

Botulinum Toxin Type A (BoNT-A)

What is BoNT-A?

Botulinum Toxin A (BoNT-A) is a neurotoxin derived from the bacterium *Clostridium Botulinum*. It has been purified under very strictly controlled conditions to treat a variety of hyperactive muscle disorders. In WA, it has been used at Princess Margaret Hospital (PMH) since 1995 and is now a common treatment for spasticity (tightness due to increased muscle tone).

How does BoNT-A work?

BoNT-A is injected locally into a carefully selected muscle. It works by preventing the transmission of signals between a nerve and its target muscle. This blocking action effectively relaxes the muscle and reduces the stiffness. This provides an opportunity for therapy to be more effective and to improve function where indicated. The effects of the injection are temporary and the maximum effects are seen after the first few weeks. BoNT-A will usually wear off within three to six months. Repeat injections can be given after this time if needed.

What does BoNT-A do?

There are a variety of possible benefits depending on which muscles are targeted with the treatment. These include:

- Improved walking pattern, motor skills and ankle/knee position.
- Improvement in upper limb function and posture.
- Reduction in painful muscle spasms.
- Improvement in muscle imbalance.
- Better tolerance in the wearing of splints.
- Reduction in muscle tightness (spasticity) to facilitate better patient care (eg nappy hygiene).
- Prevention of, or delay in the need for orthopaedic surgery and assistance in surgical planning.
- Assisting in the growth of the muscle.
- Control of excess salivary flow (when salivary glands injected).



What are the side effects?

Side effects may occur but they are usually mild and temporary. Serious side effects are uncommon. No long-term complications have been recorded.

Some possible complications include:

- Soreness at the injection site. The pain is usually mild and lasts a few minutes. Sometimes there will be a small bruise.
- A short flu-like illness with general malaise, and fever is experienced sometimes in the first few days.
- Rarely, there is muscle weakness greater than expected and may temporarily affect your child's motor abilities.
- Sometimes there can be a temporary interference with bladder function (generally only if the groin area has been injected).
- In children with pre-existing swallowing difficulties, there can be a temporary worsening of swallowing ability leading to an increased risk of aspiration pneumonia.

As the effect of BoNT-A is temporary, so too are these side effects.

BoNT-A contains a very small proportion of Human Serum Albumin (HSA) to stabilise the protein. The HSA used in the manufacture

of BoNT-A complies with the requirements specified in the United States Pharmacopoeia.

After repeated doses, some individuals have developed antibody resistance to BoNT-A. This is uncommon. Most patients find the relief of symptoms far outweighs any discomfort the drug may cause.

How are children chosen for BoNT-A?

It is important to undergo a detailed examination to determine if BoNT-A treatment is the best option for each individual child and also to consider which muscles may be the most important to target. This will include assessments of:

- muscle length and joint range of movement,
- walking pattern, and
- activities your child can participate in and sometimes a video of their skills.

How is it given?

BoNT-A is injected locally into the selected muscle(s) at several targeted sites using a fine needle. The procedure is carried out at PMH with analgesic cover and often under light sedation.

Some children are given a short general anaesthetic if a large number of muscles are to be injected or if needles particularly distress the child. In both cases your child will go home the same day.



What happens afterwards?

Your child can participate in all usual activities straight away. Clinical improvement is generally seen within two weeks of having the injections. Sometimes children may be a little “wobbly” on their feet at this time if they have received BoNT-A into their legs. This is temporary and should last only a few days.

Experience has shown that the best gains from BoNT-A therapy occur when the injections are followed up by a specific activity and stretching program designed to lengthen the injected muscle and improve the stretch of the surrounding muscles. The activity program is created specifically for your child by his/her therapist. In some cases serial casting may be necessary for a short period after the injections to assist in increasing the stretch of the muscle.

An initial follow-up at PMH by the doctor and clinic physiotherapist takes place about three to five weeks after the injections to ensure the BoNT-A has had a positive effect. A second review at five months is scheduled to monitor progress and determine if a repeat injection is required. Repeat doses can be given at six-monthly intervals or longer.

For further enquires phone: 6456 0218



Government of **Western Australia**
Child and Adolescent Health Service

This document can be made available in alternative formats on request for a person with a disability.

Child and Adolescent Health Service

15 Hospital Avenue, Nedlands, WA, 6009

Telephone: (08) 6456 2222

Produced by Department of Paediatric Rehabilitation

Revised April 2013 0008 © CAHS 2016

Disclaimer: This publication is for general education and information purposes. Contact a qualified healthcare professional for any medical advice needed. © State of Western Australia, Department of Health.