



Laryngeal Botulinum toxin treatment for Voice Disorders

Background / conditions which are treated with botulinum toxin

Botulinum toxin can be used as a specialized treatment for voice problems (and some swallowing problems) associated with muscle spasms or overactivity. It is most commonly used to treat spasmodic dysphonia (SD) which is a neurological condition that affects the voice by causing involuntary spasms of the vocal fold muscles during speaking making the voice sound either excessively tight and strained (adductor SD) or excessively breathy (abductor SD).

What is Botulinum Toxin / How does it work?

Botulinum toxin (common names include Botox™, Myobloc™ or Dysport™) is a naturally occurring substance produced by the bacterium *Clostridium botulinum*. It is a nerve “blocker”, binding to the nerves that lead to the muscle and preventing the release of acetylcholine, a chemical that activates muscle contractions. This leads to weakness of the targeted muscle and a reduction in the number and severity of muscle spasms.

Is Botulinum toxin effective?

Several formulations of botulinum toxin have been approved by the Food and Drug Administration (FDA), as a safe and effective therapy for SD and a range of other neurological disorders. Many studies have shown that at least 90% of patients with adductor spasmodic dysphonia obtain a satisfactory or better result with Botox injections. Treatment of abductor spasmodic dysphonia is more technically difficult, and results are less reliable, but with a tailored approach most patients still obtain satisfactory improvement with Botox injections.

How is Laryngeal Botulinum toxin Injection Performed?

Treatments are usually given in an office-based setting through the skin of the neck by a doctor who has specialized training in this technique. A small needle is placed into the vocal cord under electromyographic (EMG) guidance. The EMG-guided method is fast, effective, and easily tolerated by most patients. Other methods of medication delivery into the voice box are also available.

What are the Complications /side effects of Botulinum toxin Injections?

Possible/expected side effects of the laryngeal injections include:

- Mild voice weakness / breathiness if the closing muscles of the voice box are treated
- Mild cough/choking sensation if drinking fluids quickly or gulping
- Mild breathlessness, especially with exercise when the opening muscles of the voice box are treated

These side effects are transient and usually resolve within 1-3 weeks after injection. Serious complications of treatment are rare in the hands of a skilled provider.

What can I expect after the injection?



- Mild bruising at the injection site may occur and can be managed with a cold pack.
- The effect of the treatment usually starts or “kicks in” by day 2-3 after injection.
- There may be an initial “down-time” where the voice and swallow are weaker, which usually improves by 2-3 weeks after injection.
- Expect the voice to be smoother with less “voice breaks” as the down-time ends.
- Most people experience sustained good voice for 10-12 weeks on average after injection.
- The voice may start to deteriorate at the end of the injection cycle at 2.5 to 3 months and signal that repeat treatment is needed.
- Stress and colds / illnesses may affect the voice during the injection cycle. The treatment may be less effective if received while you are unwell.

Who should not receive botulinum toxin injection?

As with any medicine, there is a small risk of a hypersensitivity reaction to the product or its additives (human albumin, saline). The effects of this medication on a fetus or baby of a breastfeeding mother have not been evaluated so treatment is not advised in pregnancy and during lactation. Since Botox blocks the nerve-muscle junction, treatment is relatively contraindicated in patients with neuromuscular diseases (e.g. myasthenia gravis, amyotrophic lateral sclerosis) or with drugs that impair neuromuscular transmission.