg twice daily; transdermal patch, 4.5-9.8 mg/24 h	C	Gastrointestinal symptoms, bradycardia, vivid dreams, and exacerbation of rest tremor
PD-MCI	Atomoxetine	Target dose, 80 mg once daily	U	Alopecia, dry mouth, sexual dysfunction, gastrointestinal symptoms, dizziness, and increased heart rate and blood pressure
PDD	Rivastigmine	1.5-6 mg twice daily; transdermal patch, 4.5-9.8 mg/24 h	B	Same as rivastigmine
	Donepezil	5-10 mg once daily	B	Same as rivastigmine
	Galantamine	4-12 mg twice daily	U	Same as rivastigmine
Orthostatic Hypotension	Fludrocortisone	0.05-0.1 mg once or twice daily	C	Hypertension, metabolic abnormalities (including hypokalemia), gastrointestinal symptoms, and myopathy
	Domperidone[b]	10 mg thrice daily; max, 20 mg 4 times daily	C	Same as domperidone
	Midodrine	2.5-10 mg thrice daily	U	Hypertension, nausea, weakness, heartburn, headache, scalp tingling, and chills
	Pyridostigmine	50 mg thrice daily	U	Hypertension, gastrointestinal symptoms, sweating, and increased salivation/bronchial secretions
	Indomethacin	50 mg thrice daily	U	Hypertension, edema, metabolic abnormalities, gastrointestinal symptoms, headache, and renal damage
	Yohimbine	2 mg thrice daily	U	Blood pressure changes, sexual dysfunction, hallucinations, seizure, and renal failure
	Droxidopa	300 mg thrice daily	U	Hypertension, tachycardia, nausea, vomiting, and headache
Sialorrhea	Glycopyrrolate	1 mg thrice daily	B	Anticholinergic effects[d]
	Atropine	1-2 drops of 1% concentration up to 4 times daily	U	Same as glycopyrrolate
	Ipratropium bromide	1-2 sprays (21 μg); max, 4 times daily	U	Same as glycopyrrolate
	BTA	Varies by formulation	B	Dysphagia, dry mouth, and injection-associated discomfort
	BTB	Varies by formulation	B	Same as BTA

Connolly and Lang. JAMA 2014: 311(16); 1670-1683

Physician Guide

Non-motor symptoms of Parkinson's Disease

R. Postuma MD, S. Rios Romenets MD, R. Rakheja

Centre universitaire de santé McGill
McGill University Health Centre

www.parkinsonclinicalguidelines.ca

http://www.parkinsonclinicalguidelines.ca/sites/default/files/PhysicianGuide_Non-motor_EN.pdf

Approach to the PD Patient in Residential Care

- Please take a history – does the patient have concerns?
  - Inadequately controlled motor symptoms?
  - Motor-fluctuations?
  - Psychiatric symptoms?
  - Other non-motor symptoms?

- Take inventory of non-motor symptoms
- http://www.parkinsonclinicalguidelines.ca/sites/default/files/PhysicianGuide_Non-motor_EN.pdf

PD NMS QUESTIONNAIRE

Name: .... Date: .... Age: ....

Centre ID: Male ☐ Female ☐

NON-MOVEMENT PROBLEMS IN PARKINSON'S

The movement symptoms of Parkinson's are well known. However, other problems can sometimes occur as part of the condition or its treatment. It is important that the doctor knows about these, particularly if they are troublesome for you.

A range of problems is listed below. Please tick the box 'Yes' if you have experienced it **during the past month.** The doctor or nurse may ask you some questions to help decide. If you have **not** experienced the problem in the past month tick the 'No' box. You should answer 'No' even if you have had the problem in the past but not in the past month.

Have you experienced any of the following in the last month?

	Yes	No
1. Dribbling of saliva during the daytime	☐	☐
2. Loss or change in your ability to taste or smell	☐	☐
3. Difficulty swallowing food or drink or problems with choking	☐	☐
4. Vomiting or feelings of sickness (nausea)	☐	☐
5. Constipation (less than 3 bowel movements a week) or having to strain to pass a stool (faeces)	☐	☐
6. Bowel (fecal) incontinence	☐	☐
7. Feeling that your bowel emptying is incomplete after having been to the toilet	☐	☐
8. A sense of urgency to pass urine makes you rush to the toilet	☐	☐
9. Getting up regularly at night to pass urine	☐	☐
10. Unexplained pains (not due to known conditions such as arthritis)	☐	☐
11. Unexplained change in weight (not due to change in diet)	☐	☐
12. Problems remembering things that have happened recently or forgetting to do things	☐	☐
13. Loss of interest in what is happening around you or doing things	☐	☐
14. Seeing or hearing things that you know or are told are not there	☐	☐
15. Difficulty concentrating or staying focussed	☐	☐
16. Feeling sad, 'low' or 'blue'	☐	☐
17. Feeling anxious, frightened or panicky	☐	☐
18. Feeling less interested in sex or more interested in sex	☐	☐
19. Finding it difficult to have sex when you try	☐	☐
20. Feeling light headed, dizzy or weak standing from sitting or lying	☐	☐
21. Falling	☐	☐
22. Finding it difficult to stay awake during activities such as working, driving or eating	☐	☐
23. Difficulty getting to sleep at night or staying asleep at night	☐	☐
24. Intense, vivid dreams or frightening dreams	☐	☐
25. Talking or moving about in your sleep as if you are 'acting' out a dream	☐	☐
26. Unpleasant sensations in your legs at night or while resting, and a feeling that you need to move	☐	☐
27. Swelling of your legs	☐	☐
28. Excessive sweating	☐	☐
29. Double vision	☐	☐
30. Believing things are happening to you that other people say are not true	☐	☐

All the information you supply through this form will be treated with confidence and will only be used for the purpose for which it has been collected. Information supplied will be used for monitoring purposes. Your personal data will be processed and held in accordance with the Data Protection Act 1998.

Developed and validated by the International PD Non Motor Group
For information contact: susanne.tluk@uhl.nhs.uk or alison.forbes@uhl.nhs.uk

Approach to the PD Patient in Residential Care

- If problems, get staff to implement hourly behavioural charting x 2-3 days
  - Fight for it, it is worth it!
- Record:
  - Motor symptoms:
    - Off (frozen) /on
    - Dyskinesias (“extra movements”): yes / no
    - Falls or gait / transfer difficulties?
  - Psychiatric symptoms: hallucinations, agitation, anxiety

Approach to the PD Patient in Residential Care

- Behavioural charting allows determination of:
  - Presence and frequency of motor fluctuations
  - Relationship of psychiatric symptoms to these

Approach to the PD Patient in Residential Care

- While collecting information on PD symptoms, conduct thorough medication review
- Eliminate anti-dopaminergic or anti-cholinergic medication

Approach to the PD Patient in Residential Care

- If residual problems are mainly due to motor fluctuations, treat them
- If excess dopamine (orthostasis, psychosis, confusion):
  1. Reduce non-dopaminergic PD medication
  2. Reduce dopaminergic agonists
  3. Reduce levodopa
  - Always go slowly and constantly re-assess to allow patient to maintain maximum function

Approach to the PD Patient in Residential Care

- Once dopaminergic medications decreased as low as possible, treat somatic non-motor symptoms

Approach to the PD Patient in Residential Care

- Psychiatric symptoms:
  - If concomitant dementia, consider cholinesterase inhibitor
    - Sometimes depression or psychosis will improve considerably
    - Beware side-effects
  - Treat anxiety and depression
  - Treat psychosis if bothersome or dangerous
    - Only use quetiapine or clozapine: start low and go slow!
- Consider re-increasing / reintroducing dopaminergic meds, once psychiatric symptoms improved (esp. levodopa)

Approach to the PD Patient in Residential Care

- The most important principle is to make changes one at a time, in small increments, and to constantly re-assess

- Time consuming, but if done properly can lead to greatly improved function

Questions? Comments?

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