

PACIFIC MOVEMENT DISORDERS CENTER

AT PACIFIC NEUROSCIENCE INSTITUTE®

PARKINSON'S DISEASE: MEDICATIONS FOR MOTOR SYMPTOMS

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| <p>LEVODOPA:</p> <p>Carbidopa/levodopa (Sinemet)</p> <p>Carbidopa/levodopa controlled-release (Sinemet CR)</p> <p>Carbidopa/levodopa extended-release capsule (Rytary)</p> <p>Carbidopa/levodopa orally disintegrating (Parcopa)</p> <p>Carbidopa/levodopa/entacapone (Stalevo)</p> <p>Levodopa inhaler (Inbrija)</p> | <p>How it works: Levodopa gets converted into dopamine in the brain. Carbidopa is given with levodopa in order to increase the amount that enters the brain and reduce the conversion into dopamine outside the brain, reducing the risk of nausea and low blood pressure.</p> <p>What to know: The most effective medication for PD; considered the gold standard. Typically taken 3 times per day to start, on an empty stomach. Protein in the gut interferes with the absorption of levodopa, so it is taken on an empty stomach. As the disease progresses, the medication needs to be taken more frequently, often as frequently as 6-7 times per day. Parcopa and Rytary are helpful for patients who experience wearing-off of drug benefit between doses. Inbrija is used as a rescue for "off" time.</p> <p>Potential side effects: Nausea, lightheadedness, headache, dyskinesias (abnormal involuntary movements), somnolence. In patients who have dementia, confusion and hallucinations can occur.</p> |
| <p>DOPAMINE AGONISTS:</p> <p>Pramipexole (Mirapex) immediate- or controlled-release</p> <p>Ropinirole (Requip) immediate- or controlled-release</p> <p>Rotigotine patch (Neupro)</p> <p>Apomorphine injection (Apokyn)</p> <p>Abomorphine sublingual (Kynmobi)</p> | <p>How it works: Dopamine agonists work on the same receptors in the brain as dopamine does. Think of the receptor as the lock, and dopamine agonists as a different key (than dopamine) that works on the same lock.</p> <p>What to know: Can be taken 3 times per day (immediate release) or once a day (controlled-release). The Patch is a 24-hour release and is changed daily. Apokyn injection and Kynmobi are rapid in onset but only lasts 30 minutes or so, and is best used for patients who need "rescue" therapy for freezing episodes.</p> <p>Potential side effects: Sleepiness; compulsive behaviors such as weight gain, gambling/spending, hypersexuality; confusion; swelling in legs. Nausea, lightheadedness can occur. Hallucinations or confusion can occur, with a higher risk than with levodopa.</p> |
| <p>MAO-B INHIBITORS:</p> <p>Rasagiline (Azilect)</p> <p>Selegiline (Eldepryl)</p> <p>Safinamide (Xadago)</p> | <p>How it works: MAO-B inhibitors reduce the breakdown of dopamine in the brain, making it more active / available for use.</p> <p>What to know: Azilect and Xadago are taken once a day; selegiline is taken twice a day. Both medications have milder benefit for PD compared to levodopa or the dopamine agonists.</p> <p>Potential side effects: Dizziness, nausea, headache, indigestion, agitation, back pain, dyspepsia; may aggravate dyskinesias when taken with levodopa or dopamine agonists. Selegiline can cause insomnia if taken too late in the evening.</p> |

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| <p>AMANTADINE</p> <p>Immediate release</p> <p>Extended release (Gocovri & Osmolex)</p> | <p>How it works: Promotes the release of dopamine in the brain and blocks its reuptake. Has benefit for dyskinesias and tremor.</p> <p>What to know: Still used as an antiviral medication. Take twice a day typically.</p> <p>Potential side effects: Swelling in the legs, urinary retention, mottled skin, constipation, dry mouth; may aggravate hallucinations and insomnia.</p> |
| <p>COMT INHIBITORS:</p> <p>Entacapone (Comtan)</p> <p>(Also available combined with carbidopa/levodopa, known as Stalevo)</p> <p>Opocapone (Ongentys)</p> | <p>How it works: Blocks the breakdown of levodopa, thereby making it last longer in the brain.</p> <p>What to know: Only effective when taken with levodopa, therefore taken typically 3-4 times per day with each dose of levodopa.</p> <p>Potential side effects: Abdominal pain, constipation, nausea, diarrhea and blood in urine; may exacerbate dyskinesias.</p> |
| <p>ANTICHOLINERGICS:</p> <p>Trihexiphenidyl (Artane)</p> <p>Benzotropine (Cogentin)</p> | <p>How it works: Blocks acetylcholine, thereby boosting activity in the basal ganglia.</p> <p>What to know: Typically taken 3 times per day; effective for tremor and dystonia.</p> <p>Potential side effects: Not for use in the elderly or patients with memory loss as it can cause or exacerbate confusion. Can also cause dry mouth, constipation, urinary retention, blurry vision and redness.</p> |
| <p>ADENOSINE A2A ANTAGONISTS:</p> <p>Istradefylline (Nourianz)</p> | <p>How it works: Blocks adenosine A2A, thereby unblocking the motor circuitry in the brain.</p> <p>What to know: Taken once a day to reduce "off" time.</p> <p>Potential side effects: Exacerbation of dyskinesias or hallucinations.</p> |

Patients with PD may have very different symptoms despite having the same disease. Therefore, medications should be customized for each patient. Our approach at Pacific Movement Disorders Center is to focus on the symptom(s) most bothersome to the patient, keeping in mind that for many, non-motor symptoms may be more disruptive to their quality of life or functioning. This list addresses motor symptoms only. Motor symptoms include tremor, stiffness (rigidity), slowness (bradykinesia), shuffling gait, small handwriting, freezing, dystonia (abnormal muscle postures). Non-motor symptoms include fatigue, drooling, constipation, urinary symptoms, sleep issues, cognitive complaints, anxiety, depression, and hallucinations / delusions. Please see our handout on treatment of **non-motor symptoms**.