

GUIDE TO MS MEDICATIONS

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gmus Hyperthermia Urinary retention Sedative

For People with Multiple Sclerosis.
Approved by the Canadian Network
of MS Clinics.



INTRODUCTION

Multiple sclerosis (MS) is a disease that affects the central nervous system, that is, the brain, the cerebellum and the spinal cord. It is the most widespread neurological disease in North America among adults aged 15 to 40 years old.

MS is manifested by many symptoms; some of the most common are extreme fatigue, sensory problems such as pain and numbness, problems with the sphincters of the bladder or intestines, spasticity, etc. These symptoms vary considerably from one person to another but a given person's symptoms will also change as the disease evolves over time.

At present, it is not possible to cure MS. However, a number of medications are available to treat it; some modify the course of the disease by changing the number of attacks, whereas others alleviate or control certain symptoms.

This brochure is meant to be a useful tool that will help people with MS learn more about the therapeutic options their physicians can offer them to treat their symptoms. It should also enable them to better manage the medications they use.

Most of the medications discussed in this brochure were not designed specifically for MS but have still proven effective in the treatment of some of its symptoms. We present the medications that are most frequently used in treating MS. However, this list is not exhaustive and many other drugs may be useful in relieving the symptoms of MS.

Not all symptoms are covered in this brochure. For example, drugs to treat depression or insomnia are not presented. **Moreover, the way in which medications are prescribed may vary from one doctor to another and their use may vary from one patient to another.** Treating MS is often a matter of trial and error – a particular drug or dosage is tried, then adjusted depending on the

effect obtained. That is why one often has to make several adjustments before settling on the appropriate dosage or medication. Every prescription and every proposed treatment plan is individual. The type of treatment may also vary based on the physician's findings or the existence of associated illnesses.

Most of the medications presented here must be prescribed by a doctor and are not available over the counter. It is important to consult your physician before taking any medication; **never** take a medication prescribed for someone else, even to treat the same symptoms. We would also advise you not to treat urinary infections yourself; other options can be tried before resorting to medication.

Following the section on medications, you will find a **glossary** that will help you to understand the most important terms used in the brochure.

The **checklist** at the end of the brochure was designed to help you remember the names of the medications you have been prescribed and the reasons why you are taking them or why you stopped taking them. It may be useful for meetings with your physician or nurse; it could help them to fine-tune your treatment. The checklist may also help you to avoid taking incompatible medications when you have consulted more than one physician or pharmacist.

Keep the checklist up to date and take it with you to all your medical appointments.

PREFACE



Josée Poirier and Jocelyne Frenette, two nurses with extensive experience in caring for people with multiple sclerosis (MS), are the authors of this work, which describes the main treatments available for this disease. I almost found myself writing “this disease that is so dear to us,” by which, of course, I meant that the people who

have it are dear to us! In this handbook, which one might call by the old-fashioned name of *vade mecum*, people with MS, nurses and physicians will find detailed descriptions of the indications for use, anticipated effects, instructions for administration, and side effects (and how to monitor them) both of medications intended to produce a curative effect and of those most commonly used to treat symptoms. Everybody will be able to note the many symptoms observed in a multiple sclerosis practice, on one hand, and the many solutions available, on the other.

Fortunately, the days when there was nothing, or almost nothing, we could offer people with MS are long gone. Although we still haven’t developed a cure, immunomodulators allow us to slow down the progression of multiple sclerosis, while symptomatic treatments alleviate many symptoms that can make life difficult. For example, let me just mention the many ways in which multiple sclerosis can lead to disturbed sleep: spastic legs, which can get worse during the night; nycturia (urination up to six times a night), which causes people to wake up repeatedly; depressive symptoms; and unpleasant sensations such as pins and needles in the feet and legs. If a person with the disease completes a detailed questionnaire, his or her problems can be identified and a remedy sought.

One piece of advice: always make sure that someone with MS knows exactly why he or she is taking a particular medication and what side effects are to be expected, and tell the person to stop taking the drug if it doesn’t have the anticipated effect. Furthermore, remember that side effects often decrease over time. Someone who is well informed from the outset is always better able to manage his or her medication. I know these comments are elementary, but attention must be paid even to minor details.

I am certain that this *vade mecum* will be extremely useful to you. I urge you to keep it handy, because you’ll need to consult it often. And I thank Ms. Poirier and Ms. Frenette for their excellent work.

Pierre Duquette

Neurologist

Chair, Canadian Network of MS Clinics.

Biographical Notes



Jocelyne Frenette, RN BSN ESCM

Jocelyne Frenette has bachelor's degrees in biochemistry (University of Ottawa) and nursing (Université de Montréal); she also obtained her master's in clinical sciences from the Université de Sherbrooke. From 1997 to 2001, she worked as coordinator of the multiple sclerosis clinic at the Université de Sherbrooke hospital, and until April 2003, as a nurse clinician at the Ottawa multiple sclerosis clinic. She taught undergraduate and graduate nursing students at the Université de Sherbrooke and Université du Québec en Outaouais until 2002. Since then, she has worked as project leader at the Centre hospitalier des Vallées de l'Outaouais. Her main areas of interest and research specialties are the quality of life of people who have MS and cognitive disorders associated with MS.



Josée Poirier, B.Sc., Nursing, MSCN

Josée Poirier has been coordinating nurse at the multiple sclerosis clinic at Notre-Dame Hospital (CHUM) since 1994. She participated in developing the Canadian MS Nursing Care Plan and in writing a number of other publications. She is a member of the Multiple Sclerosis Society of Canada, Quebec Division's Client Services Committee, and she has a regular column in the society's quarterly newsletter, *MS Quebec*.

Ms. Poirier has received the 2004 Berlex MS Nursing Recognition Award.





ALPROSTADIL

Generic name: Alprostadil

Brand name: Caverject (Pfizer)

Not reimbursed by the RAMQ or insurance companies.

Description/Indication: Alprostadil is injected into the corpus cavernosum of the penis in men who have erectile dysfunction of neurological, vascular, psychological or mixed origin.

Presentation: Sterile vial of powder containing 20 µg of alprostadil with a ready-to-use syringe containing 1 ml of diluent.

Efficacy: Acts after 5 to 20 minutes. The duration of the erection is proportional to the dose.

Symptoms of overdose: None observed during clinical trials. If the dose is exceeded, there may be a prolonged erection which must be treated immediately.

Drug interactions: None.

Directions for use: The first dose must be administered by a health care professional. Make sure that you properly understand the technique before administering the drug yourself. Begin with the lowest dose and increase as needed. If an erection lasts for over an hour, the dose must be reduced. Keep the medication at room temperature. Avoid injecting in areas where there are visible veins. Change the site with each injection. Use both corpora cavernosa for injections. Do not reuse needles.

Precautions: People who are taking anticoagulants such as warfarin or heparin may experience more bleeding after an alprostadil injection. Bleeding may increase the risk of blood-borne disease transmission, so it is preferable to use a condom during intercourse.

Note

Not all of the medications discussed in this handbook are illustrated; those that are shown are not necessarily depicted at their actual size. At press time, all the information contained in this handbook was up to date.

Important

Always follow your prescription. Never change the dosage of any medication without consulting a health care professional first.

Disclaimer

The Multiple Sclerosis Society of Canada is an independent, voluntary health agency. It does not approve, endorse or recommend any specific product or therapy but provides information to assist individuals in making their own decisions.



Side effects: Reported in at least 1% of patients: pain in the penis after the injection or at the site of the injection, bruising at the injection site, penile edema, prolonged erection (four to six hours), upper respiratory tract infection, flu-like symptoms, headaches, hypertension, etc.

AMANTADINE

Generic name: Amantadine

Brand name: Symmetrel (DuPont Pharma), Endantadine (Linson Pharma) and Gen-Amantadine (Gen Pharm)

Description/Indication: Amantadine is a medication that is generally prescribed as an adjuvant therapy for persons with Parkinson's disease. It is also used as an antiviral medication in the prevention or treatment of certain kinds of flu. It has been proven to help alleviate fatigue in people with MS.

Presentation: 100-mg red oval gelatin capsules.

Usual or recommended dosage: 100 to 200 mg per day to be taken in two doses: one in the morning and the other at noon or before 2 p.m.

Efficacy: It takes at least three weeks for any decrease in fatigue to become observable. Amantadine reduces fatigue to a moderate to large extent in 30% to 50% of patients.

Symptoms of overdose: Psychosis (disorientation, confusion, visual hallucinations, aggression), urinary retention, acid-base disorder.

Drug interactions: Anticholinergic medications (e.g. Cogentin, Norflex, epinephrine); central nervous system stimulants (e.g. Alertec, Ritalin).

Directions for use: Start with a small dose, such as 100 mg in the morning for five to seven days to decrease the risk of side effects, then increase to 100 mg twice a day.

Take the second dose before 2 p.m. to avoid insomnia.



Precautions: Consuming alcohol with amantadine may increase side effects such as circulatory problems, vertigo, light-headedness, loss of consciousness and confusion. It is therefore preferable to avoid alcohol during treatment with amantadine.

Amantadine's effects on the fetus are not known, and neither are the effects of its presence in breast milk. It is therefore recommended that women who are pregnant or nursing avoid taking amantadine.

Side effects: In general, the side effects decline and then disappear after a few days. The main ones are visual hallucinations, nightmares, dizziness, nausea, hyperactivity, anxiety, insomnia, and skin rashes on the legs.

AMITRIPTYLINE (HYDROCHLORIDE)

Generic name: Amitriptyline hydrochloride

Brand name: Apo-Amitriptyline (Apotex)

Description/Indication: Amitriptyline is a medication used to treat depression. Due to its sedative effect, it can also be used to relieve the anxiety that accompanies depression. In the case of MS, it is primarily used to control pain in the form of a burning sensation on the skin. It may also be useful to control bladder spasms or urinary incontinence.

Presentation: 10 mg: blue, round, biconvex tablet stamped "10"; 25 mg: yellow, round, biconvex tablet stamped "25"; 50 mg: brown, round, biconvex tablet stamped "50"; 75 mg: orange, round, biconvex tablet stamped "APO 75".

Usual or recommended dosage: The dose may range from 10 to 50 mg per day (sometimes more). This drug should be taken in the evening because of its sedative effect. Always start with small doses and increase them gradually until you obtain relief while still able to tolerate the dosage.

Efficacy: The analgesic effect appears within three to four days.

Symptoms of overdose: Temporary confusion, lack of concentration or transitory visual hallucinations. An overly high dose may cause somnolence, hypothermia, tachycardia, etc.

Drug interactions: Anticholinergic drugs (e.g. Cogentin, Norflex, epinephrine).

Directions for use: Always start with small doses. Take the drug in the evening, shortly before going to bed. If you use it during the daytime, split up the dose. May be taken on an empty stomach.



Precautions: People who perform tasks that require alertness, such as driving a car or using machinery, must obtain information on the effects of the drug.

If dry mouth lasts for a long time, there is a risk of tooth or gum problems; people taking amitriptyline should inform their dentist.

Consuming alcohol with amitriptyline may increase the drug's side effects. Caution is required when administering the drug to men with prostate disease.

Women who are nursing or pregnant should not take amitriptyline.

The drug may make your skin sensitive to the sun. Use sunblock to properly protect your skin before exposure to the sun. Avoid tanning beds and sun lamps.

People who have glaucoma or who are taking other medications for depression or hypertension should check with their pharmacist to see if there are any drug interactions or if these drugs may reduce amitriptyline's effect.

People who are taking a decongestant or cold remedy should consult their pharmacist to avoid undesirable side effects.

Side effects: In general, the side effects disappear in a few days. The most frequent are dry mouth, somnolence, fatigue, blurred vision, constipation, urinary retention, dizziness and nausea.

Some people may experience a weight gain after taking large doses of amitriptyline for a long time.

BACLOFEN

Generic name: Baclofen

Brand name: Lioresal (Novartis Pharma), Apo-Baclofen (Apotex) and other generics.

Description/Indication: Baclofen is a muscle relaxant and anti-spasmodic used to alleviate the signs and symptoms of spasticity in people who have MS. It reduces rigidity and stiffness, especially in the lower limbs. It may be effective in people who have a spinal cord lesion or other medullary diseases.

Presentation: 10 mg: white, oval, scored tablet; 20 mg: white, capsule-shaped, scored tablet.

Usual or recommended dosage: The recommended dose varies a lot from one person to the next. To obtain the optimal effect, the dose may range from 40 to 80 mg per day. This dose is divided and generally administered thrice daily.

Efficacy: In order to achieve the optimal therapeutic effect, you must wait at least two weeks, since baclofen only achieves efficacy after a gradual increase of the dosage.

Symptoms of overdose: An overdose is generally manifested by central nervous system symptoms such as somnolence, altered consciousness, respiratory depression, coma, convulsive seizures, confusion, hallucinations, agitation, hypotension, nausea, vomiting, diarrhea, etc.

Drug interactions: When taken together with an antihypertensive medication, baclofen can accentuate the reduction in blood pressure, which means that the dose of the antihypertensive should be reduced. Certain antidepressants taken in conjunction with baclofen may increase its effect and trigger marked muscle hypotonia ("soft" wobbly legs).



CARBAMAZEPINE

Generic name: Carbamazepine

Brand name: Tegretol (Novartis Pharma), Apo-Carbamazepine (Apotex) and other generics.

Description/Indication: Carbamazepine is an anticonvulsant used to prevent epileptic attacks, alleviate trigeminal neuralgia and treat people with manic-depression. It has been proven to be effective in relieving certain kinds of pain sometimes found with MS.

Presentation: 200-mg white, oval, biconvex tablets with red specks; 100-mg white, round, bevelled-edge, chewable tablets with red specks. Tegretol CR: 200-mg beige-orange tablets; 400-mg orange-brownish tablets. Suspension: 5 ml of orange liquid containing 100 mg of carbamazepine. Presentation of generic drugs may vary.

Usual or recommended dosage: 200 mg, or one to six tablets per day; maximum 1,200 mg per day.

Efficacy: Quickly relieves pain in the form of tingling, pins and needles or painful numbness.

Symptoms of overdose: Disorientation, tremor, restless legs, somnolence, agitation, hallucinations, coma, etc.

Drug interactions: Taking carbamazepine at the same time as oral contraceptives reduces the efficacy of the latter.

Directions for use: Always begin treatment gradually, one tablet at a time, for several days. Take the medication with food in order to reduce stomach irritation. Do not suddenly stop taking the drug, but gradually reduce to the dose to avoid withdrawal symptoms.

Precautions: Alcohol should not be consumed during carbamazepine treatment as it may increase the side effects.

In some cases, blood tests are necessary to avoid an overdose.

Directions for use: Take baclofen with food to avoid stomach upsets. Start with small doses and gradually increase them in order to avoid over-relaxing the muscles and other undesirable side effects. Your doctor or nurse will tell you how to increase the dose or how to stop taking baclofen. Gradually reduce the dose to avoid withdrawal symptoms.

Precautions: Consuming alcohol along with baclofen may increase drowsiness.

Never suddenly stop the treatment in order to avoid withdrawal symptoms.

In case of very weak legs, reduce the dose.

People who suffer from urinary retention due to MS or an enlarged prostate should not take this drug.

Women who are pregnant or nursing should not take this drug.

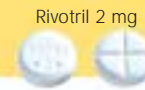
Side effects: The main side effects are weakness, somnolence, dizziness*, fatigue*, and nausea. Other rarer effects include skin rashes (pruritis), swollen ankles, diaphoresis, weight gain, nasal congestion, vision problems*, etc.

Most side effects disappear after a few days of use.

* *These symptoms resemble some that are often associated with MS. Be sure to consult a health professional if you notice a sudden and persistent change in your condition while taking baclofen.*



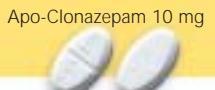
Rivotril 0.5 mg



Rivotril 2 mg



Apo-Clonazepam 1 mg



Apo-Clonazepam 10 mg

CLONAZEPAM

People who must perform tasks that require them to be alert, such as driving a car, must be fully aware of the effects of this drug.

If you forget a dose, it is better not to take it later since it may be time for the next dose. Do not double a dose to make up for the missing one.

Carbamazepine is contra-indicated in pregnant women. The American Academy of Pediatrics considers that carbamazepine is incompatible with breast-feeding.

Side effects: Certain side effects may disappear as the body grows accustomed to the dose.

The main side effects are somnolence, headaches, loss of balance while standing*, diplopia*, dry mouth, blurred vision*, vertigo*, dizziness*, clumsiness, nausea, stomachaches, etc.

* *These symptoms resemble some that are often associated with MS. Be sure to consult a health professional if you notice a sudden and persistent change in your condition while taking carbamazepine.*

Generic name: Clonazepam (one of the benzodiazepines)

Brand name: Rivotril (Roche), Apo-Clonazepam (Apotex) and other generics.

Description/Indication: Clonazepam is used as an anticonvulsant in persons with epilepsy. It is also used as an anxiolytic, a hypnotic and a sedative. In people with MS, it may be useful to control pain, reduce the feeling of restless legs, and relieve nocturnal spasms.

Presentation: 0.5 mg: pale orange cylindrical tablet; 2 mg: white cylindrical tablet. Presentation of generic drugs may vary.

Usual or recommended dosage: Dose varies from one person to another.

Efficacy: Efficacy is achieved after several days of use.

Symptoms of overdose: Coordination problems, poorer reflexes, somnolence, confusion and lethargy. In more serious cases: hypotension, hypotonia, ataxia, respiratory depression, epileptic disorders and even coma.

Drug interactions: None.

Directions for use: Never suddenly stop the treatment, in order to avoid undesirable effects such as insomnia, irritability, anorexia, anxiety, etc.

Precautions: Do not take clonazepam with alcohol. Prolonged use may create a tolerance to the drug.

Do not take clonazepam during pregnancy as there is a risk of birth defects.

Keep out of reach of children; an overdose in a child can be extremely dangerous.



DANTROLENE

Side effects: Most side effects reported for clonazepam are related to a carry-over of its pharmaceutical effect. They are generally linked to dosage. The most common are dry mouth, nausea, vomiting, constipation, blurred vision*, numb fingers*, depression, apathy, nervousness and urinary retention*. An overly high dose may trigger hallucinations, mental confusion and excitation.

* *These symptoms resemble some that are often associated with MS. Be sure to consult a health professional if you notice a sudden and persistent change in your condition while taking clonazepam.*

Generic name: Dantrolene

Brand name: Dantrium (Pfizer)

Description/Indication: Dantrolene is a muscle relaxant used to alleviate spasticity and muscular rigidity.

Presentation: 25 mg: opaque orange and brown capsule with one black line; 100 mg: opaque orange and brown capsule with three black lines.

Usual or recommended dosage: 25 to 100 mg, two to four times per day (maximum: 400 mg/day).

Efficacy: Dantrolene acts quickly; however, there is a very fine line between muscle rigidity and muscle weakness. It is sometimes necessary to try several dosages to obtain the right degree of relief from spasticity while avoiding muscle weakness.

Symptoms of overdose: Dantrolene is generally well tolerated, but excessive consumption may lead to real muscle weakness.

Drug interactions: None.

Directions for use: Always increase the dose gradually in order to obtain good muscle relaxation while avoiding muscle weakness. Dantrolene is sometimes used in combination with other muscle relaxants (e.g. baclofen, diazepam, tizanidine). In this case, if the dosage has to be changed, it is important to change only one muscle relaxant at a time and to wait three to four days between each change. Moreover, it is very important to consult a health care professional before changing the dosage of a medication.



Precautions: When dantrolene is taken over the long term (over 45 consecutive days if taking more than 40 mg per day), it is recommended that blood tests be done to check liver function (about every three months).

Side effects: Somnolence, weakness, numbness, fatigue, diarrhea.

DIAZEPAM

Generic name: Diazepam

Brand name: Valium (Roche), Apo-Diazepam (Apotex)

Description/Indication: Diazepam is an anxiolytic medication and sedative. It is also a muscle relaxant used to relieve spasticity, rigidity and muscle spasms.

Presentation: 5 mg: cylindrical pale yellow tablet; 10 mg: cylindrical pale blue tablet.

Usual or recommended dosage: 2 to 10 mg, three or four times per day.

Efficacy: Diazepam achieves its maximum concentration after 24 to 48 hours when it is taken regularly. Its effect is at its maximum one or two hours after ingestion and decreases after six to eight hours.

Symptoms of overdose: Dizziness, confusion, extreme somnolence and ataxia.

Drug interactions: Due to its sedative action, diazepam may result in excessive somnolence when it is taken at the same time as antihistamines (e.g. Benadryl, Atarax, Sudafed, etc.), other anxiolytics (e.g. Xanax, Serax, etc.) or narcotic analgesics (e.g. Empracet, codeine, morphine, etc.)

Directions for use: Diazepam is sometimes used in combination with other muscle relaxants (e.g. baclofen, dantrolene, tizanidine). In this case, if the dosage has to be changed, it is important to change only one muscle relaxant at a time and to wait three to four days between each change. Moreover, it is very important to consult a health care professional before changing the dosage of a medication.



Precautions: Never suddenly stop taking this medication without talking to your doctor, since a sudden cessation of treatment may give rise to withdrawal symptoms such as nausea, tremor, perspiration and headaches. Do not take alcohol with diazepam, due to the risk of increased side effects such as somnolence and respiratory depression.

Side effects: Fatigue, dizziness/light-headedness, muscle weakness, somnolence, difficulty speaking.

DOCUSATE SODIUM

Generic name: Docusate sodium

Brand name: Colace (Shire)

Description/Indication: Docusate sodium is a fecal demulcent used to treat constipation caused by hard stools.

Presentation: Brown capsules containing 100 mg of docusate sodium; drops containing 10 mg of docusate sodium per ml; syrup containing 20 mg of docusate sodium per 5 ml.

Usual or recommended dosage: 100 to 200 mg per day.

Efficacy: It may take several days for the effect to appear.

Symptoms of overdose: Diarrhea and lasting symptoms such as bone weakness, liver problems, poor lipid absorption and lack of calcium, potassium and magnesium.

Drug interactions: None.

Directions for use: Do not take docusate sodium within two hours of taking another medication, since the therapeutic effect of the other medication could be reduced.

Precautions: Do not use if you have abdominal pain, nausea, fever or vomiting. Frequent or prolonged use of docusate sodium may create tolerance to laxatives.

Side effects: None.



FLAVOXATE (HYDROCHLORIDE)

Generic name: Flavoxate hydrochloride

Brand name: Urispas (Paladin)

Description/Indication: Flavoxate hydrochloride is a medication used to relax the smooth muscles of the urinary tract, reducing vesico-urethral spasms caused, among other things, by catheterization and in-dwelling catheters, and in people with spastic bladder. It is also used to treat urinary urgency. In addition, flavoxate hydrochloride soothes the pain and discomfort associated with urinary disorders such as dysuria, pollakisuria, nycturia, urinary urgency and incontinence.

Presentation: White tablet containing 200 mg of flavoxate hydrochloride.

Usual or recommended dosage: One 200-mg tablet, three to four times a day.

Efficacy: Efficacy is achieved after several days of use.

Symptoms of overdose: Although no overdose reaction has been reported, the following symptoms are possible: tachycardia, tachypnea, excitation, mental confusion, convulsions, blurred vision, disrupted eye accommodation, respiratory ailments and coma.

Drug interactions: None.

Directions for use: Begin treatment gradually, increasing in increments of one tablet every three or four days. Take after meals.

Precautions: Flavoxate hydrochloride may result in diminished competence, leading to somnolence or blurred vision. People who use machinery or drive vehicles must take it with caution. Caution is also required in the case of people suspected of having glaucoma.

Pregnant women must use the drug with care and only if the benefits outweigh the potential risks.

Side effects: Dry mouth, nausea, vomiting, nervousness, headaches, somnolence, increased eye pressure, hives and other skin diseases, mental confusion especially in older people, vertigo*, blurred vision*, etc.

* *These symptoms resemble some that are often associated with MS. Be sure to consult a health professional if you notice a sudden and persistent change in your condition while taking this medication.*



GABAPENTIN

Generic name: Gabapentin

Brand name: Neurontin (Parke-Davis), Pms-Gabapentin (Pharmascience) and other generics.

Description/Indication: Gabapentin is an anti-epileptic medication generally prescribed to control certain kinds of convulsive seizures in epileptics. It is used in MS because of its ability to relieve acute pain of neurological origin (e.g. trigeminal neuralgia) or chronic pain and to alleviate paresthesia and decrease certain types of vertigo. It may also be used against nystagmus.

Presentation: 100 mg: white hard gelatin capsule; 300 mg: yellow hard gelatin capsule; 400 mg: orange hard gelatin capsule; 600 mg: white oval tablet; 800 mg: white oval tablet. Presentation of generic drugs may vary.

Usual or recommended dosage: 300 to 800 mg, three times a day (sometimes more).

Efficacy: Gabapentin acts quickly but it sometimes takes several days or weeks before the appropriate dosage is found to control symptoms.

Symptoms of overdose: Gabapentin is usually well tolerated even in large doses. However, if excessive amounts are consumed, it may result in the following side effects: double vision, difficulty speaking, dizziness and lethargy.

Drug interactions: Antacids (e.g. Tums, Gaviscon, milk of magnesia, etc.)

Directions for use: Gradually increase the dose in 300-mg increments every three to four days until symptoms are controlled satisfactorily. This allows you to avoid taking more of the drug

than necessary and decreases the risk of side effects.

Precautions: Never suddenly stop taking the medication without consulting your doctor. There may be a risk of convulsive seizures even in people who do not have epilepsy.

Side effects: Somnolence, dizziness/vertigo, ataxia, fatigue.



GLATIRAMER ACETATE

Generic name: Glatiramer acetate

Brand name: Copaxone (Teva Neuroscience)

Exception drug*

Description/Indication: Glatiramer acetate is a synthetic protein made up of four natural amino acids: L-glutamic acid, L-alanine, L-tyrosine and L-lysine. This drug is an immunomodulator and was designed specifically for people who have the relapsing-remitting form of MS (with flare-ups). The exact mechanism whereby glatiramer acetate works is still unknown.

Presentation: 1-ml prefilled syringe.

Usual or recommended dosage: 20 mg, or 1 ml of solution injected subcutaneously once a day (morning or evening).

Efficacy: Studies have shown that glatiramer acetate acts on attacks by reducing their number and duration. In addition, this medication decreases the number of new brain lesions, as can be observed by using magnetic resonance imaging (MRI). Efficacy is very variable from one person to another. The drug does not cure multiple sclerosis.

Symptoms of overdose: No such symptoms have been observed if the proper dose is respected.

Drug interactions: Interactions between glatiramer acetate and other drugs have not been observed.

Directions for use: It is preferable to inject yourself at about the same time each day. Get the medication out of the refrigerator at least an hour before administering to inject it at room temperature.

Make sure you know the subcutaneous injection technique thoroughly. Use the auto-injector provided by the company.

Alternate injection sites. Wait at least a week before making another injection at the same site. Use an auto-injector.

No special precautions are recommended concerning food and alcohol consumption.

Do not inject in a place where the skin is red. Apply ice, before and after injection, if needed. Keep a diary noting injection sites and undesirable effects.

Keep the medication in the refrigerator. However, glatiramer acetate will remain stable for seven days at room temperature.

Precautions: As no study has been done on Copaxone in relation with pregnancy and breast-feeding, pregnant and nursing women should avoid taking this medication.

Side effects: Reactions at the injection site in the form of pain, swelling, redness, pruritis, lipoatrophy (rare), etc.

In 10% to 15% of patients, an immediate post-injection reaction may occur once treatment has commenced. Symptoms include flushing, hot flashes, a tight feeling in the throat, chest pain, anxiety, palpitations and shortness of breath. These symptoms disappear in less than 30 minutes and do not require any specific treatment. There may also be nausea, slight joint pain, night sweats, etc.

* *Copaxone is an exception drug, which means that only certain people are eligible for reimbursement by the Quebec health insurance board (RAMQ) or insurance companies.*



GLYCERIN

Generic name: Glycerin

Brand name: A large number of companies manufacture this medication.

Description/Indication: Used to ease defecation.

Presentation: Translucent gel suppository containing about 2.6 g of glycerin.

Usual or recommended dosage: An intrarectal suppository taken as needed.

Efficacy: The effect may appear after 15 minutes to an hour.

Symptoms of overdose: It is unlikely that an overdose will occur.

Drug interactions: None known.

Directions for use: Insert suppository into rectum and keep in place for 15 minutes. If the suppository is too soft to be inserted, put it in the refrigerator for 30 minutes before using. Do not use anything except water to lubricate the suppository before use; do not use Vaseline or mineral oil, since the drug's efficacy could be modified.

May be used alone or in combination with bulking agents (e.g. Metamucil, Prodiem, Citrucel) or fecal demulcents (e.g. Colace, lactulose).

Precautions: Pregnant women and people with stomach or abdominal problems (e.g. abdominal pain, cramps, bloating, vomiting, etc.) should not take this medication without consulting their doctor in advance.

Side effects: Irritation of the rectal mucosa or the skin around the anus.



INTERFERON BETA-1a

Generic name: Interferon beta-1a

Brand name: Avonex (Biogen Canada Inc.)

Exception drug*

Description/Indication: Interferon beta-1a acts as an immunomodulator that slows down the development of physical disability and reduces the frequency of clinical attacks. The drug is used by people who have the relapsing-remitting and secondary-progressive forms of the disease. Experts recommend that it only be used for the secondary-progressive form if attacks are still occurring.

Presentation: White powder in a unit-dose vial, which must be diluted with sterile water.

Usual or recommended dosage: 30 µg/week by intramuscular injection.

Efficacy: The long-term effect on the disease's progression is unknown. The drug's efficacy is measured by the decline in the number of attacks and the stabilization of the patient's neurological condition, but not by the disappearance of symptoms. In addition, the drug shrinks the lesions observed with magnetic resonance imaging (MRI). Efficacy is very variable from one person to another. The drug does not cure multiple sclerosis.

Symptoms of overdose: To date, no cases of overdose have been reported.

Drug interactions: No formal study has been done to assess how interferon beta-1a interacts with other drugs.

Directions for use: Inject yourself in the evening in order to reduce the impact of the side effects that occur about two hours

after injection. Begin the treatment with increasing doses (e.g. 1/4, 1/2 or 3/4 dose for several weeks) and take acetaminophen (500 to 1,000 mg) and/or ibuprofen (400 to 600 mg) 30 minutes before the injection and four hours afterwards to decrease flu-like symptoms. The dose of Avonex may be increased gradually up to 1 ml as the side effects decrease or are controlled.

Keep a diary noting injection sites and undesirable effects.

Avonex should be refrigerated, but keeps for 30 days at room temperature and three hours after reconstitution.

Precautions: Do not take this medication during pregnancy or breast-feeding. No special precautions are recommended with regard to food and alcohol consumption. It is recommended that regular blood testing be done during the first six months of treatment in order to verify changes in blood values (see Side effects).

Rare cases of serious hepatic (liver) injury have been reported in a small number of people who have received beta interferon treatment. Serious hepatic injury can include: autoimmune hepatitis, hepatitis, and hepatic (liver) failure. Beta interferon therapy should be initiated with caution in people with a history of liver disease or alcohol abuse and people with clinical evidence of active liver disease. Health care professionals should test liver function when beta interferon therapy is initiated to establish a baseline, then every month for the first six months and at six-month intervals thereafter.

The signs and symptoms of hepatic injury include jaundice, widespread itching, nausea and vomiting, and easy bruising of the skin. If you experience any of these signs and symptoms, contact your physician immediately.

Side effects: Flu-like symptoms (muscle and joint pain, fever, chills, fatigue) and headaches (these side effects usually last 3 to 6 months); spasticity; changes in menstrual cycle; changes in laboratory values (e.g. lower number of lymphocytes, lower number of white blood cells, higher liver enzyme rates); abscesses at injection sites (rare); although rare, a depressed mood may be experienced (not confirmed in clinical trials but observed in the clinic).

* *Avonex is an exception drug, which means that only certain people are eligible for reimbursement by the Quebec health insurance board (RAMQ) or insurance companies.*



INTERFERON BETA-1a

Generic name: Interferon beta-1a

Brand name: Rebif (Serono Canada Inc.)

Exception drug*

Description/Indication: Interferon beta-1a is a medication that is only used for multiple sclerosis. It acts as an immunomodulator, reducing the frequency and severity of attacks, slowing the progress of physical disability, reducing the use of corticosteroid therapy and decreasing the number of new lesions (plaques) seen with MRI. The drug is used by people who have the relapsing-remitting and secondary-progressive forms of the disease. Experts recommend that it only be used for the secondary-progressive form if attacks are still occurring.

Presentation: Syringe prefilled with 0.5 ml of solution ready to administer subcutaneously.

Usual or recommended dosage: 6 mIU (22 µg) or 12 mIU (44 µg), administered three times weekly.

Efficacy: The long-term effect on the disease's progression is unknown. The drug's efficacy is measured by the decline in the number of attacks and the stabilization of the patient's neurological condition, but not by the disappearance of symptoms. In addition, the drug shrinks the lesions observed with magnetic resonance imaging (MRI). Efficacy is very variable from one person to another. The drug does not cure multiple sclerosis.

Symptoms of overdose: To date, no cases of overdose have been reported.

Drug interactions: No formal study has been done to assess how interferon beta-1a interacts with other drugs.

Directions for use: In order to reduce side effects, it is recommended that you begin treatment gradually. How this is done will vary from one doctor to another and according to dosage.

It is recommended that you take acetaminophen or ibuprofen at least 30 minutes before administering the drug and four to five hours afterwards.

It is preferable to give yourself injections in the evening. Wait seven days before making another injection in the same place. Apply ice before and after the injection to relieve pain. Lightly massage the injection site. Keep a diary noting injection sites and undesirable effects.

Precautions: Do not take during pregnancy or breast-feeding. No special precautions are recommended with regard to food and alcohol consumption.

You should have regular blood tests during the first months of treatment and annually thereafter to verify changes in blood values (see Side effects).

Rare cases of serious hepatic (liver) injury have been reported in a small number of people who have received beta interferon treatment. Serious hepatic injury can include: autoimmune hepatitis, hepatitis, and hepatic (liver) failure. Beta interferon therapy should be initiated with caution in people with a history of liver disease or alcohol abuse and people with clinical evidence of active liver disease. Health care professionals should test liver function when beta interferon therapy is initiated to establish a baseline, then every month for the first six months and at six-month intervals thereafter.

The signs and symptoms of hepatic injury include jaundice, widespread itching, nausea and vomiting, and easy bruising of the



INTERFERON BETA-1b

skin. If you experience any of these signs and symptoms, contact your physician immediately.

Side effects: Flu-like symptoms (muscle and joint pain, fever, fatigue) and headaches; changes in laboratory values (lower number of lymphocytes, lower number of white blood cells, higher liver enzyme rates); reaction at injection site (redness, swelling, heat, rarely necrosis), which may last for several days; although rare, a depressed mood may be experienced (not confirmed in clinical trials but observed in the clinic).

* *Rebif is an exception drug, which means that only certain people are eligible for reimbursement by the Quebec health insurance board (RAMQ) or insurance companies.*

Generic name: Interferon beta-1b

Brand name: Betaseron (Berlex Canada Inc.)

Exception drug*

Description/Indication: Immunomodulator used to reduce the frequency of clinical attacks and the activity of lesions observed with magnetic resonance imaging (MRI).

May reduce the progress of the disease. The drug is used by people who have the relapsing-remitting and secondary-progressive forms of the disease. Experts recommend that it only be used for the secondary-progressive form if attacks are still occurring.

Presentation: White powder in a unit-dose vial, which must be diluted with the 0.54% sodium chloride solution contained in the prefilled syringe.

Usual or recommended dosage: 8 mIU every two days, by subcutaneous injection.

Efficacy: The long-term effect on the disease's progression is unknown. The drug's efficacy is measured by the decline in the number of attacks and the stabilization of the patient's neurological condition, but not by the disappearance of symptoms. In addition, the drug shrinks the lesions observed with magnetic resonance imaging (MRI). Efficacy is very variable from one person to another. The drug does not cure multiple sclerosis.

Symptoms of overdose: To date, no cases of overdose have been reported.

Drug interactions: No formal study has been done to assess how interferon beta-1b interacts with other drugs.

Directions for use: Inject yourself in the evening in order to reduce the impact of the side effects that occur about two hours

after injection. The dose of Betaseron may be increased gradually, on the physician's advice, as the side effects decrease or are controlled (e.g. 1/4, 1/2 or 3/4 dose for several weeks). Take acetaminophen (500 to 1,000 mg) and/or ibuprofen (400 to 600 mg) 30 minutes before the injection and four hours afterwards to decrease flu-like symptoms.

Make sure you know the subcutaneous injection technique thoroughly. Use the auto-injector provided by the company. Alternate injection sites. Wait seven days before making another injection at the same site. Do not inject in a place where the skin is red. Apply ice as needed before and after the injection to relieve pain. Lightly massage the injection site.

Unreconstituted Betaseron does not need to be refrigerated. It can be kept at room temperature until the expiry date, and for three hours after reconstitution (in which case it should be refrigerated).

Precautions: Do not take this medication during pregnancy or breast-feeding.

No special precautions are recommended with regard to food and alcohol consumption.

It is recommended that regular blood testing be done during the first six months of treatment in order to verify changes in blood values (see Side effects).

Rare cases of serious hepatic (liver) injury have been reported in a small number of people who have received beta interferon treatment. Serious hepatic injury can include: autoimmune hepatitis, hepatitis, and hepatic (liver) failure. Beta interferon therapy should be initiated with caution in people with a history of liver disease or alcohol abuse and people with clinical evidence of active liver disease. Health care professionals should test liver function when

beta interferon therapy is initiated to establish a baseline, then every month for the first six months and at six-month intervals thereafter.

The signs and symptoms of hepatic injury include jaundice, widespread itching, nausea and vomiting, and easy bruising of the skin. If you experience any of these signs and symptoms, contact your physician immediately.

Side effects: Flu-like symptoms (muscle and joint pain, fever, chills) and headaches (these usually last between 3 to 6 months); changes in laboratory values (e.g. lower number of lymphocytes, lower number of white blood cells, higher liver enzyme rates); reaction at injection sites (redness, edema, heat, rarely necrosis), which may last for several days. Although rare, a depressed mood may be experienced (not confirmed in clinical trials but observed in the clinic).

* *Betaseron is an exception drug, which means that only certain people are eligible for reimbursement by the Quebec health insurance board (RAMQ) or insurance companies.*



MAGNESIUM HYDROXIDE

Generic name: Magnesium hydroxide

Brand name: Milk of Magnesia (Phillips) and a large number of other brands.

Description/Indication: Laxative and saline antacid used to alleviate occasional constipation.

Presentation: Whitish liquid that is administered by mouth. Also available in the form of granules or powder.

Usual or recommended dosage: 5 to 10 ml/day diluted in 250 ml of water.

Efficacy: The effect may take several hours to appear.

Symptoms of overdose: An overdose is unlikely.

Drug interactions: May affect the efficacy of certain acidic medications (e.g. Aspirin).

Directions for use: May be used alone or in combination with bulking agents (e.g. Metamucil, Prodiem, Citrucel) or fecal demulcents (e.g. Colace, lactulose).

Precautions: Pregnant women and people with stomach or abdominal problems (e.g. abdominal pain, cramps, bloating, vomiting, etc.) should not take this medication without consulting their doctor in advance.

Side effects: Generally well tolerated. May cause cramps, diarrhea and intestinal gas.



METHYLPREDNISOLONE (SODIUM SUCCINATE)

Generic name: Methylprednisolone sodium succinate

Brand name: Solu-Medrol (Pfizer), Methylprednisolone (Novo)

Description/Indication: Methylprednisolone is a glucocorticoid with anti-inflammatory effects. It is used to treat a number of diseases such as asthma, anaphylaxis, drug reactions, certain skin problems, lupus, rheumatic fever, etc. In MS, methylprednisolone is used during disabling attacks (e.g. motor impulses, severe optic neuritis) or attacks featuring pain in the eye. It reduces the duration of the attack.

Presentation: Vial of sterile freeze-dried powder diluted according to the physician's instructions.

Usual or recommended dosage: This medication is administered intravenously, ideally over a two-hour period. The dosage varies from 500 to 1,000 mg per day for three to five days. Methylprednisolone can also be administered orally.

Efficacy: Methylprednisolone is a powerful anti-inflammatory, which achieves its effect within a few days. In treating MS attacks, the efficacy varies from one person to another and from one occasion to another in the same person. It is not recommended for treating sensory attacks. Methylprednisolone, administered intravenously, has replaced prednisone.

Contra-indication: Unless it is used in the short term or in an emergency, methylprednisolone is contra-indicated for people who have simple herpetic keratitis, acute psychosis, Cushing's syndrome, peptic ulcer, inactive tuberculosis, chickenpox, etc.



Symptoms of overdose: There are no symptoms of acute overdose with this drug. Methylprednisolone is dialyzable. In case of a chronic overdose, the dose must be reduced very gradually in order to avoid an adrenal crisis.

Drug interactions: Certain antifungal antibiotics such as erythromycin and ketoconazole, anticoagulants, anticonvulsants, diabetes medications such as insulin, antihypertensives, non-potassium-sparing diuretics, cardioactive medications, anxiolytics, antipsychotics, etc.

Directions for use: Methylprednisolone must be administered slowly, that is, on a two-hour period, to avoid tachycardia and facial flushing. Blood sugar levels must be monitored (in diabetics). People who suffer from insomnia may ask their doctor to prescribe a sleeping pill for a few days.

Side effects: Electrolyte disruption, i.e. potassium loss, sodium retention, water retention, diuresis, sodium excretion and congestive heart failure in persons subject to this type of problem. Osteoporosis, pathological fractures or crush fractures of vertebrae, muscle weakness, peptic ulcer, slower scarring, bruising, thin skin, decreased carbohydrate tolerance, insomnia, etc.

MODAFINIL

Generic name: Modafinil

Brand name: Alertec (Shire Biochem)

Not reimbursed by the RAMQ or by most insurance companies.

Description/Indication: Modafinil is used to stimulate the central nervous system. It is effective in treating people who suffer from diurnal hypersomnolence or narcolepsy. In people with MS, modafinil is believed to reduce fatigue.

Presentation: White tablet marked "100."

Usual or recommended dosage: The usual dose is 200 to 400 mg, to be taken twice a day (morning and noon).

Efficacy: Since the dose has to be gradually increased, modafinil may only achieve its full effect after two to three weeks of use.

Symptoms of overdose: An overdose overstimulates the central nervous system, producing the following symptoms: intense anxiety, irritability, psychomotor instability, tremor, hypertonia, headaches, insomnia, systolic hypertension and tachycardia.

Drug interactions: Modafinil's interaction with other drugs has not been studied in humans.

Directions for use: Modafinil is not recommended for pregnant or nursing women.

People with liver diseases should reduce to half the recommended dose since the drug's half-life is doubled in those circumstances.

Always begin the treatment gradually in order to determine the effective dose in the specific patient.

Precautions: Modafinil should not be used to treat normal fatigue.



Side effects: Headaches, nausea, nervousness, insomnia, dry mouth and dizziness are the most frequent symptoms, but they disappear spontaneously as modafinil continues to be taken or if the dose is reduced.

OXYBUTYNIN

Generic name: Oxybutynin

Brand name: Ditropan (Alza), Apo-Oxybutynin (Apotex) and other generics.

Description/Indication: Oxybutynin is an antispasmodic medication that helps to reduce muscle spasms of the bladder and the frequent need to urinate triggered by these spasms.

Presentation: Ditropan 5 mg: pale blue tablet; Ditropan XL: 5 mg: beige tablet; 10 mg: pink tablet; 15 mg: blue tablet. Presentation of generic drugs may vary.

Usual or recommended dosage: 2.5 mg, two or three times a day (Ditropan) or 5 to 15 mg, once a day (Ditropan XL).

Efficacy: Oxybutynin acts fast, but it sometimes takes several days to determine the ideal dose and frequency (2.5 to 5 mg, once, twice, or three times a day) to control urination.

Symptoms of overdose: Agitation, tremor, irritability, hallucinations, flushing, fever, nausea, vomiting, tachycardia.

Drug interactions: None have been noted.

Directions for use: It is recommended that oxybutynin be taken with water on an empty stomach. Gradually adjust the dose and the frequency by increasing in 2.5-mg increments every three to four days until the dosage is appropriate.

Precautions: Consuming alcohol with oxybutynin may increase the risk of side effects. Since oxybutynin's effects on the fetus are not known, it is recommended that this drug not be taken during pregnancy. No undesirable effects have been reported in babies nursed by a mother who was taking oxybutynin; however, it may reduce the mother's milk production.



Side effects: Dry mouth and throat, somnolence, headaches, blurred vision*, constipation/diarrhea*, trouble swallowing.

* *These symptoms resemble some that are often associated with MS. Be sure to consult a health professional if you notice a sudden and persistent change in your condition while taking this medication.*

PREDNISONE

Generic name: Prednisone

Brand name: Apo-Prednisone (Apotex)

Description/Indication: Prednisone is a corticosteroid (drug resembling cortisone) used to reduce inflammation. It is used less and less often to treat multiple sclerosis attacks. It is sometimes used to alleviate the flu-like symptoms caused by interferons (Avonex, Betaseron, Rebif).

Presentation: 5-mg or 50-mg white tablets.

Usual or recommended dosage: 5 to 80 mg/day (in a single dose).

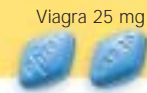
Large doses of prednisone may necessitate taking a medication to protect the stomach's mucous lining (e.g. Zantac, Losec, etc.).

Prednisone must be stopped very gradually by decreasing in 10-mg increments every day or two in order to avoid withdrawal symptoms, unless the treatment lasts less than two weeks.

Efficacy: Prednisone is a powerful anti-inflammatory, with an effect that takes several days to appear. In treating MS attacks, the efficacy varies from one person to another and from one period of use to another in the same person. It is not recommended for treating sensory attacks. Methylprednisolone administered intravenously has replaced prednisone.

Symptoms of overdose: Requires a cautious reduction in dosage to prevent an adrenal crisis.

Drug interactions: Anticoagulants (e.g. heparin, warfarin, etc.)



Precautions: Take with food to avoid stomach upsets. Avoid salt to decrease water retention due to prednisone. May aggravate existing diabetes.

Side effects: Insomnia, aggression/irritability, swollen extremities (hands, feet, face), increased appetite, bad taste in mouth. These effects generally occur when treatment is prolonged.

SILDENAFIL CITRATE

Generic name: Sildenafil citrate

Brand name: Viagra (Pfizer)

Not reimbursed by the RAMQ or insurance companies.

Description/Indication: Sildenafil citrate is a medication employed to treat erectile dysfunction in men.

Presentation: 25-, 50- or 100-mg blue tablets, marked "VGR 25," "VGR 50" or "VGR 100."

Usual or recommended dosage: The recommended dose for most people is 50 mg. If this dose is not effective, it may be increased to 100 mg. In people aged 65 or over, the recommended initial dose is 25 mg. Do not exceed 100 mg per day.

Efficacy: This drug generally takes effect one hour after administration, but it may take up to four hours in some men. People who are taking the drug for the first time may have to make several trials before they notice any effect.

Symptoms of overdose: None.

Drug interactions: Some medications may increase the concentration of sildenafil citrate, in particular, saquinavir, ritonavir, cimetidine, etc.

Directions for use: Take at least 30 to 60 minutes before having sexual relations. Avoid fatty foods, which can delay the effect of the medication.

Precautions: Sildenafil citrate is not recommended for men who have cardiovascular disease. If an erection lasts for more than four



hours, consult a doctor. Priapism (painful erection) must be treated without delay since it can cause irreversible damage to the penile tissue or permanent impotence.

Sildenafil citrate is not recommended for people who are taking nitrocompounds (e.g. nitroglycerin) in any form at all (by mouth, under the tongue, transdermally or by inhalation).

Side effects: Headaches, flushing, stomach discomfort. In 3% of cases, slight and transitory vision problems such as a change in colour discrimination (especially with blue and green), hypersensitivity to light and blurred vision.

SODIUM PHOSPHATE

Generic name: Sodium phosphate

Brand name: Fleet enema (Johnson & Johnson Merck)

Description/Indication: Laxative used to relieve constipation or as an enema to help empty the intestines for certain medical examinations (e.g. proctoscopy, sigmoidoscopy).

Presentation: Clear solution in 100-ml dispenser.

Usual or recommended dosage: 100 to 120 ml injected into the base of the rectum, to be maintained for 2 to 5 minutes. Use as needed.

Efficacy: Generally acts within minutes of treatment.

Symptoms of overdose: An overdose is unlikely.

Drug interactions: None.

Directions for use: May be used alone or in combination with bulking agents (e.g. Metamucil, Prodiem, Citrucel) or fecal demulcents (e.g. Colace, lactulose).

Precautions: Regular and prolonged use may cause intestinal function to become sluggish. Pregnant women and people with stomach or abdominal problems (e.g. abdominal pain, cramps, bloating, vomiting, etc.) should not take this medication without consulting their doctor in advance.

Side effects: May irritate the rectal mucosa and the skin around the anus.



TIZANIDINE

Generic name: Tizanidine

Brand name: Zanaflex (Shire Biochem)

Exception drug*

Description/Indication: Antispasmodic medication used to treat spasticity and the muscle pain that may accompany it.

Presentation: Scored white 4-mg tablet.

Usual or recommended dosage: 2 mg to 12 mg three times a day (maximum 36 mg/day).

Efficacy: Tizanidine must achieve a certain concentration before it can take full effect. That is why one must increase the dose very gradually in order to avoid an overdose. The dose should only be increased by 2 mg/day every five to seven days. Once the correct dosage is obtained, the maximum effect is achieved one or two hours after ingestion and begins to decrease three to six hours after ingestion.

Symptoms of overdose: Respiratory depression, coma and low blood pressure.

Drug interactions: None reported.

Directions for use: See the Efficacy section; given the delayed action, you should plan to take the drug one or two hours before carrying out activities that require muscle rigidity to be alleviated.

Precautions: Tizanidine's effect on the fetus and its passage into breast milk are not known. Thus, this drug is not recommended for pregnant women or nursing mothers.

Side effects: Somnolence, lower blood pressure, dry mouth, dizziness, bradycardia.

* *Zanaflex is an exception drug, which means that only certain people are eligible for reimbursement by the Quebec health insurance board (RAMQ) or insurance companies.*



TOLTERODINE (TARTRATE)

Generic name: Tolterodine tartrate

Brand name: Detrol (Pfizer)

Exception drug*

Description/Indication: Tolterodine is an anticholinergic and antispasmodic. It is effective at blocking bladder contractions and is used for the treatment of people who have a nerve-based hyperactive bladder, manifested by the following symptoms: urinary urgency, more frequent urination, urinary incontinence, or a combination of these symptoms.

Presentation: 1- or 2-mg round white, biconvex tablets.

Usual or recommended dosage: The recommended dose is 2 mg, twice a day. For some people, a dosage of 1 mg twice a day is sufficient.

Efficacy: Efficacious in treating a number of urinary problems, as described in the Description/ Indication section.

Symptoms of overdose: There are no symptoms of tolterodine overdose in adults. Nevertheless, the recommended dose should not be exceeded.

Drug interactions: None.

Directions for use: Always begin treatment gradually in order to avoid overly great urinary retention.

Do not suddenly stop taking the medication.

Caution is necessary for people with liver problems.

Precautions: This medication is contra-indicated in people suffering from urinary or gastric retention or uncontrolled glaucoma.

Side effects: Dry mouth, but less than with oxybutynin. Headaches, fatigue, vertigo or dizziness, abdominal pain, constipation, dyspepsia, diarrhea, urinary infection.

Most side effects are minimal with the 1-mg dose.

* *Detrol is an exception drug; only people for whom oxybutynin treatment is ineffective or not tolerated are eligible for reimbursement by the Quebec health insurance board (RAMQ).*

Medications grouped by symptoms or attacks

Constipation

Docusate sodium (Colace)
Glycerine
Milk of magnesia
Sodium phosphate (Fleet enema)

Depression

Amitriptyline hydrochloride

Erectile dysfunction

Alprostadil (Caverject)
Sildenafil citrate (Viagra)

Fatigue

Amantadine (Symmetrel)
Modafinil (Alertec)

Pain, sensory disorders

Carbamazepine (Tegretol)
Gabapentin (Neurontin)

Prevention of attacks

Glatiramer acetate (Copaxone)
Interferon beta-1a (Avonex)
Interferon beta-1a (Rebif)
Interferon beta-1b (Betaseron)

Spasticity

Baclofen (Lioresal)
Clonazepam (Rivotril)
Dantrolene (Dantrium)
Diazepam (Valium)
Tizanidine (Zanaflex)

Treatment of attacks

Methylprednisolone sodium succinate (Solu-Medrol)
Prednisone

Urinary problems

Flavoxate hydrochloride (Urispas)
Oxybutynin (Ditropan)
Tolterodine tartrate (Detrol)

Vision problems

Gabapentin (Neurontin)

Procedure for beginning treatment

Medication: _____

Take ____ tablet(s) for ____ day(s) or ____ week(s).

Time:

Morning: _____

Noon: _____

Afternoon: _____

Dinner: _____

Bedtime: _____

Thereafter, increase by ____ tablet(s) every ____ days or
every ____ week(s).

Times:

Morning: _____

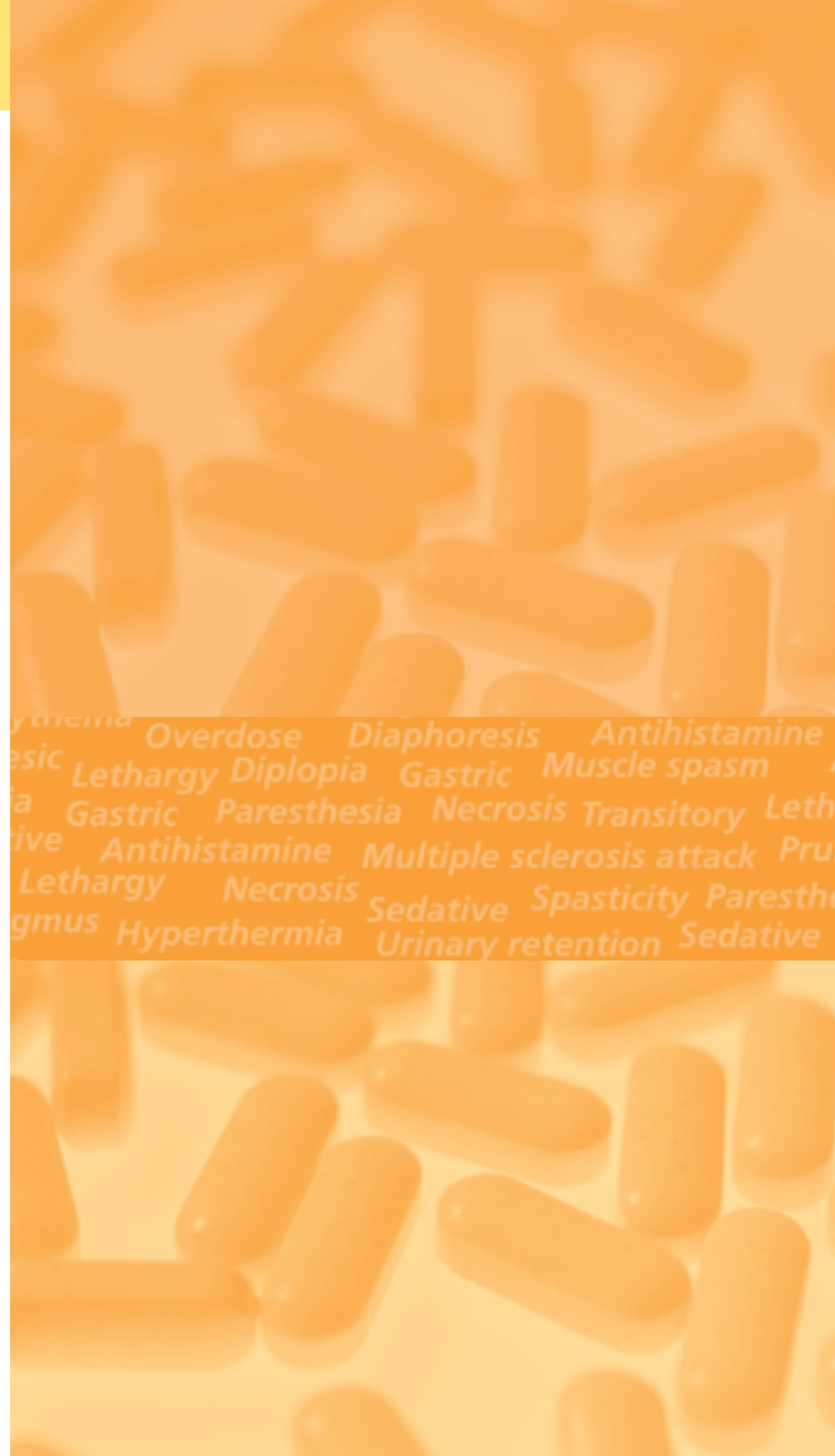
Noon: _____

Afternoon: _____

Dinner: _____

Bedtime: _____

Maximum tablets per day: _____.



Glossary

Adjuvant: A substance that enhances the effect of another medication.

Altered consciousness: Change in attention level in respect of events or the environment.

Analgesic: Medication that reduces pain.

Anorexia: Loss of or marked decline in appetite.

Anticholinergic: Medication that blocks nerve impulses in the parasympathetic nervous system. Anticholinergics have a number of side effects including dry mouth and blurred vision, especially if they are taken at the same time as certain antidepressants.

Anticonvulsant: Medication used to prevent or control epileptic attacks and convulsions; anticonvulsants are used in MS treatment because of their effect on the transmission of nerve impulses.

Antifungal: Destructive to fungi; or suppressing their production or growth.

Antihistamine: Medication that decreases the production of histamine in the immune system. Histamine is responsible for allergic symptoms (runny nose, watery eyes, sneezing, itching, etc.).

Antispasmodic: Medication that decreases spasticity (muscle rigidity).

Anxiolytic, tranquilizer: Medication that decreases the symptoms of anxiety (e.g. worry, insomnia, tremor, shortness of breath, accelerated heartbeat, perspiration, etc.).

Apathy: Indifference, loss of reaction or emotion.

Ataxia: Coordination problem: difficulty or inability to control voluntary movements.

Bradycardia: Slow heartbeat.

Chronic fatigue: Feeling of exhaustion present for over 50% of the day and lasting for more than six months.

Clinical attack: Attack that takes the form of symptoms that are observable when the patient is examined, unlike changes that are only observable during a paraclinical examination and with the aid of equipment (e.g. MRI).

Convulsive seizure: Episode of fast and involuntary muscle contraction and relaxation movements.

Corpus cavernosum, cavernous body: Erectile tissue of the penis or clitoris.

Demulcent, softener: Substance that softens the stools.

Dialyzable: Able to pass through a membrane during dialysis or filtration.

Diaphoresis: Increased perspiration.

Diplopia: Double vision.

Diuresis: Passage of large amounts of urine.

Diurnal: Taking place during the day.

Dysesthesia: An abnormal sensation, often with an unpleasant quality, produced by normal stimuli, including, for example, itching, pins and needles, burning, or sensations as of hot or cold water, or an electric shock.

Dysuria: Difficulty urinating (problem beginning or maintaining urination), sometimes accompanied by pain.

Edema: Swelling.

Erythema: Redness of the skin.

Flu-like symptoms: Symptoms that resemble those of the flu: fever, chills, muscle or joint pain, fatigue.

Flush: A transitory attack or sensation of extreme heat (as in response to certain drugs such as Copaxone).

Flushing: Redness, usually temporary, caused by a rush of blood to the face and neck and often associated with palpitations, sweating and giddiness.

Gastric: Related to the stomach.

Glaucoma: Eye disease characterized by an increase in the pressure inside the eye and resulting in a reduction in the size of the optic nerve and vision problems.

Glucocorticoid: Corticosteroid drug that mainly acts on carbohydrate metabolism.

Half-life of a medication: Time required for the concentration of a medication in the body to decrease by half.

Herpetic keratitis: Infection of the cornea caused by a herpes virus.

Hypersomnolence: Excessive sleepiness.

Hypertension: High blood pressure.

Hyperthermia: Fever.

Hypertonia: Excessive tension in the muscles.

Hypnotic, soporific: Something that causes sleep.

Hypotension: Low blood pressure.

Hypothermia: Low body temperature.

Hypotonia: Muscle weakness, loss of muscle tone.

Immunomodulator: Medication that modifies certain functions of the immune system, the body's defence system.

Incontinence: Involuntary loss of urine (urinary incontinence) or stools (fecal incontinence).

Intrarectal: Within the rectum.

Lethargy: Abnormally deep and long sleep.

Lipoatrophy: Decrease of fat cells in the body.

Lupus: An autoimmune disease that causes a characteristic rash accompanied by inflammation of connective tissue.

Lymphocyte: Type of white blood cell. The white cells are one of the components of blood and part of the immune system.

Magnetic resonance imaging (MRI): Radiology technique that makes it possible to obtain detailed images of organs such as the brain and the spinal cord, using radio waves. The technique provides cross-sectional images of these organs. The use of a contrast liquid, gadolinium, injected during the test, makes it possible to see any lesions (e.g. multiple sclerosis plaques).

Manic-depression, bipolar disorder: A mental illness characterized by alternating episodes of mania (heightened activity, nervousness, agitation, irritability) and depression. The duration of these episodes varies from one person to another and may range from several days to several months.

Medullary: Related to the spinal cord.

Multiple sclerosis attack, relapse, flare-up: Appearance of one or more new neurological symptoms that persist for at least 48 hours **OR** reappearance of one or more old neurological symptoms that persist for at least 48 hours in the absence of fever or an injection. An attack lasts for an average of 3 to 12 weeks but may continue for up to 6 or 8 months.

Muscle spasm: Sudden, involuntary movement or contraction of a muscle or group of muscles or a limb, sometimes accompanied by pain.

Narcolepsy: A disease that provokes sudden, involuntary drowsiness or sleep.

Necrosis: Death of tissue (skin, muscle, bone, nerve, etc.), generally over a limited area (several millimetres to several centimetres). Such tissues may regenerate if conditions are appropriate and the causes of the necrosis are treated.

Neurogenic bladder: Bladder dysfunction of neurological origin. The symptoms include sudden urgent needs to urinate, frequent urination (more than every two hours), difficulty beginning to urinate, frequent urination at night (more than once a night) or the inability to completely empty the bladder.

Nycturia: Excessive urination during the night. Often seen in MS.

Nystagmus: Rhythmic, involuntary movements of the eyes.

Oral contraceptive, birth-control pill: Medication used to block ovulation and prevent pregnancy.

Overdose: An excessive amount of a medication that causes harm or major side effects.

Paresthesia: Feeling of numbness, tingling or prickling.

Pollakisuria: Abnormally frequent urination not proportional with the increase in the total volume of urine; often seen in multiple sclerosis.

Priapism: Prolonged, painful erection, not caused by sexual appetite and not leading to any ejaculation.

Proctoscopy: Endoscopic inspection of the anal canal.

Pruritis: Itching of the skin.

Psychomotor instability: Unstable movements with agitation and ataxia.

Rectal mucosa: Tissue lining the rectum.

Sedative: Medication that calms the user and causes sleep.

Sigmoidoscopy: Endoscopic inspection of the interior of the sigmoid colon.

Somnolence, drowsiness: Irresistible desire to sleep.

Spasticity: Increase in muscle tone or contraction, triggering stiff movements.

Subcutaneous: Under the skin.

Tachycardia: Fast heartbeat.

Tachypnea: Fast breathing.

Transdermal: Through the skin.

Transitory: Temporary, not lasting a long time.

Trigeminal neuralgia, tic douloureux: Acute pain in the area of the trigeminal nerve, which innervates the face through three branches: the forehead, the cheek and nose, and the teeth and jaw. The pain may be on either the right or the left side, but is usually on only one side at a time. Generally, only one of the three branches is affected at any given time.

Urinary retention: Involuntary retention of urine in the bladder; inability to urinate.

Vesico-urethral: Related to the bladder and urethra.





Checklist (photocopy if needed)

Name of drug:

Started using (prescription date and reason):

Stopped using (date and reason):

Name of drug:

Started using (prescription date and reason):

Stopped using (date and reason):

Name of drug:

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OUR MISSION

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