

COGNITIVE AND BEHAVIORAL SYMPTOMS OF PARKINSON DISEASE

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NON-MOTOR SYMPTOMS OF PD

TABLE 3. Percentage of patients reporting each non-motor symptom as measured by the NMSS

Items	Patients*	
	N	%
1. Light-headedness	167	40.6
2. Fainting	38	9.2
3. Daytime sleepiness	195	47.4
4. Fatigue	271	65.9
5. Difficulty falling asleep	207	50.4
6. Restless legs	131	31.9
7. Lost interest in surroundings	141	34.3
8. Lack motivation	179	43.6
9. Feel nervous	208	50.6
10. Seem sad	204	49.6
11. Flat mood	132	32.1
12. Difficulty experiencing pleasure	121	29.4
13. Hallucinations	72	17.5
14. Delusions	40	9.7
15. Double vision	72	17.5
16. Concentration	222	54.0
17. Forget things or events	209	50.9
18. Forget to do things	172	41.8
19. Saliva	178	56.7
20. Swallowing	121	29.4
21. Constipation	202	49.1
22. Urgency	224	54.5
23. Frequency	224	54.5
24. Nocturia	281	68.4
25. Altered interest in sex	135	32.8
26. Problems having sex	115	28.0
27. Pain	162	39.4
28. Taste or smell	171	41.6
29. Weight change	122	29.7
30. Excessive sweating	125	30.4

BEHAVIORAL

Feel nervous	51%
Difficulty falling asleep	50
Seem sad	50
Lack of motivation	44
Lost interest in surroundings	34
Flat mood	32
Difficulty experiencing pleasure	29
Hallucinations	18
Delusions	10

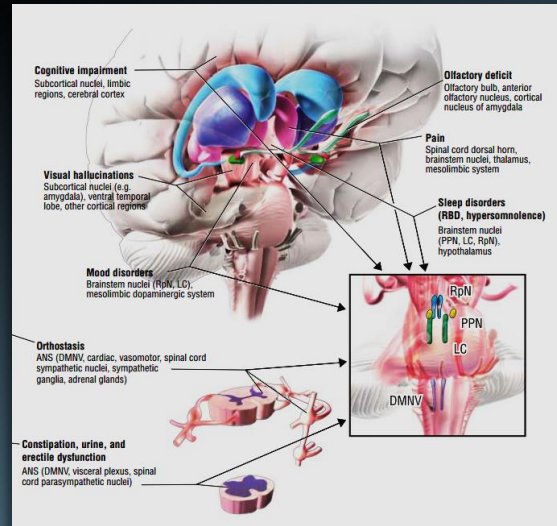
COGNITIVE

Concentration	54%
Forgetting	51

Martinez-Martin et al. *Movement Disorders* 2010

WHY COGNITIVE AND BEHAVIORAL SYMPTOMS?

- Disease pathology
 - Damage in brain structures
 - Reduced neurotransmitters
 - Dopamine
 - Serotonin
 - Norepinephrine
- Chronic illness and disability
- Side effects



COMMON BEHAVIORAL SYMPTOMS

- Depression
- Apathy
- Anxiety
- Psychosis
- Sleep disturbances

DEPRESSION IN PD

- The most common behavioral syndrome
- Can be a presenting symptom
- Correlated with
 - Severity of disease
 - Cognitive dysfunction
 - Anxiety
 - Psychosis

DEPRESSION IN PD—DIAGNOSIS

- Altered sleep
- Decreased interest
- Feelings of guilt/worthlessness
- Poor energy
- Reduced concentration
- Change in appetite
- Slowing down or jitteriness
- Thoughts of death

ALSO
SYMPTOMS
OF PD

DEPRESSION IN PD—MEDICATION TREATMENT

- Optimize motor symptom treatment
 - Dopamine agonists may improve depression symptoms
- Modern antidepressants
 - SSRI (e.g., escitalopram, citalopram, sertraline)
 - SNRI (duloxetine, venlafaxine)
 - Others (bupropion, mirtazapine, vilazodone)
- Tricyclic antidepressants
 - Nortriptyline and desipramine worked better than SSRI

APATHY IN PD

- Occurs in about 1/2 of people with PD
- Symptoms
 - Reduced goal-directed behavior (initiative, persistence, reactivity)
 - Reduced goal-directed cognitive activity (interest in new things)
 - Diminished emotion (reduced affective output and responsiveness)
- Not the same as depression
- No reliable medication treatments

ANXIETY DISORDERS IN PD

- About 40% of people with PD
- Panic attacks, OCD, phobias, generalized anxiety
- Possibly the most impactful behavioral problem
- Treatment—not well studied
 - Reducing “OFF” time
 - Antidepressant medications (SSRI, SNRI, *not bupropion*)
 - Benzodiazepines

PSYCHOSIS SYMPTOMS IN PD

- Occur in 25-50% of people with PD
 - Vexing and persistent
 - Associated with
 - Duration of PD
 - Cognitive dysfunction
 - Advanced age
 - Severe motor impairment
 - Dopamine agonist medications
 - Visual problems
- } Interrelated

PSYCHOSIS SYMPTOMS IN PD

Hallucinations—unreal sensory experiences

Illusions—distortions of sensory input

- Usually lifelike visual images
- Any sense can be affected, even “presence”
- Can be associated with vivid dreams
- Insight declines over time

PSYCHOSIS SYMPTOMS IN PD

Delusions—*fixed* beliefs unsupported by facts

- More difficult to manage than hallucinations
- Often associated with hallucinations
- Typical types of delusions
 - Being watched or stalked
 - Persecution
 - Infidelity

PSYCHOSIS SYMPTOMS IN PD

- Medications are very tricky
 - Most psychosis medicines block dopamine receptors
 - Blocking dopamine affects movement
 - Other important side effects
 - Low blood pressure (hypotension)
 - Drowsiness
 - Raise blood sugar (diabetes)
 - Possibly sudden death
- Try non-medication interventions first

PSYCHOTIC SYMPTOMS IN PD

Atypical antipsychotics

- **Pimavanserin**—*does not block dopamine*
 - FDA approved for people with PD
 - Very low risk of side effects
- **Clozapine**—minimally blocks dopamine
 - Clearly effective
 - Requires regular blood draws
 - Drowsiness, weight gain, constipation, drooling
- **Quetiapine**—minimally blocks dopamine
 - Studies not generally supportive
 - Inexpensive, easily available, mood benefits
 - Drowsiness, weight gain, dizziness, elevated glucose

	Placebo (n=94)	Pimavanserin (n=104)
Nausea	6 (6%)	6 (6%)
Peripheral oedema	3 (3%)	7 (7%)
Urinary tract infection	11 (12%)	14 (13%)
Fall	8 (9%)	11 (11%)
Confusional state	3 (3%)	6 (6%)
Headache	5 (5%)	1 (1%)
Hallucination (including visual)	4 (4%)	7 (7%)

SLEEP DISTURBANCES IN PD

Affect 60% of people with PD

Excessive daytime sleepiness

- Causes:
 - Poor sleep at night
 - Medication side effects (dopamine agonist)
 - “Sleep attacks”—can be dangerous!
- Sometimes requires treatment with stimulants
 - Amphetamine
 - Modafinil, armodafinil

SLEEP DISTURBANCES IN PD

Restless legs syndrome (RLS)

- Discomfort in *body*, alleviated by movement
- Occurs daily (usually evening/night)
- Medication treatments:
 - Dopamine agonist or levodopa
 - Gabapentin
 - Pregabalin
 - Opioids
 - Iron replacement

SLEEP DISTURBANCES IN PD

Periodic limb movements during sleep (PLMS)

- Flexion of toe and ankle, sometimes knee and hip
- Usually bothers bed partner more than patient
- Diagnosed with sleep study
- Treatment similar to restless legs

SLEEP DISTURBANCES IN PD

Rapid eye movement (REM) behavior disorder

- Loss of paralysis during dreaming
- Patients act out their dreams—running, fighting, etc
- Treatment
 - Safety first!!
 - Melatonin 3-18 mg
 - Clonazepam (use with caution)

COGNITIVE DISTURBANCES IN PD

Affect more than 50%

Common complaints

- Poor concentration
- Slow thinking
- Struggle with complex reasoning
- Diminished attention

Treatment:

- Optimize motor treatment
- Cholinesterase inhibitors (rivastigmine*, donepezil, galantamine)
- Memantine

TAKE HOME MESSAGES

- Behavioral and cognitive symptoms are **part of PD**
- **Expect symptoms**
- **Report symptoms** to medical providers
 - We have no way of detecting symptoms
 - Something that seems unrelated to PD might not be
 - Effective treatments are available
 - Syndromes can profoundly affect quality of life
- The first or second treatment might not work

