The PD You Don’t See: Cognitive and Non-motor Symptoms

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Goals

1) What are the most common non-motor symptoms?
2) Why do they happen?
3) Why are they important for me to know about?
4) What can I do about it?
Important things to Know

• People around you may not recognize these symptoms.
• These symptoms are part of PD.
• These symptoms affect quality of life.
• These symptoms have treatments.
• If you don’t have a symptom now it doesn’t mean you will later.
Motor Symptoms

- Tremor
- Slowness (bradykinesia)
- Stiffness (rigidity)
- Imbalance (postural instability)
Common Nonmotor Symptoms

- Fatigue
- Memory Loss
- Pain
- Sleep Problems
- Constipation
- Depression
- Apathy
- Speech and Swallowing
- Anxiety
- Bladder Problems
- Sexual Dysfunction
- Lightheadedness
- Slow Thinking
- Vision Changes
- Bone and skin issues
2) Why does this happen?

The evolution of PD

This figure shows how PD progresses from the earliest symptoms (often non-motor symptoms) to diagnosis and start of treatment through to the early and advanced stages of the condition.

Preclinical PD
- Offactory loss
- RBD
- Constipation
- Anxiety
- Depression
- Impaired colour vision

Onset motor symptoms

- 0 years

Early treated PD (stable)
- Bradykinesia
- Rigidity
- Rest-tremor
- (+ non-motor symptoms)

Advanced PD
- Motor complications
  - Wearing off / Dyskinesias
  - Gait & balance problems
  - Axial deformities
  - Dysarthria / Dysphagia
- Non-motor complications
  - Cognitive decline / Dementia
  - Depression
  - Psychosis
  - Autonomic dysfunction
  - Sleep-wake dysregulation

Onset

- -10 years

3 years

Early treated

- 5 years

5 years

Motor complications

- Motor complications

10 years

Non-motor complications

15 years

Motor complications

Non-motor complications
Parkinson’s is more than Dopamine

- PD affects almost all neurotransmitters
- Acetylcholine is important for memory
- Serotonin is important for mood
- Norepinephrine is important for energy
- Melatonin is important for sleep
Basal Ganglia is more than Movement
PD Affects Multiple Brain Areas
PD has effects outside of the brain

**Mouth**
Pooling of saliva and problems with movements needed to brush teeth can cause dental dysfunction. Motor effects cause jaw tremors.

**Oesophagus**
Symptoms of oesophageal dysphagia include slow oesophageal transit, segmental oesophageal spasm, spontaneous contractions of proximal oesophagus, air trapping, aperistalsis, and gastro-oesophageal influx

**Small intestine**
Dilatation

**Colon**
Colonic dysmotility, constipation, megacolon, volvulus, and bowel perforation.

**Salivary glands**
Reduced saliva production, but low swallowing frequency causes drooling.

**Pharynx**
Oropharyngeal dysphagia increases risk of aspiration.

**Stomach**
Impaired gastric emptying (gastroparesis) cause nausea, bloating, early satiety, and weight loss.

**Rectum**
Anorectal dysfunction leads to difficulty with defecation
PD Outside of the Brain

- Skin
- Eyes and eye muscles
- Gut
- Bones
- Peripheral nerves
- Autonomic nervous system
- Joints
Thinking and Memory (cognition)

I have a photographic memory.

It takes at least an hour to develop.
What are the symptoms?

• Normal cognition or age-related change
• Mild cognitive impairment
  – Executive Function
  – Language
  – Memory
• Dementia
Why is this important?

• Dementia is the leading reason for nursing home placement in PD.
• Thinking and memory affect all aspects of function.
• May be treatable or reversible.
What can I do about it?
Get your memory tested

know
get tested.

www.davisphinneyfoundation.org
What can I do about it?

- Get your memory tested (MOCA).
- Make sure there is not another cause.
- EXERCISE – physical, mental, social
- Be strategic.
- Medications.
Sleep and Energy
What are the symptoms?

- Insomnia
  - Initiation (Going to sleep)
  - Maintenance (Staying asleep)
  - Early wakening
- Excessive Daytime Sleepiness
- Fatigue
Why is this important?

- Sleep affects nearly everything!
- PD is a 24/7 disease.
- These symptoms may be treatable (and not just with a sleeping pill).
Common Problems in PD

- Nocturia (getting up to pee)
- Anxiety and Depression
- Pain
- Untreated PD
- Nightmares
- Dyskinesias
Specific Sleep Disorders

- Restless Legs Syndrome
- Periodic Leg Movements of Sleep
- REM Behavior Disorder
- Sleep Apnea
What can I do about it?

- Get a sleep study.
- Check your medications.
- EXERCISE and SLEEP HYGIENE.
- Specific Treatments.
Mood
What are the symptoms?

- Depression
- Anxiety
  - General Anxiety Disorder
  - Social Phobia
- Apathy
Why is this important?

- Mood affects nearly everything!
- You deserve help.
- These symptoms may be treatable.
Apathy: Changing Expectations and using Routines
What can I do about it?

- Talk to your doctor, a psychiatrist and/or a therapist.
- Talk to your friends and family.
- EXERCISE and psychotherapy (counseling).
- Medications.
Autonomic Nervous System

Parasympathetic
- Stimulates flow of saliva
- Slows heartbeat
- Constricts bronchi
- Stimulates peristalsis and secretion
- Stimulates release of bile
- Contracts bladder

Sympathetic
- Dilates pupil
- Inhibits flow of saliva
- Accelerates heartbeat
- Dilates bronchi
- Inhibits peristalsis and secretion
- Conversion of glycogen to glucose
- Secretion of adrenaline and noradrenaline
- Inhibits bladder contraction

Ganglion
Medulla oblongata
Vagus nerve
Chain of sympathetic ganglia
Solar plexus
What are the symptoms?

- Constipation
- Urinary Urgency
- Low blood pressure
- Sexual dysfunction
- Sweating
- Mucuous and drooling
Why is this important?

• Symptoms range from annoying to life threatening.
• Can affect quality of life in many ways from discomfort to intimacy with life partner.
• These symptoms may be treatable.
Orthostatic Blood Pressure
What can I do about it?

• Track your blood pressure
• Get on a bowel regimen including fluids, fibers and exercise
• Medications exist to help with drooling, mucous, and bladder
• Sexual dysfunction can occur for many reasons and many are treatable
Visual Symptoms
What are the symptoms?

- Problems reading
- Problems with night vision/driving
- Visual Illusions
- Visual Hallucinations
Why is this important?

- Visual problems can affect your safety.
- These symptoms may be side effects of your medications.
- These symptoms may be treatable.
What can I do about it?

- See an ophthalmologist or neuro-ophthalmologist.
- Convergence insufficiency may respond to prisms.
- Medication adjustments may help bothersome hallucinations.
"What fits your busy schedule better, exercising one hour a day or being dead 24 hours a day?"
What are the symptoms?

- Pain
- Impulse Control Disorders
- Osteoporosis
- Melanoma
Why is this important?

- Pain affects nearly everything.
- You may be able to prevent bone fractures and skin cancer.
- Your medications can cost you your house and marriage.
Causes of Pain in PD

- Frozen Shoulder
- Orthopedic issues
- Muscle tension
- Dystonia
- Neuropathy
What can I do about it?

- Get your bones checked.
- Take vitamin D and calcium.
- Get your skin checked.
- Exercise.
- Talk to your doctor.
Take Home Messages

• Get your memory tested
• Talk to your doctor about any nonmotor symptoms you are experiencing (e.g. mood, energy, sleep, pain, constipation...)
• If you are having issues with fatigue, balance or lightheadedness check your blood pressure
Take Home Messages II

- Get your skin and bones checked
- Medications can cause memory issues, sleep problems and hallucinations
- Get plenty of fluids and fiber
- Stay active physically, mentally and socially