

Drug Therapy

A Guide to the medication in PD

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PARKINSON'S DISEASE AND MOVEMENT DISORDER SOCIETY.



A GUIDE TO PARKINSON'S MEDICATIONS

This guide has been produced to provide general information about medications for people with Parkinson's disease (PD), and to detail information about each drug. It is important to bear in mind when referring to the guide that no two people with Parkinson's are exactly the same, and each will have a different combination of symptoms and medication.

The drugs mentioned in this guide and some of the information related to them may change from time to time.

BALANCING YOUR MEDICATION

The main aim of drug treatment in Parkinson's is; to increase the level of dopamine that reaches the brain, stimulate the parts of the brain where dopamine works, or block the action of other chemicals that affect dopamine, such as acetylcholine.

- You will need to work with your doctor to find the right balance of medications to effectively manage your symptoms.
- Drug treatment in Parkinson's is prescribed to suit the individual, both in terms of the dosage and the times the drugs are taken.
- A combination of different medications is often required to provide the most effective symptom control.
- Treatment is generally started with low doses of a drug; this dose is then gradually increased until the required control over the symptoms is achieved. This gradual introduction helps avoid side effects.
- The dose and timing of medications may need to be adjusted over time as your symptoms change (or side effects occur). Accordingly, your doctor will probably want to check your response to the medication.

GETTING THE BEST OUT OF YOUR TREATMENT

Whatever the medication you are taking, it is important to understand:

- How many or how much of your medication you should take.
- Under what circumstances your medication should be taken, for e.g. before, with or after food.
- The importance of taking medication at a regular time recommended by your doctor.
- What other medications you should not combine with your current medication.

- All medications have possible side effects. Most people will not experience these to any great extent. However, if side effects become troublesome, please consult your doctor.
- You should not suddenly stop your medication without consulting your doctor.

Try to avoid starting a new medication when you will not have access to your doctor or other healthcare professional, such as the weekend or public holidays. Always ensure that you have adequate supplies of your medication available.

Your doctor is the best person to advise you on the appropriate drug treatment and to give you further information.

LEVODOPA

Levodopa is converted to dopamine in the body, which then replenishes the deficiency of dopamine in the brain. Levodopa is highly effective in controlling most symptoms of Parkinson's. More than 30 years after its discovery it remains the cornerstone of Parkinson's disease therapy, and a large majority of patients receive levodopa therapy.

Many people find levodopa treatment very effective, but after long-term use its effectiveness may decrease, thus requiring the dosage to be increased. That and the development of involuntary movements (dyskinesias) is why some doctors delay treatment with levodopa for some time.

Levodopa- Carbidopa; like- Syndopa, Sinemet, Tidomet, LCD, & Madopar (levodopa+ benserazide).

Possible side effects;

If at all side effects occur, nausea and vomiting are the most common.

Dizziness, lightheadedness may occur from a lowering of blood pressure.

Dry mouth, headache or constipation may occur

Consult your doctor if any of the above side effects occur or you experience any of the following;

Uncontrolled body movements (dyskinesias)

A fast heartbeat

Any unusual behavior or mood changes.

Controlled release preparations are recognized by the letters HBS or CR after the drug name. These preparations release the drug over a four to six hour period and may result in more even levels of levodopa in the blood. With controlled release preparations the time

between the doses can be prolonged by 30% to 50%. They may be used when a person with Parkinson's is experiencing wearing off of the dose of the standard levodopa. They can also be taken before going to bed to reduce stiffness and immobility during the night.

The Role of Protein:

In some people protein (found in foods such as meat, fish, eggs, cheese, nuts and pulses such as lentils and beans) seems to interfere with the effectiveness of their levodopa medication. For them, the protein can interfere with the absorption of levodopa from the stomach, since both levodopa and proteins are made of amino acids. This may result in less of the drug reaching the brain. Thus the efficacy of the drug is reduced if taken after or with a protein-rich diet.

In such a case, it would be more beneficial to keep a gap between taking the levodopa and meals. (Ideally with a carbohydrate food like a biscuit or cracker). If this doesn't help, one may try a protein redistribution diet, where most of the daily protein is taken in the evening. This can help the levodopa treatment to be more effective in the day-time, when you are likely to need it more. However, as protein is essential for a healthy diet, you should not reduce the overall amount of protein you consume.

It is important that any changes to your diet are undertaken only after a full discussion with your doctor or dietician.

DOPAMINE AGONISTS

Dopamine agonists stimulate the dopamine receptors rather than replacing it in the way that levodopa does.

Dopamine Agonists include- Bromocriptine (like- Proctinal & Parlodel), Carbergoline (like- Carberlin, Cabgol), Ropinirole (like- Requip, Ropark, Ropiro), Pramipexole (like- Pramipex, Pramirrol), Lisuride (Dopergin)

Dopamine agonists mimic the signal from dopamine that is lost in Parkinson's disease. The drugs are usually started at a low dose and increased slowly to reduce any possible side effects.

Several clinical studies have shown that dopamine agonists can be effective treatments for several years when used alone and the likelihood of developing dyskinesias is reduced while people remain on a dopamine agonist alone or in combination with a low dose of levodopa.

Dopamine agonists are best taken with meals.

Possible side effects;

Nausea and vomiting. Confusion and hallucinations. Dizziness or lightheadedness. Dry mouth.

Drowsiness can also be a side effect of dopamine agonists and can sometimes be severe. Accordingly, those experiencing these should take the necessary precautions while driving, operating complex machinery, or participating in any potentially dangerous activity.

Some people with Parkinson's continue to experience sudden fluctuations in their symptoms in spite of all efforts to adjust their medication. In these cases, injections of Apomorphine maybe used between doses of their usual medication.

As Apomorphine can only be given by injection, people with Parkinson's and their carers have to be able to cope with this, also assessment and training is required.

Many people self- inject intermittently, with a syringe or a pre-loaded metering device, but some may need a more continuous supply of Apomorphine and so may require an infusion pump. This portable battery-driven syringe pump works by the insertion of a needle under the skin of the outside of the thighs, or into the abdomen (below the navel).

Apomorphine causes severe nausea & vomiting, so an antinauseant like domperidone is prescribed before and during the introduction of Apomorphine and longer.

Apomorphine may initially make dyskinesias worse. Soreness can develop at the injection site and if this occurs, you should seek the advice of your doctor.

AMANTADINE

Amantadine does several different things, but its main beneficial effect may be to promote the release of dopamine and to allow it to stay longer at its site of action. Amantadine can be used as a monotherapy in the early stages of PD, especially in younger people. If stopped suddenly it can cause a worsening of PD. It may sometimes help reduce dyskinesias. Amantadine may have a stimulatory effect and can help some people with tiredness.

Common Amantadine preparations include-Symmetrel, Amantrel
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Common side effects include;

Nausea, insomnia, dizziness or lightheadedness, swelling of the ankles, a mottled appearance on the skin of the lower leg. It may sometimes cause confusion or hallucinations in older people. Contact your doctor if any of the above side effects persist or become troublesome.

#ANTICHOLINERGICS

These are older drugs, less commonly prescribed these days, which can have a mild effect on the symptoms of Parkinson's (mainly tremor) by blocking the action of the chemical messenger acetylcholine. Anticholinergics are often prescribed alone, or they may be used in conjunction with levodopa or other medications.

Common Anticholinergic preparations include; Pacitane, Kemadrine, Bexol

Anticholinergics can be useful for younger people in the early stages of Parkinson's when symptoms are mild. They tend to improve tremor more than slowness and stiffness. Anticholinergics may also be used to reduce saliva production when drooling is a problem.

These drugs are not prescribed to older people with Parkinson's because there is an increased risk of confusion as well as memory loss, and urinary hesitancy in males.

Possible side effects;

Confusion, memory loss, dry mouth, nausea, constipation, and blurring of vision can occur. Consult your doctor if any side effects persist or become troublesome, or if you experience any of the following:

- Severe eye pain
- Seeing or hearing difficulties
- A fast or irregular heartbeat.

If you have glaucoma you should consult your doctor before taking this drug.

MONOAMINE- OXIDASE TYPE B (MAO-B) INHIBITORS

Monoamine oxidase type B inhibitors (MAO-B Inhibitors) slow the dopamine breakdown in the brain. They are used to make the dose of levodopa medication last longer or reduce the amount required.

MAO-B Inhibitors include Selegiline (like- Selgin, Eldepryl)

This drug can be prescribed on its own or in addition to levodopa. Selegiline is often prescribed as a single dose to be taken in the morning rather than in the evening when it might interfere with sleep.

Selegiline should be used with caution when used in combination with antidepressants and with cold and cough preparations containing dextromethorphan.

Possible side effects;

By itself, Selegiline has few side effects; dry mouth, sleeping disorders, hallucinations, and postural hypotension are the most commonly reported.

COMT INHIBITORS

These new medications work by blocking an enzyme called catechol-O-methyl transferase (COMT) which breaks down levodopa. As a result they slow the destruction of levodopa in the body allowing more levodopa to pass into the brain to be converted into dopamine.

COMT Inhibitors include; Entacapone (Entacom, Adcapone, Comtan), Tolcapone (Tasmar)

These drugs are particularly effective in people who are experiencing on-off fluctuations. When used with levodopa, they can reduce the daily off time and increase the on time. In many cases, the levodopa dose and dosing frequency can also be reduced.

Be aware that other drugs, for Parkinson's or other conditions, can affect the action of Entacapone and Tolcapone. Most Parkinson's drugs can be taken with COMT inhibitors, except Apomorphine.

Please note: Regular blood tests to monitor liver function are necessary when taking Tolcapone.

Possible side effects;

Dyskinesias, nausea and vomiting, sleep problems. Constipation or diarrhea. Urine can become discolored due to the substances used in the drugs, but this discolouration is harmless.

An increase in side effects after starting a COMT inhibitor should be discussed with the doctor, reducing the levodopa dose can often help in this situation.

COMT Inhibitors are also available in combination with Levodopa- Carbidopa. (These include preparations like; Entacom plus, Syncapone etc.)

#NON- PARKINSON'S DRUGS COMMONLY USED

= Antidepressants=

Research has shown that depression is a common Parkinson's symptom caused by a chemical imbalance in the brain. It is sometimes difficult to distinguish depression from some of the symptoms of Parkinson's; this is why it is all important to discuss all your symptoms with your doctor.

For some people adjustments to their medications may improve their depression, or counseling may help. Antidepressants may also be prescribed to correct any chemical imbalance. Some will be more suitable than others for people with Parkinson's.

There are several types of antidepressants such as Tricyclics, SSRI's, and MAOIs.

Tricyclics

Tricyclics have a sedating effect and so may be good for those who are agitated. They can sometimes help those with drooling, loss of appetite and night- time incontinence.
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Selective Serotonin Re-uptake Inhibitors (SSRIs)
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SSRI's are drugs that specifically target the neurotransmitter serotonin. They are believed to have an alerting effect, and may counteract the sedative component of traditional anti-Parkinson's medications.
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Other antidepressant drugs like, Moclobemide (Apo-Moclobemide, Autorix), Venlafaxine (Efexor), Miiratzapine (Remeron) are the newer anti deppressants and are sometimes prescribed.

Please note: All antidepressant medications have possible side effects. They should be taken only under doctor's consultation.

= Cognitive Enhancers=

Memory loss can be experienced by some people with Parkinson's. For people concerned about memory loss cognitive enhancing drugs commonly prescribed for Alzheimer's such as Donepezil (these include; Aricep, Donep, Donecept), Rivastigmine (these include; Exelon or Rivamer) and Galantamine (these include; Reminyl, Galamer etc) work by boosting existing supplies of acetylcholine. However these drugs are usually available at high costs.

= Drugs for Hallucinations=

Some people with Parkinson's experience hallucinations when they may see, hear, feel, smell or taste something which in reality does not exist.

Sometimes hallucinations occur when an adjustment has been made to the dose of a particular Parkinson's drug or when a new drug is added to a combination that the person is already taking. They may also occur as a result of infection or other illness. On other occasions it seems that the hallucinations occur spontaneously without any immediate cause.

Sometimes, lowering the levels of levodopa may help alleviate symptoms. If this is not successful, neuroleptic or antipsychotic drugs maybe prescribed. Newer antipsychotic drugs prescribed by a specialist to prevent hallucinations include Quetiapine (such as, Qutipin, Qutan etc.) and Clozapine.

BEFORE SURGERY

If you need or are scheduled for any type of surgery, you **MUST** talk to your doctor and anesthetist, before hand, about the medications you are taking, the dosage and the timing of them.