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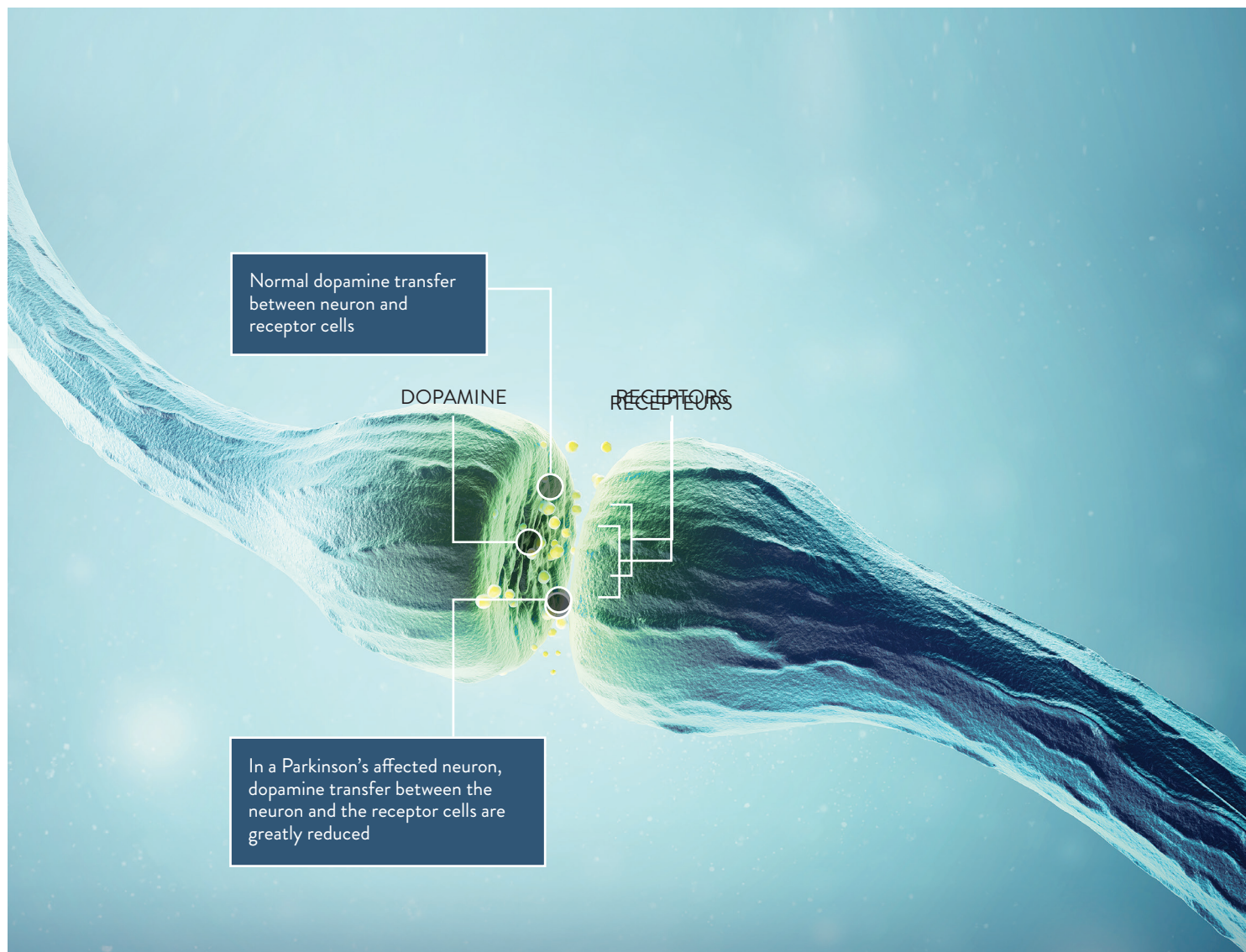
LA MALADIE DE PARKINSON CHEZ LES PERSONNES ÂGÉES

CAMPAGNE ÉDUCATIVE DE
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WHAT IS PARKINSON'S DISEASE?

Parkinson's Disease is a neurodegenerative disease related to the production of dopamine. Dopamine is a neurotransmitter, a chemical that carries signals between nerves in the brain. When cells that produce dopamine die, the communication between nerves ceases, resulting in uncontrolled movements as seen in Parkinson's Disease.

According to statistics, there are approximately 100,000 people living in Canada with Parkinson's Disease, with age being the most significant risk factor. In people over 65 years old, the number of Canadians living with Parkinson's will more than double by 2031. Parkinson's has the 3rd highest level of direct healthcare costs, following Alzheimer's and other dementias, and epilepsy. People living with Parkinson's have the highest use of prescription medications.

WHAT MEDICATIONS CAN INDUCE PARKINSON'S LIKE SYMPTOMS?

Some common medications used in the elderly can induce Parkinsonism, either acutely or within 3 months of use (eg. amiodarone, olanzapine, risperidone, haloperidol, valproic acid, calcium channel blockers, methyldopa, metoclopramide). Even when the medication is discontinued, it may take up to 2-6 months for symptoms to resolve.

SYMPTOMS OF PARKINSON'S DISEASE

2 of 4 hallmark symptoms must be present for a sufficient period of time to diagnosis Parkinson's Disease, after ruling out secondary causes, such as drugs. Initial symptoms may be subtle, and often unilateral, but symptoms eventually manifest bilaterally as disease progresses.

4 Hallmark Symptoms (TRAP)	Other Motor Symptoms
■ Tremor or shaking at rest	■ Fatigue
■ Rigidity of extremities	■ Soft speech
■ Akinesia (no movement) or bradykinesia (slow movement)	■ Problems with handwriting
■ Postural instability: trouble with balance, stooping over	■ Stooped posture
	■ Constipation
	■ Sleep disturbances

TREATMENT OPTIONS

There is no cure for Parkinson's Disease, but symptoms can be treated. Surgery can sometimes be beneficial to a patient with Parkinson's. Other therapies to help manage symptoms include physical therapy, occupational therapy, speech therapy, and exercise. Every Parkinson's experience is different – symptoms and progression vary from one individual to the next. Hence, treatment of Parkinson's is individualized, and involves a multidisciplinary approach.

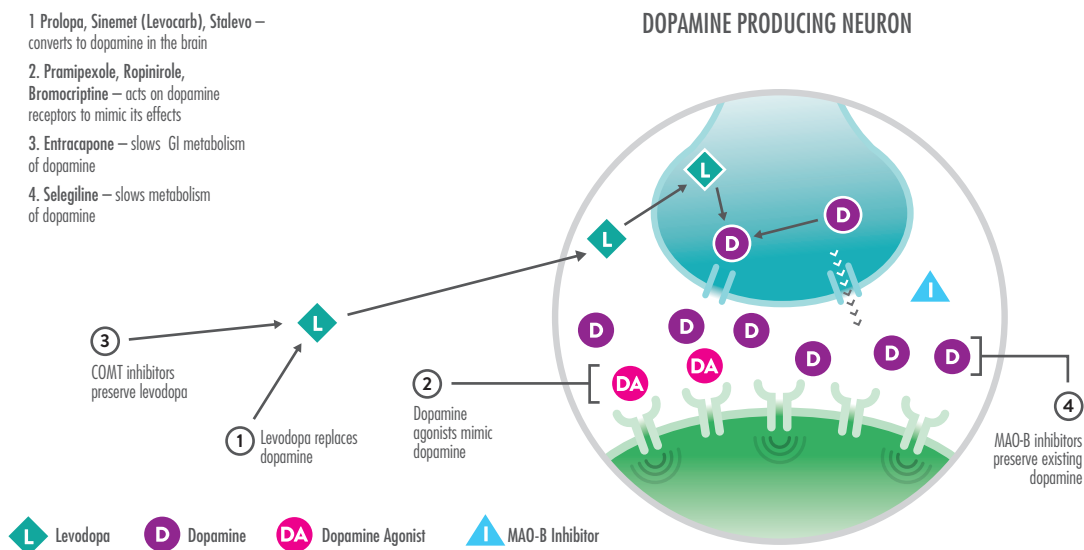
MULTIDISCIPLINARY TEAM

Neurologist
Family Doctor
Parkinson's Nurse Specialist
Psychologist
Physiotherapist
Occupational Therapist
Speech Language Pathologist
Dietician
Social Worker
Pharmacist

Medications used to treat Parkinson's Disease work to increase the amount of dopamine in the brain to improve communication between nerves. The goal of treatment is to provide patients with “on” periods, where symptoms are minimal, and reducing “off” periods, where symptoms return. Unfortunately, as disease progresses, the effectiveness of medication slowly declines, increasing the amount of “off” periods that a patient experiences.

Levodopa (L-Dopa) is the cornerstone therapy of Parkinson's Disease. It enters the brain from the bloodstream and converts into dopamine. L-Dopa is given with **Carbidopa (Sinemet)**, **Benserazide (Prolopa)**, or **Carbidopa/Entacapone (Stalevo)**, all of which help increase the amount of L-Dopa entering the brain to convert to dopamine.

It is important to give L-Dopa at regular intervals to avoid “off” periods, and to give without food whenever possible. High fat and high protein intake can delay absorption by up to 2 hours, therefore, it is recommended that L-Dopa be given 30 minutes before or 2 hours after meals. Carbonated beverages can also help increase



absorption. If morning “off” periods are observed, CR formulation of Sinemet can be given at bedtime.

Other Parkinson's medications include Dopamine Agonists, such as **Pramipexole (Mirapex)**, **Ropinirole (Requip)**, and **Bromocriptine**. These are generally added as adjunctive therapy when complications develop while on L-Dopa, but they have also been used on their own, particularly in younger patients. **Entacapone (Comtan)**, which is also found in Stalevo, is a COMT Inhibitor that increases L-Dopa absorption into the brain by blocking their metabolism in the bloodstream. Due to this mechanism, it is important to dose Entacapone together with L-Dopa. Entacapone is often used to reduce “off” times while on L-Dopa. Selegiline, a MAO-B Inhibitor, can also help reduce “off” times. **Amantadine** is an anti-viral agent that has been used for many years to treat tremors in early Parkinson's. A recent study also confirmed that Amantadine can reduce dyskinesia caused by L-Dopa, without altering the therapeutic effects of L-Dopa. Lastly, anticholinergic agents such as **Benzotropine** may improve tremor, but are otherwise only mildly effective.

In elderly patients, L-Dopa remains the treatment of choice, while anticholinergics should be avoided due to associated risk of confusion and falls. Because L-Dopa is not without possible serious adverse effects, including nausea, hallucination, and dyskinesia, adjunctive therapy with medications from the other classes can lower the dose of L-Dopa, allowing a patient to better tolerate their medication. Later stages of the disease are complicated by motor fluctuations (more “off” periods), dyskinesias, and psychiatric problems. More frequent dosing of L-Dopa or switching to CR formulation at bedtime can help with reduce “off” periods, dyskinesia can be reduced with addition of Dopamine Agonists or Amantadine, and symptomatic treatment of psychosis and delusions without worsening Parkinsonian symptoms is possible with Clozapine.

DRUG	USUAL DOSAGE	ADVERSE EFFECTS	COMMENTS
PROLOPA (Levodopa/Benserazide)	100/25mg TID	Nausea, orthostatic hypotension, hallucination, delusion, psychosis, dyskinesia (For nausea, can give with food, but may reduce drug absorption)	Swallow whole, do not crush.
SINEMET (Levodopa/Carbidopa)	IR: 100/25mg TID - QID to 250/25mg TID CR: 100/25mg TID to 200/50mg BID - TID		CR: swallow whole or open capsule and consume immediately. Increase dose 20-30% when switching from IR to CR for equivalent dose.
STALEVO (Carbidopa/Levodopa/Entacapone)	TID - up to 8 tablets per day 50 = 12.5/50/200mg 75 = 18.75/75/200mg 100 = 25/100/200mg 125 = 31.25/125/200mg 150 = 37.5/150/200mg		Swallow whole, do not crush. Give only 1 tablet per dose.
MIRAPEX (Pramipexole)	0.5 - 1.5mg TID	Less motor complications than L-Dopa, but more hallucinations, nausea, dizziness, daytime somnolence, edema	Give with food.
REQUIP (Ropinirole)	1 - 5mg TID		
PARLODEL (Bromocriptine)	5 - 10mg TID		
COMTAN (Entacapone)	200mg TID - QID	Nausea, urine/sweat discolouration, hypotension, diarrhea, hallucination	Give only with L-Dopa.
SELEGILINE	5mg daily - BID	Nausea, insomnia, hallucinations, dyskinesia	Give with food.
AMANTADINE	100mg BID (8am & 12pm) - TID	Confusion, drowsiness, insomnia, anticholinergic effects, hypotension, edema, hallucination	Trial for 2 weeks before considering it to be ineffective. Give earlier in the day to reduce insomnia.
NEUPRO (Rotigotine)	2-6mg/24hour	Nausea, vomiting, hallucination/ psychotic behavior, hypotension, peripheral edema, drowsiness/ dizziness, headache, sleep disorder, dyskinesia	Start at 2mg/24hour, increase by 2mg/24hr weekly. Decrease by 2mg/24 hour every other day to discontinue.

Neupro: The Newest Player on the Market

Neupro (Rotigotine) is the newest drug on the market for the treatment of Parkinson's Disease. It is a daily transdermal patch applied to the skin - an advantage compared to the traditional agents, where multiple oral doses each day can be an inconvenience. Its mechanism of action is not completely known, but it acts on specific dopamine receptors, comparable to the action of Dopamine Agonists. It is not without some severe adverse reactions, including drowsiness, peripheral edema, hypotension, and dyskinesia. There is also reported application site reaction caused by the patch, which may be intolerable for some patients. Neupro can be used as initial therapy for Parkinson's Disease or as an adjunct to Levodopa.

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