

Information Sheet for the Use of Botulinum Toxin to Alleviate Hypertonicity in Children

What is botulinum toxin?

Botulinum toxin is a neurotoxic substance used for treatment of spasticity in patients with cerebral palsy. It interferes with the signal transmission between nerves and muscles, resulting in relief of muscle spasm. This toxin is produced by the bacterium *Clostridium botulism* and it has seven subtypes (A to G). Botulinum toxin subtype A is used for hypertonia in children. Botulinum toxins also play a significant role in the management of a wide variety of medical conditions, such as profuse sweating, strabismus and abnormal contraction or twitch of the eyelid.

Is botulinum toxin safe and effective?

Botulinum toxins have been widely used in Europe and United states for more than 20 years. It is generally safe for use in children. Botulinum toxin can effectively relieve muscle spasm in patients with cerebral palsy. In this group of children, persistent increase in tone can lead to poor and imbalance growth of skeleton and muscles leading to bony deformity, stiffness of muscle and joints, restricted movements and bone degeneration. Botulinum toxin can interfere with the neural transmission between nerves and muscles leading to reduction in muscle tone and spasm. It also helps in pain relief, facilitation of personal care and improvement in positioning. Action of botulinum toxin is localized to the injection sites. Duration of action of botulinum toxin gradually ceases after 3 months and reinjection may be necessary.

What are the side effects of botulinum toxin?

Botulinum toxin is generally safe.

Side effects include the followings:

- Flu- like symptoms
- Nausea
- Dry mouth
- Pain and discomfort over injection sites
- Fatigue
- Headache
- Neck pain
- Eye problems: double vision, blurred vision, drooping eyelids
- Allergic reaction: itchiness, skin rash, difficulty breathing, dizziness and feeling faint

Rare and severe adverse effects include:

- Botulism: loss of strength and muscle weakness all over the body, double vision, blurred vision and drooping of eyelids, hoarseness or change or loss of voice (dysphonia), trouble saying words clearly (dysarthria), loss of bladder control, trouble breathing, difficulty in swallowing
- Compartment syndrome (extensive swelling and pain over injected limb)
- Anaphylaxis (serious allergic reaction with rapid onset, can potentially lead to low blood pressure and even death), irregular heartbeat, heart attack and convulsion

These symptoms can happen hours to weeks after receiving injection of botulinum toxin. Tell your doctor if you experience the above symptoms. Difficulty in breathing and swallowing can potentially lead to death.

Who should not receive botulinum toxin?

- Skin infection at planned site of injection
- Fixed stiffness or constriction in muscle or joints that restricts normal movement
- Diseases that cause easy bleeding
- Neuromuscular diseases such as myasthenia gravis
- History of allergic or adverse reactions to botulinum toxin products

What should I tell my doctor before taking botulinum toxin ?

Please tell your doctor about all your medical conditions, including:

- Disease that affects your muscles and nerves (such as amyotrophic lateral sclerosis (ALS or Lou Gehrig's disease), myasthenia gravis or Lambert-Eaton syndrome)
- Allergies to any botulinum toxin product
- Having any side effect from any botulinum toxin product in the past
- Breathing problem, such as asthma or emphysema
- Swallowing problems
- Bleeding problems
- Plans to have surgery
- Having surgery on your face
- Weakness of your forehead muscles (such as trouble raising your eyebrows)
- Drooping eyelids

Tell your doctor about all the medicines you take, including prescription and nonprescription medicines, vitamins and herbal and other botulinum toxin product received in past 4 months.

What are the procedures?

- For patients who need injection of botulinum toxin into multiple sites or need injection under guidance by imaging, sedation will be prescribed
- After assessment by the doctor, some of the patients may need casting after botulinum toxin injection for better treatment effect
- If no adverse drug reaction noted after botulinum toxin injection, patients can be discharged on the same day

Reminders after going home

- For better treatment outcome, patients after botulinum toxin injection may need more intensive physiotherapy and occupational therapy training
- You may continue the usual medications if there is no special instructions by doctor
- No limitation in physical activities required after botulinum toxin injection
- Muscle pain may be experienced after botulinum toxin injection, but it is usually short lasting. You may take analgesics if required
- If significant side effects experienced, parent should bring the patient for medical advice immediately

Remarks

The list of complications is not exhaustive and other unforeseen complications may occasionally occur. In special patient groups, the actual risk may be different. For any queries or further information, please consult our medical staff.