

Intrathecal Baclofen (ITB) Therapy

for the treatment of spasticity

This information is designed to provide you with a basic overview of Intrathecal Baclofen (ITB) Therapy. It is not intended to replace the discussions that are needed between you and your doctor regarding the most appropriate medical treatment for your child.

What is Spasticity?

Spasticity is caused by damage or injury to the part of the brain or spinal cord (central nervous system) that controls movement. This damage disrupts important signals between the nervous system and the muscles, creating an imbalance that results in muscle stiffness and spasms.

Spasticity can make movement, posture, and balance difficult. Sometimes spasticity is so severe that it gets in the way of daily activities, sleep patterns, and care giving.

Management of Spasticity

The management of spasticity may involve several different professionals including:

- Doctor
- Therapists-Physiotherapist, Occupational Therapist and Speech Pathologist
- Neurologist
- Neurosurgeon
- Orthopaedic Surgeon

A combination of treatment approaches is often useful and you may have already tried one or more of the available treatment options. The selection of treatment options is influenced by:

- The part of the body that is affected
- How severe the spasticity is
- How this impacts on the child's life.

Spasticity Treatment Options

Therapy:

As spasticity can impact on movement, posture and balance, therapy programs are designed to help a child to improve strength and flexibility and to develop new skills. Learning effective ways to position and handle your child will help them to reach their fullest potential and minimise pain and joint deformities.

Orthotics and Casting:

Your child may be given splints to wear on their arms, legs, or body, to help reduce the likelihood of contractures developing, to help them to maintain a good position and to function.

Medication:

Tablets or syrup such as baclofen, diazepam and dantrolene can be effective in reducing spasticity. These drugs are absorbed into the blood stream and therefore will make the whole body relaxed. However, this can result in side effects such as general weakness and drowsiness.

Botulinum Toxin Injections: This involves injections into the muscles. It blocks the signals from the nerve to the muscle which tell it to contract, hence reducing spasticity. Different muscles can be injected depending on the problem the child is experiencing. The effects usually last between 3 and 6 months and good reduction in spasticity can be seen, particularly when used in conjunction with therapy.

Orthopaedic Procedures:

There are various surgeries that can be performed to combat the impact of spasticity on the muscles and bones. These include muscle or tendon lengthening or transfer and osteotomy (surgery to the bones). These types of surgery are often used to help alleviate contractures after they have developed.

ITB Therapy:

May be used when a child has a lot of spasticity, which affects many areas of their body and is impacting on their function or quality of life. This treatment option is described in more detail throughout this leaflet.

What is ITB Therapy?

During an operation, a pump is placed just below the skin in the abdomen.

A thin flexible tube or catheter, is tunneled beneath the skin and runs from the pump to the space around the spinal cord. The pump is programmed to deliver a liquid dose of baclofen to the fluid around the spinal cord. Since the drug is delivered directly to the fluid around the spinal cord, only small doses are required to achieve spasticity relief. Delivering the baclofen directly to where it works rather than taking tablets can reduce possible side effects.

The pump is programmed by your child's doctor using a hand held device. It can be set to deliver the same dose, or a variable dose if they suffer from fluctuating spasticity. Some people benefit from a low level of spasticity to help them to stand, walk or transfer.

The dose can be precisely adjusted to ensure the right level of spasticity reduction for your child's individual needs.

Could ITB Therapy be right for my child?

Careful patient selection is the key to success with ITB Therapy. Your doctor will help you to determine if your child is a candidate for ITB Therapy. Receiving treatment early, before muscle wasting and contractures develop, is a critical factor in achieving mobility, range of motion, and other short and long term goals.

Children with one or more of the following problems may want to consider ITB Therapy:

- Spasticity or spasms that interfere with function or daily activities.
- Spasticity or spasms that interfere with care or positioning.
- Ineffective results or intolerable side effects from oral medications.
- Spasticity-related pain.

A [screening test](#) will help confirm if your child is a candidate for ITB Therapy. See below for more information.

Goal Setting

Realistic goal setting is the key to satisfaction with ITB therapy. It is important to understand that this therapy cannot give your child any abilities that they do not already have. It may however reduce the spasticity that is preventing them from realising their full potential.

[Discuss what you hope to achieve using ITB Therapy for your child with your ITB Therapy team. They will help you to set realistic goals.](#)

Goals of ITB therapy may include:

- Improved positioning and comfort
- Increased ease of care for dressing, bathing and personal hygiene activities
- Increased comfort; reduction of pain related spasticity
- Improved sleep
- Improved transfers and mobility for people who walk
- Pressure sore reduction
- Improved comfort of splints and orthoses
- To help avoid developing contractures

What are the 4 steps of ITB Therapy?

STEP ONE: Goal Setting

Realistic goal setting is the key to satisfaction with ITB therapy. It is important to understand that this therapy cannot give your child any abilities that they do not already have. It may however reduce the spasticity that is preventing them from realising their full potential. Discuss your goals with your child's ITB Therapy team; they will help you set realistic goals.

STEP TWO: The Screening Test

The screening test is how your child's clinician will determine if they might benefit from ITB therapy. See below for more detailed information on the screening test.

STEP THREE: Starting ITB Therapy

During an operation, a pump is implanted under the skin in the abdomen. After the surgery your child's doctor will program the pump to gradually increase the dose until it's right for them.

STEP FOUR: Maintenance of ITB Therapy

The pump needs to be regularly refilled by your child's doctor or nurse. This is done as a simple procedure where a needle is inserted through the skin into the pump. Your child's clinician can also adjust their dose to ensure that they are receiving the amount that is best for them.

The Screening Test

How do I know if ITB Therapy is right for me?

If you and your doctor think that ITB Therapy may be beneficial for your child, they can undergo a screening test to determine if it will work for them. There are many centres across Australia and New Zealand that offer ITB Therapy for children. Your doctor will refer you to one of these centres for assessment and the screening test.

What does the screening test involve?

For the screening test, an injection of baclofen will be given into the intrathecal space where the fluid flows around the spinal cord. This may be given as a simple injection into the lower back or a catheter can be placed which will allow several doses or a continuous delivery of baclofen. Children are usually given a brief general anaesthetic to perform the injection or place the catheter.

It will take between 30 - 60 minutes before it begins to relax your muscles, with the greatest effect about 4 hours after the injection is given. The effects usually last for around 6-8 hours before gradually wearing off. Afterwards your child will return to the same amount of spasticity that they had before the screening test. During the screening your doctor will test your child's muscles and may ask you to perform some of your usual daily tasks with them to determine what effect the medication is having.

Everyone responds differently

Everyone responds differently to the screening test. You might find that your child's muscles only loosen slightly or that they are so completely loose that they cannot use them. Both of these are considered a positive response as it is important to remember that if your child does go on to receive an implanted pump, their doctor will be able to precisely adjust the dose of baclofen so that it is right for them.

Starting ITB Therapy

To have the pump implanted, your child will be admitted for a brief hospital stay. The number of days varies from one ITB centre to another. The operation requires a general anaesthetic.

After the surgery their doctor will gradually increase their dose by programming the pump until the desired effect is achieved. This may take a number of weeks or months and be achieved during several outpatient visits to the doctor or nurse.

There are different pumps of varying size available. The size of the reservoir which stores the baclofen affects the overall size of the pump. Your doctor will recommend the best size pump for your child. The reservoir will need to be regularly refilled by your doctor or nurse.

This is done as a simple procedure where a needle is inserted through the skin into the pump. The time interval between refills will vary depending upon the size of the reservoir and your daily dose.

Pump refills are usually required every 2 to 6 months.

Risks of ITB Therapy

Potential complications of ITB therapy include:

- Infection
- Catheter problems such as kinks or breaks
- Baclofen under dose and overdose
- Pump malfunction

These complication can be very serious.

The reported rates of these occurrences vary and you should discuss this with your doctor.

It is important that the pump reservoir is not allowed to run dry, however, if you strictly keep your refill appointments this is unlikely to happen. Your child is at risk of symptoms of baclofen withdrawal if their pump is allowed to run dry and these can be extremely serious. You, your child's carers and school staff need to be aware of the symptoms of baclofen overdose and under dose so that you can contact your doctor if they occur.

Pump Replacement

As with all battery powered devices, the pump battery will require replacement. When you visit your child's doctor they will monitor the battery life using a hand held programmer. When the battery reaches its end of life, pump replacement surgery is required. This should be scheduled prior to the expected battery expiration.

ITB Therapy for Spastic Cerebral Palsy

What is Cerebral Palsy?

Cerebral Palsy (CP) is a condition that affects movement, posture and co-ordination. This may be seen at or around the time of birth or may not become obvious until early childhood.

CP is a wide-ranging condition and can affect people in many different ways.¹

- Spastic means stiff and this form of cerebral palsy causes the muscles to stiffen and decreases the range of movement in the joints.
- It is the most common form of cerebral palsy and can affect different areas of the body.
- Generally someone with spastic cerebral palsy has to work hard to walk or move.¹

Living with cerebral palsy poses difficult physical challenges. One of these challenges is spasticity, which can get in the way of daily activities. CP affects each person differently and not all children with CP have spasticity. However, those who do often find that it impacts upon their ability to function and their quality of life. For these children ITB therapy may be considered.

ITB and the need for Orthopaedic Surgery

ITB therapy may slow or prevent the development of hip problems. ²

If ITB therapy is offered at the right time, orthopaedic surgery may be delayed or avoided altogether. ³

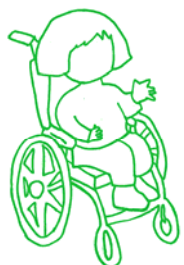
ITB Therapy for Dystonic Cerebral Palsy

- Some children with CP have secondary dystonia which is typically generalised (affects most parts of the body) and causes progressive disability, discomfort and deformity.
- Dystonia is characterised by sustained muscle contractions that cause twisting and repetitive movements and abnormal postures.⁵
- The treatment of generalised dystonia is often difficult and frustrating. ⁵
- Oral medications (such as baclofen) may diminish dystonia in a minority of people. ⁵
- ITB is the treatment option of choice for severe, generalised dystonia after oral medications have been shown to be ineffective. ⁵



Children who walk

Spasticity can interfere with a child's ability to stand and walk. Reducing spasticity with ITB therapy may be beneficial. However, spasticity is not always detrimental; some children use it to assist with weight bearing and walking. Careful patient selection is required in order to ensure that ITB therapy is right for any one person. This is achieved by thorough assessment from your doctor and therapist particularly during the screening test. Your ITB Therapy team will discuss and set treatment goals with you to ensure that the potential risks and benefits are understood.



Children who use a wheelchair

Spasticity can greatly impact on a child's quality of life by causing pain and discomfort.

Spasticity may result in difficulty sitting in a wheelchair, difficulty wearing splints, washing and dressing being difficult for carers due to the child's stiffness and poor ability to sleep due to muscle spasms. Reducing spasticity with ITB therapy can reduce pain and improve ease of care and quality of life. Discuss and set treatment goals with your ITB Therapy team that relate to the problems which you

Identifying whether your child may benefit from ITB therapy requires assessment from a team of professionals.

There are several centres across Australia and New Zealand who use ITB to treat children with severe spasticity or dystonia. Your doctor can refer you to one of these centres for assessment.

The team will set treatment goals with you to ensure that you understand the potential benefits and risks.

For more information on ITB Therapy to treat spasticity relating to cerebral palsy go to:

<http://www.medtronic.com.au/your-health/cerebral-palsy/index.htm>

Information provided in April 2009 by Medtronic

References:

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