Incobotulinumtoxin A (Xeomin®) for Upper Limb Spasticity

What is spasticity and how is it typically treated?

Spasticity is a neuromuscular condition in which there is an abnormal increase in muscle tone, making the affected body parts stiff and difficult to move. Spasticity is a symptom associated with damage to the brain and/or spinal cord through conditions such as stroke, brain trauma or tumour, spinal cord injury, multiple sclerosis, Parkinson's disease, cerebral palsy, etc. The presentation of spasticity can range from mild and barely noticeable to very bothersome, which can interfere with daily functioning, hygiene and comfort.

Botulinum toxin injections can be used to help relieve spasticity in specific areas. Botulinum toxin is produced by the bacteria *Clostridium botulinum*. Botulinum toxin works by blocking the release of the chemical messenger acetylcholine and interfering in the nerve-to-muscle signaling pathway. By blocking communication between the nerves and muscles, a reduction in muscle tension, spasticity and pain intensity occurs. Botulinum toxin also helps manage pain by blocking the release of several excitatory chemical messengers involved in pain signaling pathway (e.g., substance P, calcitonin gene-related peptide (CGRP), and glutamate).

In Canada, three types of botulinum toxin type A are available for spasticity management:

- Onabotulinumtoxin A (Botox®)
- Abobotulinumtoxin A (Dysport®)
- Incobotulinumtoxin A (Xeomin®)

Each botulinum toxin product is a unique prescription drug and cannot be exchanged with another. At present, there is little evidence to support the use of one specific product over another. Product selection is typically based on clinician and patient preference, availability, and drug coverage.

How is Xeomin® used to treat spasticity?

- Xeomin® is injected into multiple muscles of the arm by a physician with appropriate qualifications and experience. Electromyographic (EMG), nerve stimulation, or ultrasound guidance may be used to determine the best location to inject the medication.
    - *Unlike Botox® and Dysport®,* Xeomin® does not have a Health Canada indication for *lower limb spasticity management.*
- The Xeomin® dose is individualized to each patient based on the size, number and location of the affected arm muscles involved, severity of spasticity and whether any muscle weakness is present. The maximum adult dose in a three-month period is 400 units.
- Xeomin® only provides temporary relief. Repeated injections can be considered when the injection benefit wears off and are typically separated by at least three months.

When does Xeomin® start to work?

Improvement in spasticity is typically noticed within one week of an Xeomin® injection, with maximum benefits occurring after approximately four weeks. The benefits tend to last approximately three months.

What special precautions should I follow?

- Let your physician know if you are taking any anticoagulants (blood thinners). Most patients can continue their anticoagulants prior to, during, and after receiving botulinum toxin injections given the low risk of bleeding complications.
- Avoid rubbing the injection sites after Xeomin® injection. This prevents excessive spreading of Xeomin® outside the area of injection.
- Xeomin® should **NOT** be used in patients with neurological conditions that cause paralysis or muscle weakness (e.g., myasthenia gravis).
- The literature on Xeomin® in pregnant or breastfeeding women is limited. Speak with your health care provider if this situation applies to you.

What are the possible side effects of this medication?

Xeomin® is generally well tolerated. Side effects are typically reversible with time.

- The most common side effects include slight discomfort/soreness, muscle weakness, stiffness, and/or bruising at injection site. Less commonly, flu-like symptoms may occur.
- Allergies to Xeomin® are uncommon.

If you experience difficulties related to swallowing, speech, or breathing following the administration of Xeomin®, please seek immediate medical attention.

Drug cost/coverage

- If you are an Ontario Drug Benefit (ODB) recipient, Xeomin® drug coverage for spasticity requires “limited use (LU)” code #412 for focal spasticity due to stroke or spinal cord injury in adults or LU code #413 for focal spasticity related to cerebral palsy in patients two years of age and older. These codes are valid for one year but can be renewed on an annual basis if treatment is successful.
- Xeomin® treatment is typically covered by private drug plans but often requires paperwork to be completed in advance.

How should this medication be stored?

- **Unreconstituted Xeomin® is stored at room temperature (up to 25°C).**
  - *This is different than Xeomin® and Dysport®, which both require storage in the refrigerator when in the reconstituted form.*
- Once Xeomin® is reconstituted by a health care provider with sodium chloride 0.9% (normal saline), it may be stored in the refrigerator at 2 to 8°C for up to 24 hours.