Parkinson's Webinar 3: Side effects of treatment and non-motor symptoms

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PrescQIPP Funded by the NHS for the NHS

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Plan for Today's Webinar

- Introduction to quality of life measures
- Side effects of medication
- Psychosis
- Depression, anxiety and apathy
- Memory – PDD vs LBD
- REM-sleep Behaviour Disorder (RBD)
- Orthostatic hypotension (OH)
- Swallow, speech and saliva
- Bladder and Bowels
- Case Studies
- Q&A

Next Webinars:

Parkinson's webinar 4: New developments in the management of Parkinson's and signposting – Thursday 12th February 2026

Introduction

- Health-related quality of life (HRQOL) can be used as a comprehensive view of the patient's well-being Multidimensional factors of health-related quality of life in parkinson's disease using ensemble learning and network analysis | Scientific Reports

- MDS-UPDRS_English_FINAL.pdf

- Final_PDQ-39_English_UK_SAMPLE COPY.pdf

- Impact of motor and nonmotor symptoms in Parkinson disease for the quality of life: The Japanese Quality-of-Life Survey of Parkinson Disease (JAQPAD) study - ScienceDirect

Non-motor symptoms

Non-motor symptoms affect you in other ways that may not be easily seen by other people. They include pain, sleep problems, and changes to other parts of the body.

Bladder and bowel changes	Eating, swallowing and managing saliva	Eye changes
Fatigue	Foot care	Low blood pressure
Mouth and dental changes	Pain	Skin and sweating changes
Sleep	Speech and communication	

Behavioural symptoms

Behavioural symptoms affect your mood, cognitive ability and outlook, and include mental health issues.

Anxiety	Depression	Hallucinations and delusions - as a symptom
Impulsive and compulsive behaviours in Parkinson's	Thinking and memory changes	Parkinson's and mental health

NICE Guidelines 2017

Medication Resources

emc

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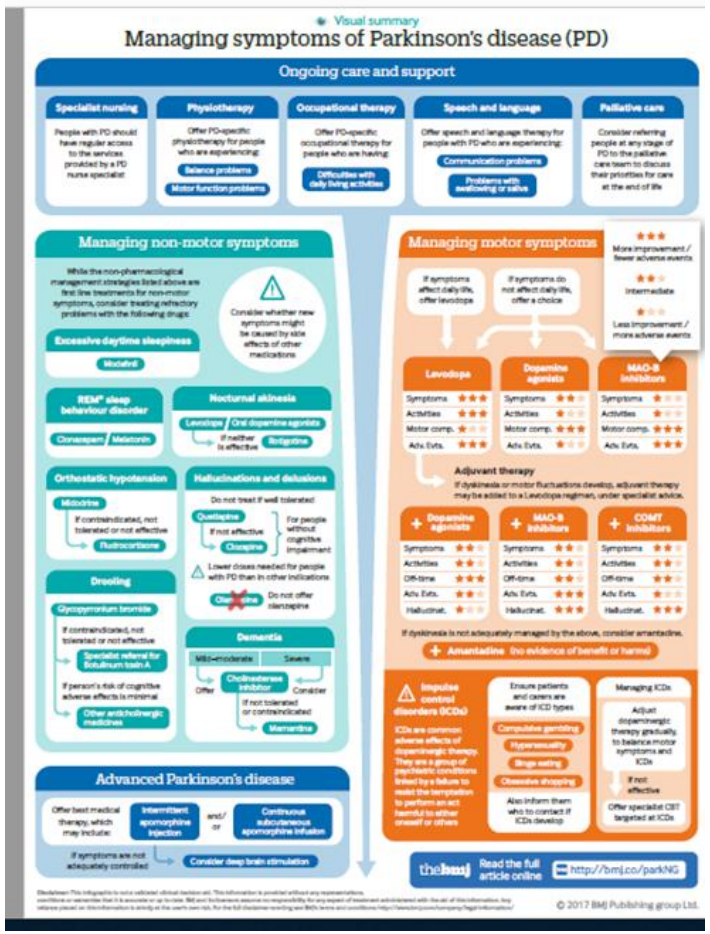
Side Effects of Treatment

- L-dopa
  - Gastrointestinal bleeding
  - Nausea, often reduced by taking the drug with food although protein interferes with drug absorption
  - Hair loss
- COMT
  - Dyskinesias (involuntary movements)
  - GI – diarrhoea (8%) –(entacapone)
- MAOB –I
  - Depression
  - Hallucinations
  - Headache
  - Angina
  - Dermatitis
  - Urinary urgency
- Amantadine
  - Hallucinations
- DA
  - Significant withdrawal effects if stopped suddenly (DAWS)
  - Hallucinations (auditory. visual)
  - Euphoria
  - Oedema
  - Pathological addiction (gambling, shopping, internet pornography, hyper-sexuality)

- All
  - Hallucinations (auditory. visual)
  - Euphoria
  - Disorientation and confusion
  - Causing or worsening of psychosis
  - Orthostatic hypotension: Dizziness, lightheadedness, syncope
  - Nausea, weight loss
  - Vivid dreams and/or Insomnia
  - Unusual tiredness or weakness
  - Drowsiness - Somnolence and narcolepsy
- Dyskinesias
- Extreme emotional states
  - Anxiety
  - Excessive libido
- Pathological addiction (gambling, shopping, internet pornography, hyper-sexuality)

Psychosis

- NICE advised not to treat if they are well tolerated by the PwP and their family/carers
- Consider if there are any other causes e.g. pain, constipation, potential infection
- Reduce the dose of any PD medications that may have triggered the hallucinations or delusions
- Quetiapine often used (note an unlicensed indication)
- Clozapine another option but limited access to this treatment depending on area



Practice Guidelines ***Parkinson's disease: summary of updated NICE guidance***
BMJ 2017; 358 doi: https://doi.org/10.1136/bmj.j1951 (Published 27 July 2017)

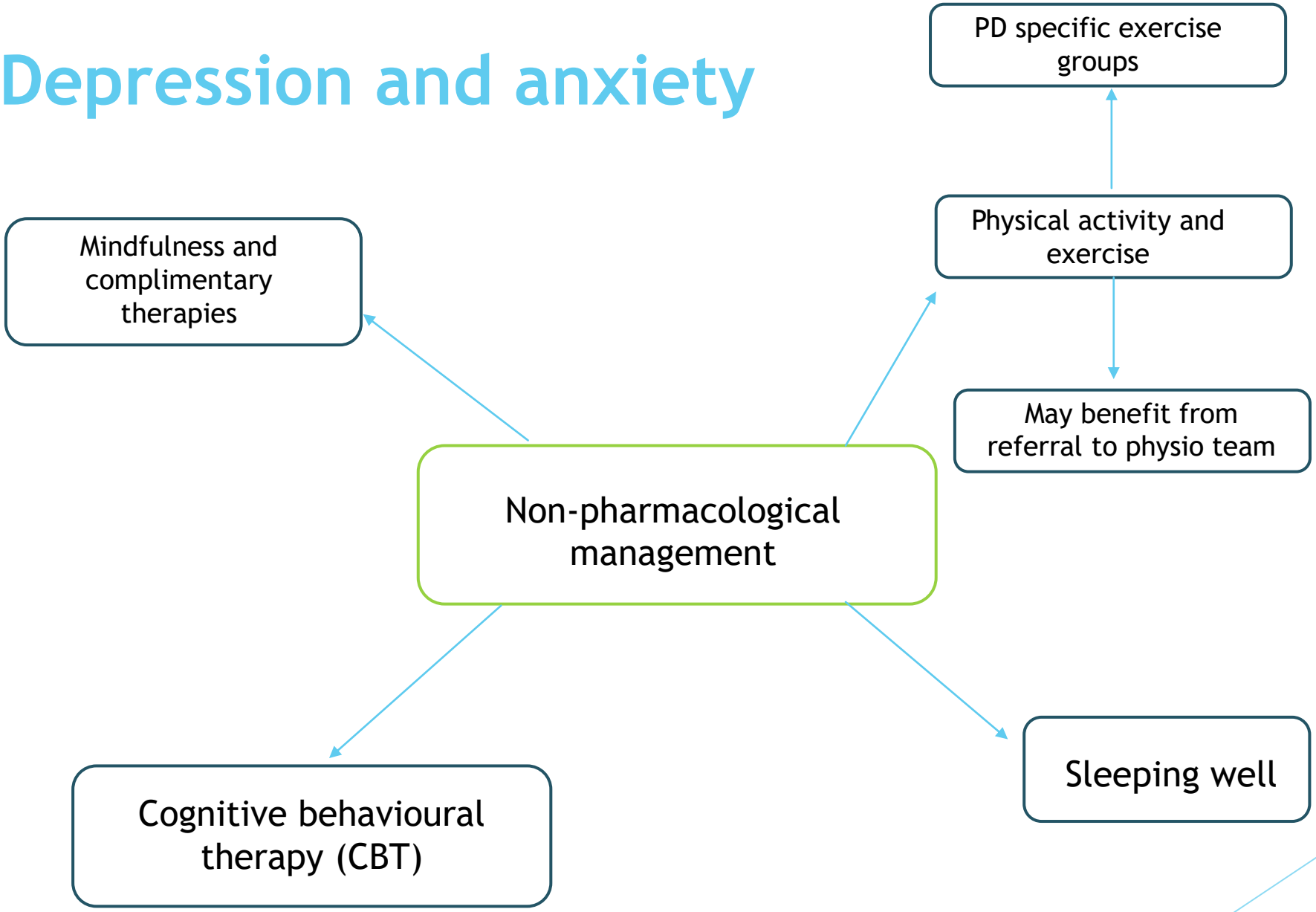
Quetiapine and clozapine

- Use of quetiapine in PD psychosis is an unlicensed indication
  - Systematic reviews have shown that it did fail to demonstrate significant improvement of psychosis compared to placebo.
  - Better tolerated than clozapine
  - Did not significantly worsen motor function

- Clozapine is licensed for use in PD psychosis
  - Limited option as not all areas offer this as a treatment
  - Significantly lower doses compared to other indications (starting dose of 12.5mg OD)
  - No more effective than quetiapine
  - More closely monitored for toxicity and also complications with constipation

- Be mindful that other antipsychotics are generally contraindicated in PD
  - First generation (typical) e.g. haloperidol, chlorpromazine
    - Block D2 receptors in the brain, worsening symptoms
  - Second generation (atypical) e.g. Risperidone, olanzapine
    - Block dopamine receptors but dissociate from receptor more quickly than first generation antipsychotics

Depression and anxiety



Depression and anxiety

- Pharmacological treatment
  - SSRIs often considered first line treatment
    - More favourable side effects
    - Some studies suggest some SSRIs e.g fluoxetine and paroxetine could potentially worsen motor symptoms
    - New generations generally do not exacerbate problems
    - Be aware that some drug interactions (serotonin syndrome) combining SSRIs with MAO-B inhibitors e.g. selegiline or rasagiline

Apathy

- Can feel like depression, but not exactly the same

- Lack of enthusiasm and emotion for everyday activities. Can be unmotivated to:
  - Plan tasks
  - Exercise or eat well
  - Do things PwP previously enjoyed
  - Take PD medications

- Can help to
  - Follow a regular routine
  - Set realistic and achievable goals
  - Try to stick to plans

- Can be referred to occupational therapy to help with daily activities

Dementia

- Around 50% of PwP will develop dementia within 10 years of their diagnosis

- Risk factors include:
  - Older age at onset (~70)
  - Vascular disease
  - Depression
  - REM Sleep behaviour disorder
  - Orthostatic hypotension
  - Prior episodes of delirium
- Other important symptoms include fluctuations in thinking, visual hallucinations, delusions, autonomic symptoms and daytime somnolence

- Positive diagnosis would be considered when patients are having trouble completing everyday tasks, more than one cognitive domain is affected and if patients (or family) aware of cognitive changes but can manage day-to-day activities (PD MCI)

Cognitive Domain	Symptom
Frontal / Executive	• Difficulty planning tasks (e.g. booking travel, shopping, following a recipe) • Difficulty managing finances • Difficulty multitasking
Attention	• Getting easily distracted • Losing train of thought
Visuospatial	• Difficulty finding objects in a cluttered scene (e.g. not seeing the salt cellar on a messy table) • Difficulty reading in general, words moving about on a page • Sustaining minor scrapes on driving • Confusion using a mobile phone or household appliances
Memory	• Repeating questions and conversations • Forgetting to take tablets on a regular basis • Leaving appliances turned on
Language	• This is usually well-preserved but can include: losing the thread of conversation, struggling in a group environment, lack of initiating conversation in a group.

Dementia

- Assessment
  - Mini- ACE (<25/30 high sensitivity and <21/30 almost always diagnostic), MMSE, MoCA
  - Animal fluency – name as many animals in 90 seconds (<16 in 90 seconds)
  - Clock drawing – all numbers with hands pointing to ten past eleven
  - Pentagon copying or copying a cube wire
  - Rule out metabolic causes (FBC, U&E's, B12, folate, TFTs)
  - Ensure constipation, infection and pain are recognised and treated optimally

- PD dementia and Dementia with Lewy Bodies (DLB)
  - Diagnosed when developed in context of established PD with onset of cognitive symptoms at least 12 months after onset of motor symptoms
  - DLB has at east 2 of the 4 possible core clinical symptoms and diagnoses when dementia occurs before or within 12 months of the onset of motor symptoms
  - DLB can be diagnoses with 1 core symptom in the presence of specific indicative biomarkers (positive DAT scan, MIBG scan or polysomnography-confirmed REM sleep without atonia)

Dementia

- Treatment
  - Rationalise drugs (ACB, reduce/withdraw dopamine agonists, simplify PD regime)
  - Cholinesterase inhibitors
    - Check heart rate and ECG
    - Rivastigmine patch is better tolerated than the capsules
    - Alternative would be donepezil
    - Memantine can be used if donepezil or rivastigmine not tolerated or cardiac contraindications
  - Ensure underlying issues addressed that could exacerbate dementia symptoms

REM Sleep Behaviour Disorder

- Occurs in ~50% of PwP, 80% LBD
- Symptoms while sleeping
  - Kicking
  - Punching
  - Getting/falling out of bed
  - Talking or shouting
  - Sitting up
  - Grabbing objects
- May result in injuries to the person with RBD and/or their bed partner
- Associated with reduced quality of life and severely disrupted sleep
- Diagnosis
  - Sleep centre – sleep studies
    - Polysomnographic monitoring demonstrates REM sleep without atonia
    - At least 20% of REM sleep needs to have loss of REM atonia
  - Clinician in clinic diagnosis based on reported symptoms

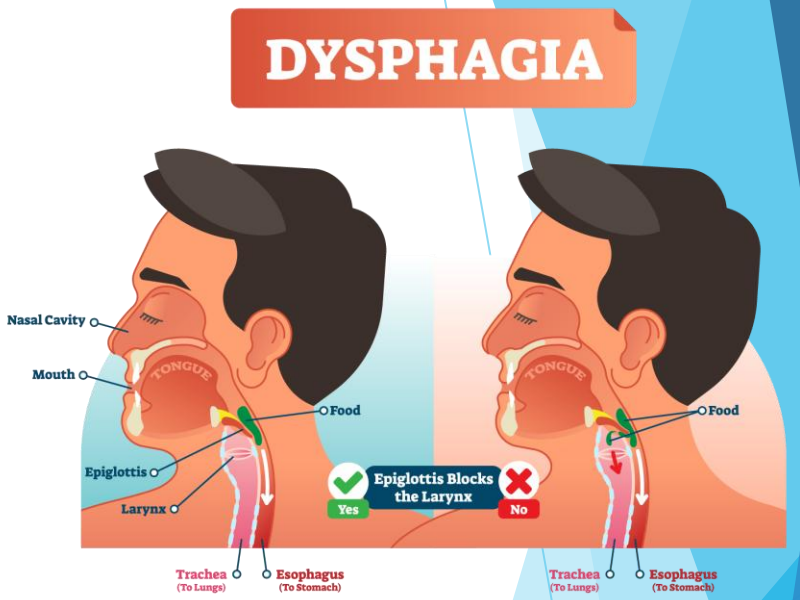
REM Sleep Behaviour Disorder

Treatments

- Melatonin
  - Considered a safer option with fewer side effects
  - Doses ranging from 2 to 6 mg,
  - Has been found to improve symptoms in a third of RBD cases
- Clonazepam
  - Doses ranging from 125micrograms to 3 mg
  - Improved symptoms in about two-thirds of patients
  - BUT should be used cautiously in older adults, as it can cause morning drowsiness, confusion, and falls
- Sleeping environment modifications
  - Sleeping in a separate room
  - using pillow barricades
  - removing potentially dangerous items from the room
  - or sleeping on a mattress on the floor

Swallow, Speech and Saliva

- **Swallow - Impairment (Dysphagia)**
- Caused by muscle rigidity, slowness, and impaired reflexes
- SLT Assessment – for those with swallow issues and those who suspicion of silent aspiration (FEES, VFS)
- Management:
  - Oral hygiene – reduces risk of aspiration pneumonia
  - Optimal Seating – seated safely for eating, upright in a chair – reduces choking risk
  - Minimise distractions at meal times and do not talk with food or fluids in the mouth
  - Slight chin tuck position when chewing food – gravity supports food and liquid to remain at the front of the mouth, reducing premature spillage into the throat.
  - Small bites and careful chewing
  - Moist and cohesive foods best – fibrous or granular can be challenging to control and swallow (celery, pineapple, dry seeds, nuts, dry rice, crumbly biscuits)
  - Caution with two-textured foods – a challenge to manage both liquid and solid components simultaneously e.g. cereal wit milk
  - Sip liquids once completely finished food
  - Keep in mind OFF periods – swallow may be impaired – choose more 'challenging' foods when most likely to be ON
- Medicines
  - Consider that liquid medicines may not be the easier formulation to manage
  - Consider which medicines continue to provide benefit in the context of patient goals and level of clinical frailty
  - Choosing medicines formulations in swallowing difficulties – NHS SPS - Specialist Pharmacy Service – The first stop for professional medicines advice
  - Consider if other non-oral formulations available



IDDSI FOOD & DRINKS CLASSIFICATION AND TESTING
ADULT & PEDIATRIC

IDDSI International Dysphagia Diet Standardisation Initiative

IDDSI PLATINUM SPONSORS
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FOODS

TESTING INFO

LEVEL 7 - REGULAR RG7
No specific testing information.
Normal everyday foods of various textures that are developmentally and age appropriate. Biting and chewing ability needed.

LEVEL 7 - EASY TO CHEW EC7
Normal everyday foods of soft/tender textures only, that are developmentally and age appropriate.
Requires biting and chewing ability.

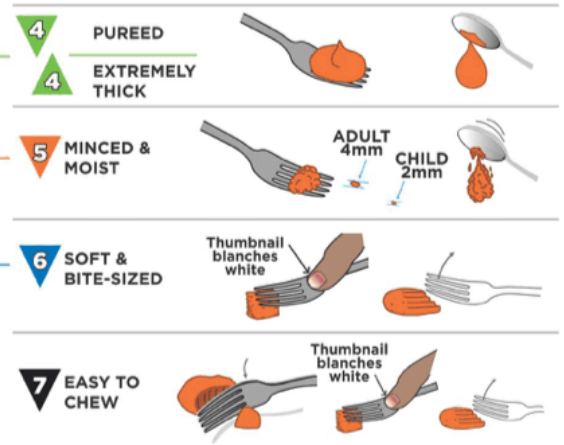
LEVEL 6 - SOFT & BITE-SIZED SB6
Pieces no bigger than 1.5 x 1.5cm in size for adults and 8mm x 8mm for babies & children.
Push down on piece with fork – sample should squash completely and not regain its shape.
Soft + Bite-sized, tender and moist throughout, with no thin liquid leaking or dripping from the food.
Chewing ability needed.

LEVEL 5 - MINCED & MOIST MM5
4mm lump size for adults and 2mm lump size for babies and children.
Holds its shape on a spoon. Falls off easily if the spoon is tilted or lightly flicked. Must not be firm or sticky.
Very soft, small moist lumps, minimal chewing ability needed.

LEVEL 4 - PUREED PU4
Sits in a mound or pile above the fork. Does not dollop or drip continuously through a fork.
Holds its shape on a spoon. Falls off easily if the spoon is tilted or lightly flicked. Must not be firm or sticky.
Smooth with no lumps, not sticky, no chewing ability needed.
Can be eaten with a spoon.

LEVEL 3 - LIQUIDISED LQ3
No less than 8mL remaining in the syringe after 10 sec of flow.
Drips slowly in dollops through the prongs of a fork.
Can be eaten with a spoon or drunk from a cup. Cannot be eaten with a fork because it slowly drips through. Effort needed to drink this through a wide straw.

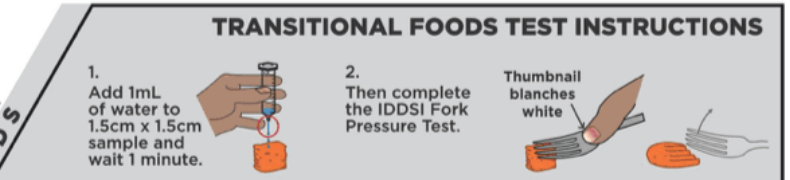
FOOD TEST INSTRUCTIONS



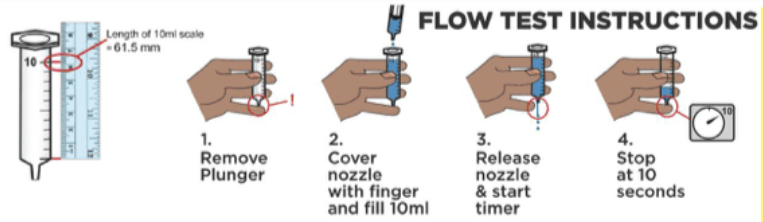
TRANSITIONAL FOODS

Food that starts as a firm solid texture and changes to another texture when it becomes wet or when warmed. Minimal chewing ability needed.

TRANSITIONAL FOODS TEST INSTRUCTIONS



FLOW TEST INSTRUCTIONS



TESTING INFO

LEVEL 4 - EXTREMELY THICK EX4
Sits in a mound or pile above the fork.
Does not dollop or drip continuously through a fork.
Holds its shape on a spoon.
Falls off easily if the spoon is tilted or lightly flicked.
Must not be firm or sticky.

LEVEL 3 - MODERATELY THICK MO3
No less than 8mL remaining in the syringe after 10 sec of flow.
Drips slowly in dollops through the prongs of a fork.

LEVEL 2 - MILDLY THICK MT2
'Sippable' from a cup but effort needed to drink this through a standard straw/teat/nipple.
4-8mL remaining in the syringe after 10 sec of flow.

LEVEL 1 - SLIGHTLY THICK ST1
Thicker than water. Can flow through a standard straw/teat/nipple.
1-4mL remaining in the syringe after 10 sec of flow.

LEVEL 0 - THIN TN0
Flows like water. Flows easily through any straw/teat/nipple.
Less than 1 mL remaining in the syringe after 10 sec of flow.

DRINKS / LIQUIDS

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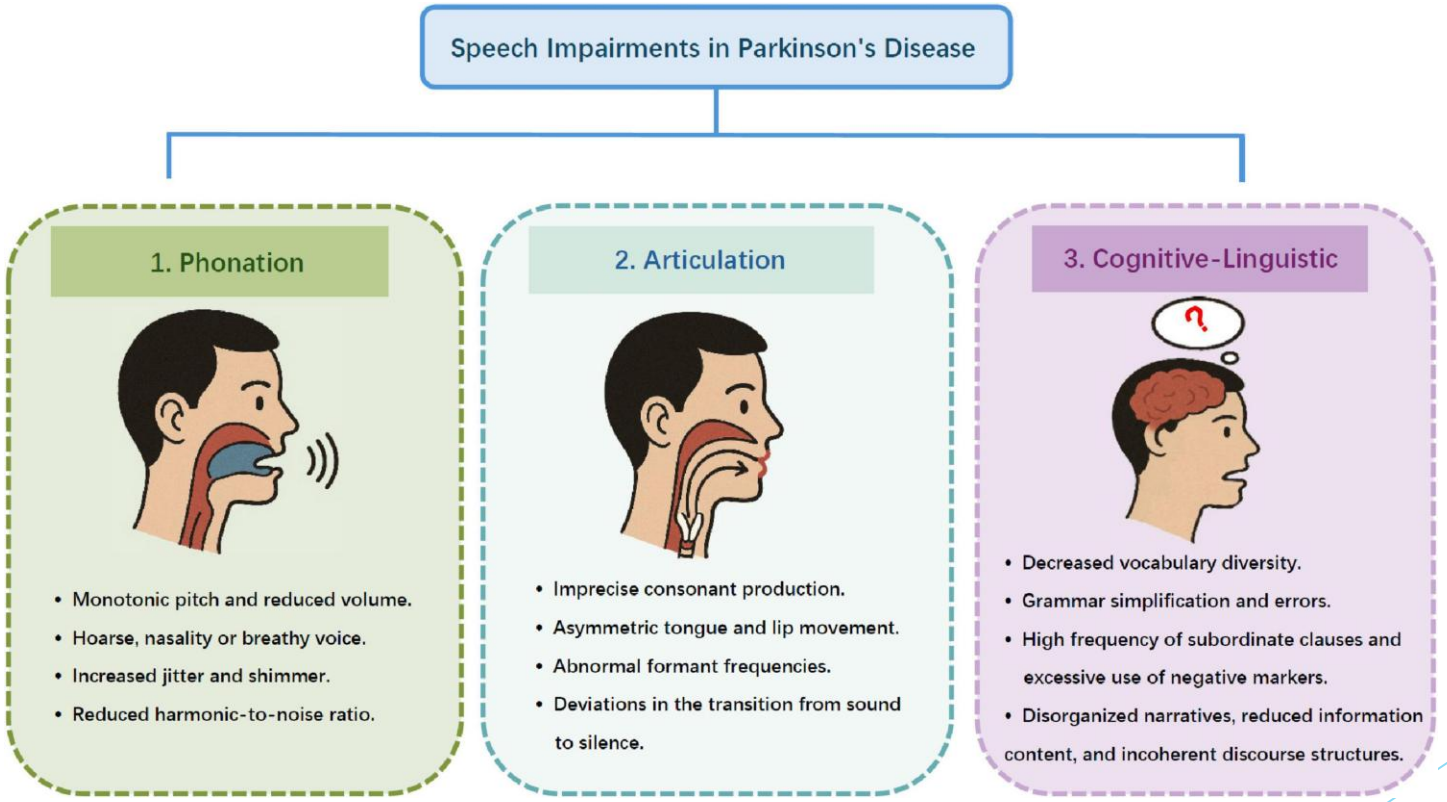
Swallow, Speech and Saliva

- Speech
  - Modify your communication to meet the needs of the PwP
  - SLT can support exercise to improve speech



Frontiers | Motor symptoms of Parkinson's disease: critical markers for early AI-assisted diagnosis

Swallow, Speech and Saliva

- Saliva
  - Dry mouth (xerostomia)
    - Drives dental decay, risk of aspiration pneumonia
  - Management
    - Sips of cold water
    - Chew/suck sugar free gum/sweets
    - Lip balm to avoid chapped lips
    - Avoid drying mouth further
      - Medicines reviewed
      - Removing dentures at night
      - Reduce caffeine and avoid salty and spicey foods
      - Don't smoke
      - Don't use mouthwashes that contain alcohol
- Drooling (sialorrhea)
  - Not necessarily more production, reduced swallow frequency
  - Posture driven
  - Advanced/complex Parkinson's – may be more common as may have previously responded to dopamine
- Management
  - SLT to support with exercises for specific symptoms
  - Medicines
    - Glycopyrronium orally
    - Atropine eye drops used SL
    - Glycopyrronium/ipratropium inhalers used locally
  - Botox
  - Radiotherapy
  - Surgery

Orthostatic Hypotension (OH)

- Symptoms
  - Light-headedness
  - Dizziness
  - Weakness
  - Fatigue
  - Nausea
  - Blurred vision
  - Cognitive slowing
  - Legs buckling
  - Headache or neck pain radiating to the shoulders (so-called coat-hanger pain

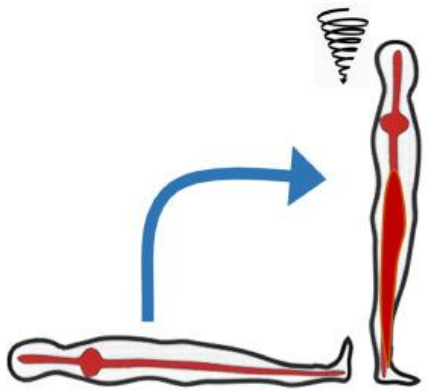
- Orthostatic hypotension may be more common during the following times:
  - In the early morning
  - In hot weather
  - After a meal (particularly big meals)
  - After drinking alcohol
  - When urinating or having a bowel movement
  - During physical exercise

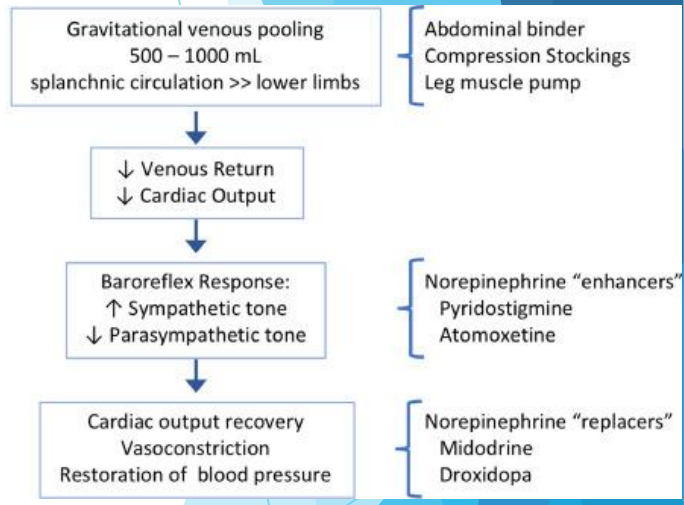
- Diagnosing OH
  - Taking a L/S BP: afffap_lying-and-standing-bp-procedure.pdf
    - a drop in systolic BP of 20 mmHg or more (with or without symptoms)
    - a drop to below 90 mmHg on standing even if the drop is less than 20 mmHg. (with or without symptoms)
    - a drop in diastolic BP of 10 mmHg with symptoms (although clinically much less significant than a drop in systolic BP).

- Orthostatic hypotension may be significant enough to cause falls
- In some cases the drop in BP can be severe enough to cause fainting and loss of consciousness (syncope)

Orthostatic Hypotension (OH)

- Management
  - Deprescribe medicines driving OH (if possible)
  - Drink more fluids – caution in CCF/fluids restriction
  - 250-500ml oral bolus on waking/getting out of bed if this is when symptoms occur
  - Minimise alcohol
  - Stand up slowly and stand still when feeling dizzy or lightheaded
  - Avoid standing still or laying in a flat position for long periods
  - Avoid too much exposure to hot environments, such as hot baths, saunas, etc
  - Elevate the head of the bed when lying down ¾ try using a wedge under the head of the bed
  - Increase the amount of salt in the diet (if high blood pressure is not a problem)
  - Eat smaller, more frequent meals
  - Wear elastic compression stockings or abdominal binders. It is important that compression stockings go all the way up the leg to the hip or over the abdomen

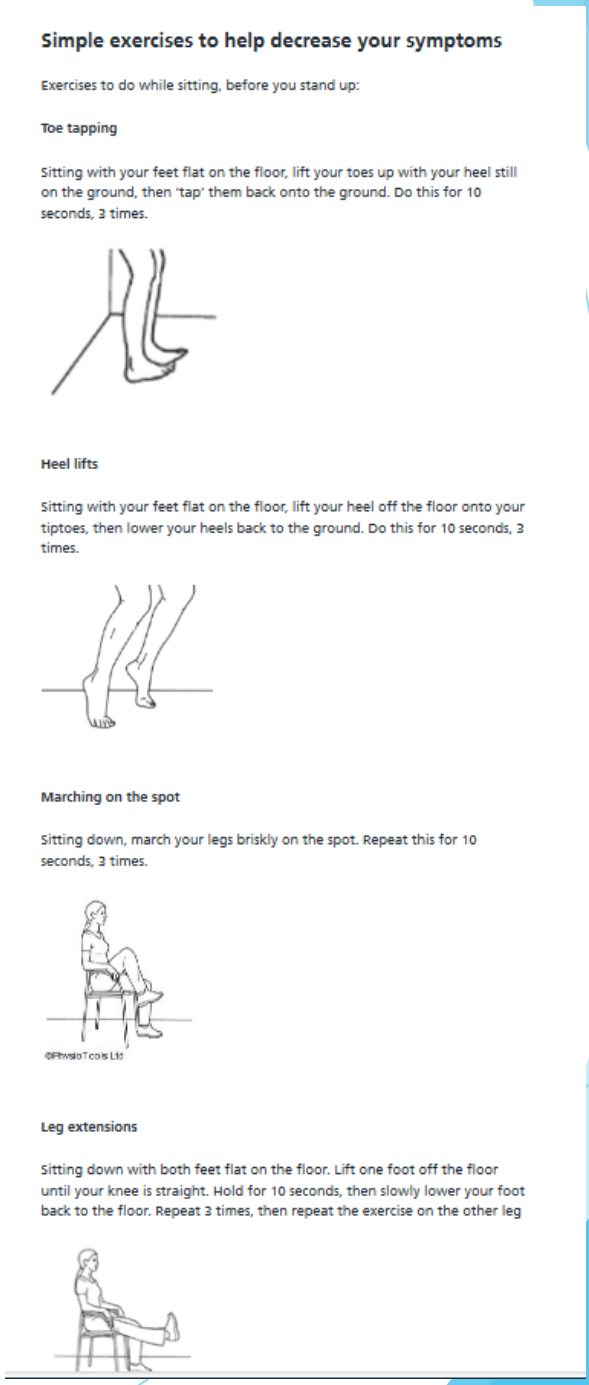




Orthostatic Hypotension (OH)

- Exercises
  - Fist clenching
  - Leg crossing
  - Sit down with leg crossing
  - Toes raise
  - Lean forward
  - Squat
  - Place a foot on one stool or chair
  - Sit in a knee-chest position (crash position)
  - Lie down with legs raised

- Note: These physical manoeuvres should be tailored according to the patient's ability, with extra caution in those who are at risk of falls



Simple exercises to help decrease your symptoms

Exercises to do while sitting, before you stand up:

Toe tapping

Sitting with your feet flat on the floor, lift your toes up with your heel still on the ground, then 'tap' them back onto the ground. Do this for 10 seconds, 3 times.

Heel lifts

Sitting with your feet flat on the floor, lift your heel off the floor onto your tiptoes, then lower your heels back to the ground. Do this for 10 seconds, 3 times.

Marching on the spot

Sitting down, march your legs briskly on the spot. Repeat this for 10 seconds, 3 times.

Leg extensions

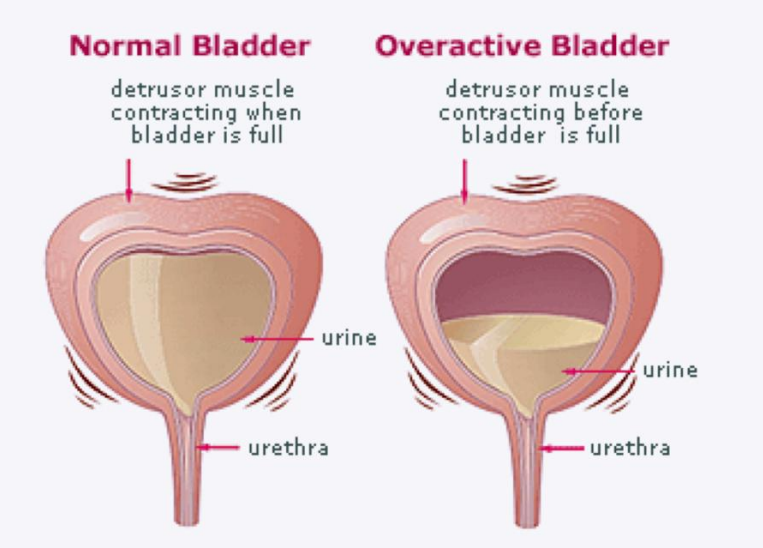
Sitting down with both feet flat on the floor. Lift one foot off the floor until your knee is straight. Hold for 10 seconds, then slowly lower your foot back to the floor. Repeat 3 times, then repeat the exercise on the other leg

Pharmacological Management

- Fludrocortisone
  - Synthetic mineralocorticoid, used off label
  - Raises renal sodium reabsorption → increases blood volume
  - Absorbed quickly following oral admin → time to peak 45 mins, elimination half life of ~7 hours
  - Doses start at 50microgram and titrate according to symptoms – max 400micrograms usually in split doses BD

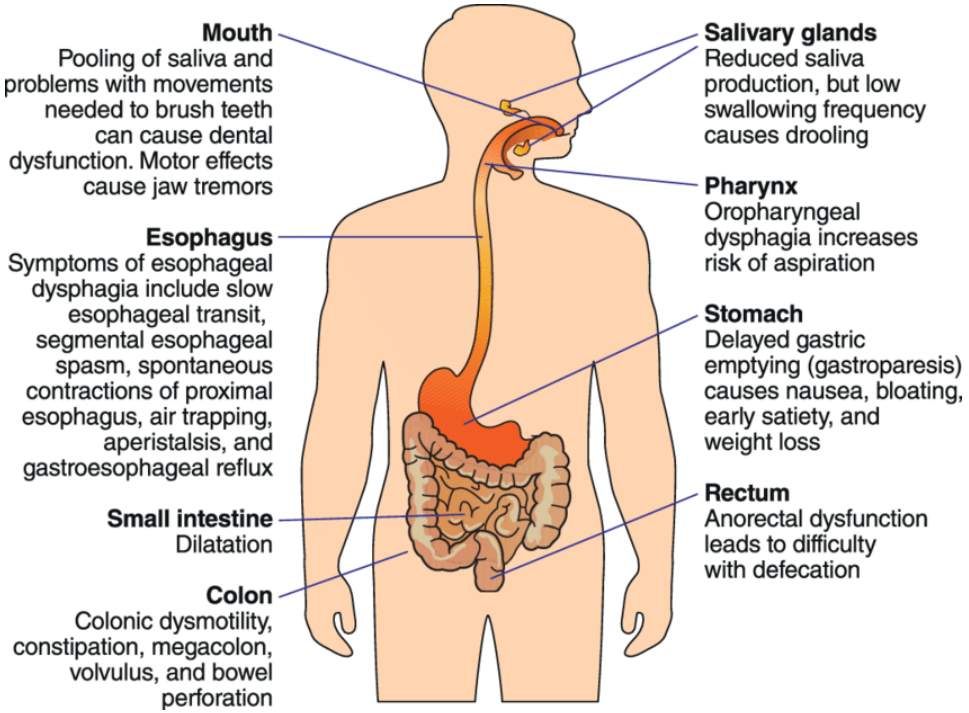
- Midodrine
  - Pro drug, which is metabolised into its pharmacologically active metabolite, desglymidodrine in the body
  - Sympathomimetic agent which acts on peripheral alpha-1-adrenoreceptor as an agonist at peripheral alpha-adrenergic receptors → increases peripheral arterial resistance → increase in arterial blood pressure
  - The elimination half- life of desglymidodrine is 3 hours and duration of action of midodrine is approximately 4 hours
  - Known to cause significant supine HYPERtension and so last dose should be taken >4 hours before bedtime e.g. TDS dosing 0700,1200, 1700
  - Doses start at 2.5mg BD and may be titrated to 10mg TDS

Bladder



- Normal bladder
  - Capacity of 300-500ml
  - As capacity is reached, nerve signal sent to brain to trigger the need to urinate
- Urinary dysfunction and lower urinary tract symptoms (LUTS) are most commonly caused by overactivity of the detrusor muscle – which contracts excessively despite the bladder not filled with urine
- Storage symptoms
  - Increased urge
  - Increased frequency
  - Nocturia
- Voiding symptoms
  - Hesitancy
  - Straining
  - Interrupted stream
  - Double voiding
- May progress to urinary incontinence
- Mobility issues may compound the issue
- PRACTICAL ACTIONS:
  - Behaviour management - fluid intake, caffeine, alcohol and diuretics, regular trips to the toilet, manage constipation
  - Equipment – commode, convene at night
  - Pelvic floor exercises
  - Medication – vibegron, mirabegron, anti-muscarinics
  - Botox injections – into the bladder
- For those where unable to modify:
  - Skin care important to avoid skin breakdown

Bowels



- Gut motility problematic for many with Parkinson's (but not all)
  - Also features in other conditions (diabetes, hypothyroidism, ageing)
  - and driven by medicines (anticholinergics, opioids)

- PRACTICAL ACTIONS:
  - Deprescribe/switch to medicines without constipating side effects if possible
  - Increase fibre in diet and ensure fluid intake optimised
  - Laxatives – find one that is palatable, reliable action (non-concordance may be associated with violent response/mess following a dose)
  - Counselling on management of severe constipation – aiming to avoid overflow diarrhoea or SBO

Case Study 1

- Mr PD is an 88 year old admitted to A&E with a fall and confusion
- Medical history of PD, T2DM, HTN, osteoarthritis
- Lives with wife at home who helps with ADLs, confirms not usually confused and first fall at home. Has been eating and drinking well at home
- Current medications:
  - Co-beneldopa 50/200 1 QDS
  - Co-beneldopa MR 25/100 1 ON
  - Rotigotine patch 2mg OD (recently started in PD clinic)
  - Losartan 25mg OM
  - Paracetamol 1g QDS
  - Laxido 1 sachet OD
  - Metformin 500mg BD
  - Atorvastatin 40mg ON
- What could be considered in this patient's management?

Case Study 1

- Rule out causes of confusion and fall
  - Orthostatic hypotension
    - Lying BP 134/63, standing BP 104/55
  - Constipation
    - BNO for 4/7, usually everyday
  - Uncontrolled pain
    - Wife reports no complaints of pain, well managed with regular paracetamol
  - Infection
    - Infection markers (CRP, WCC, etc.) all normal
  - Electrolyte derangement
    - All within normal range

Case Study 1

- Management
  - Fall likely due to postural hypotension
    - Need to review losartan. Hold and repeat L/S BP and ensure adequately hydrated
  - Confusion
    - Potentially due to constipation. Ensure laxatives are optimised and BO as normal prior to discharge
    - Newly started rotigotine may also be contributing. Need to consider discussed with PD team to review and consider whether appropriate treatment for patient

Case Study 2

- 72 year old male, diagnosed with Parkinson's 10 years ago
- Structured Medication Review following a fall 1 week ago
  - Ambulance crew attended to retrieve from the floor and assess
  - No significant injury, did not hit head, soft tissue damage, bruising to left knee
- Lives at home with wife
- Independent with ADLs on a good day
- Wife manages finances, gardening, household tasks – they had previously shared this workload up until 6 months ago
- CFS 5 (mildly frail) Clinical Frailty Scale — Specialised Clinical Frailty Network
- Does not drive but goes out regularly with wife to shops, visiting family and friends
- This is his second fall in 3 months
  - The last one he was able to get up off the floor with minimal assistance of his wife
  - Now very worried about falling and this is his primary concern

Case Study 2

- PMHx
  - Parkinson's
    - Constipation
    - RBD
    - Hallucinations
    - Nocturia
  - HTN
  - AF
  - T2DM
  - BPH
- DHx
  - Amlodipine 10mg OM
  - Apixaban 5mg BD
  - Atorvastatin 40mg nocte
  - Co-beneldopa 100/25 caps 5 times a day (0700, 1100, 1500, 1800, 2100)
  - Co-beneldopa 100/25 MR 1 at 2200
  - Co-beneldopa 50/12.5 dispersible tab 1 on waking and TDS PRN
  - Finasteride 5mg OM
  - Macrogol 1 sachet OD
  - Melatonin 2mg MR nocte
  - Metformin 1g OM
  - Opicapone 50mg ON
  - Ramipril 5mg OM
  - Rivastigmine 9.5mg patch OD
  - Rotigotine patch 6mg OD
  - Tamsulosin 400mcg OD
  - Vibegron 75mg OD

Case Study 2

- What do you need?
  - Further history of the fall (and the previous one)
  - L/S BP
  - Assess risk factors for falls
  - Assess risk of osteoporosis
  - Patient goals

Assessing the patient

- Further history of the fall (and the previous one)
  - Occurred in the morning – around 1030 (previous around 10)
  - Unsteady on feet
  - Walking from living room (sitting watching TV) to kitchen to make a cuppa
  - Dizziness mid-way to the kitchen
  - Wife reported tLOC
- L/S BP
  - Usual BP 120/72
  - Lying 137/76
  - Standing 1 minute 106/64
  - Standing 3 minutes 97/62
  - Standing 5 minutes 118/70
- Assess risk factors for falls
  - Visual impairment
  - Hearing impairment
  - **> 4 medications**
  - Osteoarthritis
  - **Neurological disease**
  - Low BMI
  - Cognitive decline
  - Muscle wasting
  - Walking aids
  - **Previous fall(s) in the last 12/12**
  - **Nocturia**
  - **Fear of falling**
  - Kyphosis
  - Change of environment
  - **Poor balance**
- Assess risk of osteoporosis
  - Osteoporosis
  - Previous fragility fracture
  - Post-menopausal female
  - Diabetes mellitus
  - Rheumatoid arthritis
  - Parent fractured hip
  - Family history of osteoporosis
  - Smoker
  - Alcohol intake
  - Previous steroid therapy
  - **Parkinson's disease**

Patient Case 2

- Patient goals
  - Reduce risk of falls
- What do we know?
  - 2 falls at around the same time of day
  - Preceding symptoms include unsteadiness and dizziness
  - tLOC – as reported by wife
  - Post fall – previously able to get up but most recent fall unable to
  - Falling pre-11am madopar
  - Significant postural drop

Medicines Review:

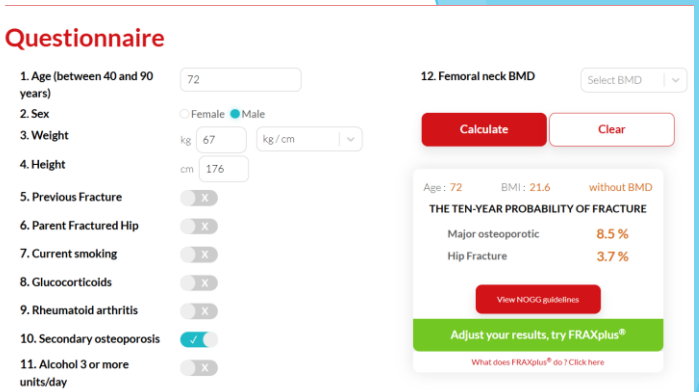
- AF
  - Apixaban 5mg BD
- HTN, T2DM
  - Amlodipine 10mg OM
  - Ramipril 5mg OM
  - Atorvastatin 40mg nocte
  - Metformin 1g OM
- BPH
  - Finasteride 5mg OM
  - Tamsulosin 400mcg OD
- Parkinson's
  - Co-beneldopa 100/25 caps 5 times a day (0700, 1100, 1500, 1800, 2100)
  - Co-beneldopa 100/25 MR 1 at 2200
  - Co-beneldopa 50/12.5 dispersible tab 1 on waking and TDS PRN
  - Rotigotine patch 6mg OD
  - Opicapone 50mg ON
- Constipation
  - Macrogol 1 sachet OD
- RBD
  - Melatonin 2mg MR nocte
- Hallucinations
  - Rivastigmine 9.5mg patch OD
- Nocturia
  - Vibegron 75mg OD
- Falls risk medicines
  - CVS: Amlodipine, ramipril, tamsulosin, Rivastigmine (bradycardia), co-beneldopa, opicapone, rotigotine
  - CNS: melatonin, co-beneldopa, opicapone, rotigotine
  - Metabolic: (metformin)
- ACB
  - Rotigotine 1

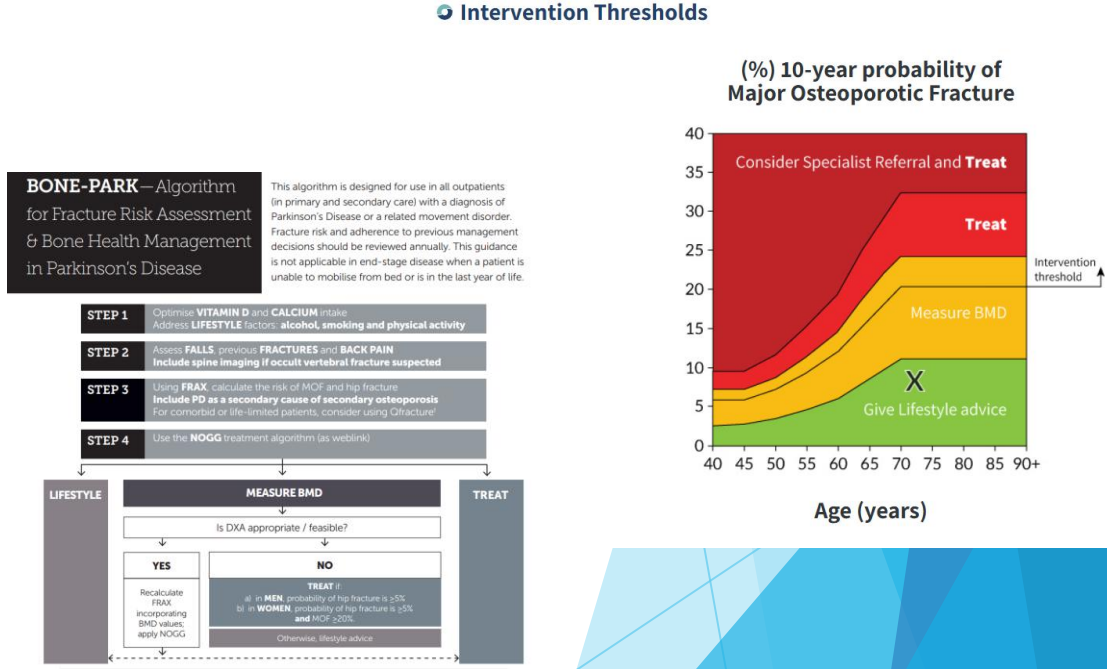
Case Study 2

Actions

- **Modify medicines driving falls risk**
  - STOP amlodipine (no need for treatment of OH) – monitor and consider reduction of ramipril
    - HBPM with L/S BP
  - Check melatonin effective (effective for ~1/3 patients)
  - Check concordance and use of PRN madopar disp and general Parkinson's control (++multiple medicines and already presenting with hallucinations)
    - May need to consider specialist input ?PIFU/PDNS (local pathways)

- **Optimise management of factors driving falls/fracture risk/osteoporosis**
  - Check re: management of nocturia
    - Consider convene/bottles overnight
  - Advise on OTC vit D supplements in winter months – likely benefit all year round
    - Check Ca2+ dietary intake
  - GP review – other medical causes of falls
    - ECG etc
  - Therapy assessment
    - strength and balance exercises
    - Home adaptations





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Thank You for Listening!

Any Questions?