AAN Summary of Evidence-based Guideline for CLINICIANS

TREATMENT OF NONMOTOR SYMPTOMS OF PARKINSON DISEASE

This is a summary of the American Academy of Neurology (AAN) guideline (*Neurology*® 2010;74:924-931) regarding treatment of nonmotor symptoms of Parkinson disease (PD).

Please refer to the full guideline at www.aan.com for more information, including the AAN's definitions of the classification of evidence for studies of therapeutic intervention and the classification of recommendations.

AUTONOMIC SYMPTOMS	
What treatments are effective for sexual dysfunction in PD?	
Weak evidence	Sildenafil citrate may be considered in patients with PD with erectile dysfunction (ED) (**Level C**).
Clinical context	A complete medical evaluation should determine whether other treatable causes of ED may be present, including other medical conditions or side effects of medications. The US Food and Drug Administration (FDA) has approved sildenafil citrate as a medication to treat impotence.
What treatments are effective for orthostatic hypotension (OH) in PD?	
Insufficient evidence	There is insufficient evidence to support or refute treatments of OH in PD (**Level U**).
Clinical context	Randomized controlled trials of mineralocorticoids, alpha-sympathomimetics, and pyridostigmine in patients with PD are lacking. However, their pharmacologic action is consistent with improvement in OH. The only medications that are currently FDA-approved to treat OH are midodrine and L-threo-dihydroxyphenylserine (L-threo-DOPS; Droxidopa), an orally active synthetic precursor of norepinephrine.
What treatments are effective for urinary incontinence in PD?	
Insufficient evidence	There is insufficient evidence to support or refute treatments of urinary incontinence in PD (**Level U**).
Clinical context	Although randomized controlled trials of anticholinergics in patients with PD are lacking, their pharmacologic action and widespread clinical use are consistent with benefit in urinary incontinence. Anticholinergics have been shown to cause confusion in patients with PD.
What treatments are effective for gastrointestinal symptoms in PD?	
Weak evidence	Isosmotic macrogol (polyethylene glycol) may be considered to treat constipation in PD (**Level C**).
Insufficient evidence	There is insufficient evidence to support or refute the use of botulinum toxin to treat constipation in PD (**Level U**).
Clinical context	Although randomized controlled trials of treatments for constipation in patients with PD are lacking, their pharmacologic action and widespread clinical use are consistent with benefit in constipation. Additionally, nonpharmacologic treatments such as increased water and dietary fiber intake have shown clinical benefit in relieving constipation. Drugs used to treat many conditions, including PD, can cause constipation.
What treatments are effective for other autonomic symptoms in PD?	
Good evidence	The use of botulinum toxin as a treatment for sialorrhea was reviewed as part of a previous AAN practice parameter, which concluded that botulinum toxin should be considered for drooling (**Level B**).
Insufficient evidence	Controlled trials evaluating treatment for other autonomic symptoms, including heat intolerance, urinary frequency, urinary urgency, nocturia, sweating, hypersalivation, drooling, seborrhea, hypersexuality, and leg edema, are lacking.
SLEEP DYSFUNCTION	
What treatments are effective for excessive daytime somnolence (EDS) in PD?	
Strong evidence	Modafinil should be considered for patients to improve their subjective perception of EDS (**Level A**).

Insufficient evidence	There is insufficient evidence to support or refute a safety benefit in patients with PD with EDS who engage in activities where sleepiness poses a potential danger (e.g., driving) (**Level U**). It should be noted that patients who are treated with modafinil may experience an improvement in sleep perception without an actual improvement in objective sleep measurements.
What treatments are effective for insomnia in PD? Is surgical treatment of PD with deep brain stimulation (DBS) of the subthalamus (STN) effective treatment for insomnia?	
Insufficient evidence	There is insufficient evidence to support or refute the benefit of levodopa on objective sleep parameters that are not affected by motor status (**Level U**).
	There is insufficient evidence to support or refute the treatment of poor sleep quality with melatonin (**Level U**).
Clinical context	DBS STN is not currently used to treat sleep disorders.
What treatments are effective for restless legs syndrome (RLS) and periodic limb movements of sleep (PLMS) in PD?	
Good evidence	Levodopa/carbidopa should be considered to treat PLMS (**Level B**).
Insufficient evidence	There is insufficient evidence to support or refute the treatment of RLS and PLMS with non-ergot dopamine agonists (**Level U**).
Clinical context	Data on the use of dopamine agonists to treat RLS and PLMS specifically in patients with PD are lacking. The dopamine agonists ropinirole and pramipexole are the only FDA-approved agents for the treatment of moderate to severe primary RLS.
What treatments are effective for rapid eye movement (REM) sleep behavior disorder (RBD) in PD?	
Insufficient evidence	There is insufficient evidence to support or refute the treatment of RBD (**Level U**).
Clinical context	The antiepileptic drug clonazepam is often used to treat RBD in the general population.
FATIGUE	
What treatments are effective for fatigue in PD?	
Weak evidence	Methylphenidate may be considered in patients with fatigue (**Level C**).
Clinical context	Methylphenidate has the potential for abuse. Although there is no current evidence to suggest such a risk in PD, patients with PD do have a risk for dopamine dysregulation syndrome and impulse control disorders that share many clinical and functional imaging features with addiction. Regarding sleep disorders, there are currently no controlled studies on treatment for sleep apnea, sleep-disordered breathing, parasomnia, and sleepwalking.
PSYCHOLOGICAL SYMPTOMS	
What treatments are effective for anxiety in PD?	
Insufficient evidence	There is insufficient evidence to support or refute the treatment of anxiety in PD with levodopa (**Level U**).
Clinical context	Although randomized controlled trials of antianxiety agents in patients with PD are lacking, their pharmacologic action and widespread clinical use are consistent with benefit in anxiety. Antianxiety medications have been associated with ataxia, falls, and cognitive dysfunction. Controlled studies of treatment for other psychological symptoms, including obsessive behaviors, gambling, delusions, decreased motivation, apathy, and concentration difficulties, are lacking.

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