

## PHARMACY

### Medications to Treat Parkinson's Disease



#### What is Parkinson's Disease?

- Parkinson's disease is a progressive disorder of the nervous system that affects movement.

#### What Causes Parkinson's Disease?

- Parkinson's disease is widely believed to result from a combination of genetic and environmental factors.
- Many of the symptoms are due to a loss of nerve cells that produce a type of chemical messenger in your brain called dopamine.
- The reduced level of dopamine causes an imbalance of its counterpart chemical messenger, acetylcholine, which also affects movement.
- Certain drugs, diseases and toxins may also cause symptoms similar to those of Parkinson's disease.

#### What are the Symptoms of Parkinson's Disease?

- Tremors
- Muscle stiffness
- Slow movement
- Problems with balance

#### What is the Treatment for Parkinson's Disease?

- Unfortunately, there is currently no cure for Parkinson's disease.
- However, medications may markedly improve your symptoms by improving the balance of dopamine and acetylcholine in the body.
- In some cases, the physician may suggest surgery to improve symptoms.

#### What are Some Medications Used to Treat Parkinson's Disease?

Classification	Examples
Dopamine Precursors	<ul style="list-style-type: none"><li>● Madopar®, Madopar HBS® (Levodopa/Benserazide)</li></ul>

	<ul style="list-style-type: none"> <li>● Sinemet®, Sinemet CR®, Credanil® (Levodopa/Carbidopa)</li> </ul>
Dopamine Agonists	<ul style="list-style-type: none"> <li>● Bromocriptine</li> <li>● Ropinirole</li> <li>● Pramipexole</li> <li>● Rotigotine</li> <li>● Apomorphine</li> </ul>
Partial Dopamine Agonist	<ul style="list-style-type: none"> <li>● Piribedil</li> </ul>
Anticholinergics	<ul style="list-style-type: none"> <li>● Benzhexol</li> <li>● Benztropine</li> </ul>
Antiviral	<ul style="list-style-type: none"> <li>● Amantadine</li> </ul>
Monoamine Oxidase Inhibitors (MAO-I)	<ul style="list-style-type: none"> <li>● Selegiline</li> <li>● Rasagiline</li> </ul>
Catechol O-methyl Transferase Inhibitor (COMT-I)	<ul style="list-style-type: none"> <li>● Entacapone</li> </ul>
Combination Formulation	<ul style="list-style-type: none"> <li>● Stalevo® (Levodopa/Carbidopa/ Entacapone)</li> </ul>

- Your medication dose and frequency may change over time depending on the effect of the medications on your body, or as the disease progresses.
- Your doctor will work with you to derive a medication regimen that best improves your symptoms.

## How Do the Medications Work?

Classification	Function
Dopamine precursors	Converted to dopamine
Dopamine agonists and partial agonists	Have similar actions to dopamine
Anticholinergics	Reduce tremors
Antivirals	Reduce dyskinesia (fine tremors)
MAO inhibitors and COMT inhibitors	Prevent breakdown of dopamine

## How are the Medications Taken?

- Always take the exact dose of medication at the timing specified by your doctor.
- Take medications that contain levodopa at least half an hour before meals or at least 2 hours after meals. If possible, avoid heavy meals.
- Always take COMT inhibitors with Madopar® or Sinemet® for best results.
- If you miss a dose, take the missed dose as soon as you remember. If it is almost time for your next dose, take only the usual dose. Never take a double dosage to make up for the missed dose.

## Can the Medications Be Taken with Other Medications?

- It is important that you inform the doctor, pharmacist or nurse about other medications – including over-the-counter medications, supplements and traditional/herbal remedies – that you are currently taking, as they may **affect the way you benefit from your Parkinson's disease medications.**

## What are the Important Side Effects?

- Medications prescribed by your doctor should be beneficial for your condition, although they may also result in side effects.
- It is important that you recognise the side effects of your medication(s) and know how to manage them.

Medication Classification	Side Effects	Management
Dopamine Precursors	<p>Dizziness, headache</p> <p>Drowsiness or insomnia, nightmares</p> <p>Blood pressure changes, increased heartbeat, flushing</p> <p>Involuntary movements e.g. painless tremors</p> <p>Harmless pink or orange urine discolouration</p> <p>Constipation, nausea</p>	<ul style="list-style-type: none"> <li>Supportive medications can be prescribed to lessen constipation or nausea. Drinking sufficient water, eating foods high in fibre and exercise help reduce constipation.</li> <li>If you experience drowsiness, do not engage in activities requiring your attention, like driving or operating machinery.</li> <li>When changing from a lying-to-sitting or sitting-to-standing position, do so slowly and have physical support nearby.</li> </ul>
Dopamine Agonists and Partial Dopamine Agonists	<p>Drowsiness, hallucination</p> <p>Blood pressure changes</p> <p>Withdrawal syndrome, strong urges that are hard to control such as excessive gambling or spending money</p> <p>Nausea</p>	<ul style="list-style-type: none"> <li>For dry eyes, apply lubricant eyedrops. Sucking on ice-chips or sugar-free candy alleviates the discomfort of dry mouth.</li> <li>Maintain good sleep hygiene to minimise</li> </ul>

Anticholinergics	<p>Drowsiness, confusion</p> <p>Blurred vision/dry eyes</p> <p>Dry mouth</p> <p>Urination retention, constipation</p>	<p>insomnia, by avoiding the following:</p> <ul style="list-style-type: none"> <li>Naps in the day time</li> <li>Stimulating activities or beverages</li> <li>Using the bedroom for activities other than sleep</li> </ul> <ul style="list-style-type: none"> <li>Seek medical attention from your doctor or nurse clinician if you experience any of the following: <ul style="list-style-type: none"> <li>Persistent involuntary movements</li> <li>Withdrawal symptoms e.g. irritability, cold sweat</li> <li>Persistent sleep disturbances such as insomnia, nightmares, vivid dreams</li> <li>Excessive daytime drowsiness</li> <li>Hallucinations</li> <li>Confusion and mental changes</li> <li>Skin discolouration</li> <li>Severe headache and dizziness</li> </ul> </li> </ul>
Antivirals	<p>Dizziness, insomnia, anxiety, confusion, headache</p> <p>Nausea</p> <p>Purplish discolouration of skin</p>	
MAO Inhibitors	<p>Dizziness, headache, confusion, insomnia</p> <p>Dry mouth, constipation</p> <p>Stomach pain, nausea, diarrhea</p>	
COMT Inhibitors	<p>Harmless urine discolouration</p> <p>Nausea, diarrhoea</p>	

If you develop rashes, facial swelling or shortness of breath after taking the medication, you could be allergic to the medication. Please seek medical attention immediately.

## Are There any Special Precautions That I Need to Take?

- It is important to inform your doctor if you intend to conceive or breastfeed while taking this medication.
- If you are taking MAO inhibitors, avoid certain food which contains tyramine such as matured cheese, broad beans and fermented soy bean products. The combination can lead to uncontrolled high blood pressure.
- Certain medications can affect laboratory tests that your doctor may perform on blood or urine samples. Please inform or remind your doctor about your medications if you are scheduled for some tests.
- Certain medications are not suitable to be crushed or opened from the capsule in the event of swallowing impairment. Patches to be applied to the skin should not be cut unless instructed. Check with your pharmacist if you have any doubts.
- Do not abruptly discontinue your medications without medical advice. Always ensure that you have sufficient supply on hand to avoid this.

## What Else can I do to Help My Condition?

### Adopt a Healthy Diet

- Eat a nutritionally balanced diet with food high in fibre, to prevent constipation. Constipation is a common problem in Parkinson's disease due to the slowing of muscle movement of the gut.

### Exercise Regularly

- Regular exercise is extremely important. It helps improve mobility, balance and even emotional well-being.
- Choose a time to exercise when you are well rested and your symptoms are well controlled by your medications.

### Walk with Care and Avoid Falls

- Parkinson's disease can affect your sense of balance, making it difficult to walk normally. Therefore, you should take extra caution to avoid getting injured.

### Stay Positive

- Understand your condition and take an active role in managing it.

- Do not be afraid to talk to your doctor/ pharmacist/ family members about what you are experiencing. Repressing your feelings can be harmful to your immediate well-being and long-term health.

## How do I Store These Medications?

- Store your medication in a cool, dry place away from heat, moisture and direct sunlight.
- Try to keep Madopar® tablets/capsules in original bottles.

If you have any problem with your treatment, please contact your doctor, pharmacist or nurse clinician.

Please keep all medications out of reach of children.



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