IMPLANTATION OF AN INTRATHECAL PUMP

ADMINISTRATION OF MEDICATION BY INTRATHECAL ROUTE

Intrathecal therapy allows for administration of a drug, which is usually taken by mouth, directly into the fluid-filled space which wraps around the spinal cord (better known as cerebro-spinal fluid or CSF) using a catheter and a pump. This space is referred to as the “intrathecal space.”

This administration method allows for small doses of medication directly to the site of action to achieve the desired therapeutic effect. The required intrathecal dose is 100 to 300 less than the equivalent oral dose. As the quantity of drugs is less and it does not have to penetrate the blood before being distributed throughout the body, the side effects of the medication are reduced and the efficacy increased.

INTRATHECAL TRIAL PHASE

Before implanting the pump, you will be hospitalized for 2-5 days in a care unit to test the effects of administrating the medication into the intrathecal space of your body.

Generally, this procedure consists of installing a temporary drain in your spine, through which different doses can be tested. Everyday during 2-5 days, your pain or spasticity (according to your illness) will be assessed, then the selected medication is injected. In the following hours, we will assess whether this injection produces a positive response, i.e. an improvement in spasticity or pain. According to your response, a dose of an alternative medication may be tested the next day. At the end of the trial period, the temporary drain will be removed.

If this test helps, you can discuss the option of implanting the intrathecal pump. A hospitalization is also needed to implant the intrathecal pump. The surgery is performed on the operating room, under general anesthesia.

IMPLANTATION SURGERY FOR INTRATHECAL PUMP

When you have a positive response to a medication during the trial phase, surgery for permanent implantation of the intrathecal pump will be scheduled at a later time.

The day of the implantation, your operation will be in the main operating room, under general anesthesia. An incision of 5 cm is made in your back and a catheter will be introduced into the intrathecal space of your spine, to the targeted therapeutic level (dermatome) to deliver the drug to the nervous region which regulates the area of your body that has spasticity or pain. This catheter will then be tunnelled (inserted under the skin) until the abdomen, where an incision of about 10 to 12 cm is made to introduce the pump (a circular metallic box containing the drug which is inserted into the abdomen), which will later be connected to the catheter. The pump circulates the drug through the catheter and this drug is continuously administered (24/7) into the spine. This surgery may require short-term (24-48 hours) hospitalization or may be a day surgery (to be determined with your neurosurgeon).

The neurosurgeon establishes the drug dosage, which may be increased or reduced during your appointment. A programmer is used to set the scheduling for the desired dose from the pump, thus allowing for adjustment of the prescribed dose.

The pump has a life cycle of 5 to 7 years, meaning a replacement surgery is required.

CLINICAL FOLLOW-UP BY THE NEUROMODULATION TEAM

Having an intrathecal pump requires various medical follow-ups.

Commitment on your behalf is required as regular mandatory follow-ups with the team will be needed to ensure the efficacy of your intrathecal pump and to perform the drug refills. Frequency of appointments: variable, every 1 to 6 months, depending on the type of drug used and the dose delivered.

It is very important to always go to your refill appointments (mandatory). This type of appointment is difficult to postpone. Immediately inform the clinical nurse of the neuromodulation clinic if you are unable to make it to your appointment. You must then schedule a later date that is before your pump is empty of medication in order to avoid underdose (craving) or a breakage of your intrathecal pump.

RECOMMENDATIONS AFTER PUMP IMPLANTATION

- Be attentive to the following signs and symptoms:
  - Fever or chills (higher than 38.5°C or 101.3°F).
  - Headache, nausea.
  - Dizziness, loss of consciousness.
  - Puss discharge, redness, or inflammation around wounds/bandaging.
  - Opening of wound despite stitches.
  - Increased pain in wounds.

If you have any of these symptoms, immediately contact the clinical nurse in neuromodulation. If you cannot reach them, call Info-Santé at 811 or your family physician. You can also go to your closest emergency department if your condition is preventing you from going to the CIUSSS de l'Estrie CHUS Fleurimont Hospital emergency department.

- Go to the emergency department if you have signs of overdose or underdose (withdrawal):

SIDE EFFECTS	OVERDOSE SYMPTOM	WITHDRAWAL SYMPTOMS
BACLOFEN (LIORESAL)		
Fatigue, drowsiness Dizziness Blurred vision Headaches Muscle weakness Nausea, vomiting Low blood pressure Bradycardia (reduced heart rate) Urinary retention Convulsions	Dizziness Drowsiness Low blood pressure Nausea, vomiting Excessive sweating Bradycardia (reduced heart rate) Confusion, hallucinations Loss of tone and reflexes Convulsions Altered state of consciousness Respiratory depression	Muscular rigidity Exaggerated rebound spasticity Itching Numbness Fever Tachycardia (increased heart rate) Convulsions Altered state of consciousness
OPIODS/NARCOTICS		
Drowsiness, fatigue Dizziness Nausea, vomiting Constipation Urinary retention Low blood pressure Confusion Asynchronous breathing	High or low blood pressure Convulsions Respiratory depression Confusion Extreme drowsiness	Increased pain Nausea, vomiting Shivers Hot flashes Nasal discharge, tearing Irritability, anxiety, agitation Abdominal pain Tachycardia (increased heart rate) Metallic taste

- Limit your activities for 6 to 8 weeks. Gradually resume activities thereafter. Limit transfers (e.g. reclining chair bed).
- Do not lift anything that weighs more than 2.25 kg (5 lb.) for 1 month.
- Avoid flexing, twisting, jumping, or sudden, excessive, or repeated stretching.
- Wounds
  - Remove your bandaging 3 days after your surgery, according to your physician's recommendations.
  - Leave your wound exposed to open air if you do not have a drain.
  - Make an appointment with your local CLSC to remove your stitches or staples. They must generally be removed 10 to 14 days following your surgery. Bring your prescription to your appointment at the CLSC to remove the stitches or staples. You will receive it on the day of your procedure.
- Hygiene
  - Do not take showers or baths while you have bandaging. Instead, use the sink to wash yourself using a cloth.
  - Keep your bandaging clean and dry at all times.
  - Avoid rubbing against your wounds.
  - Rinse your wounds clean of any soap.
  - Wait 7 days following the removal of staples to take a bath or to bathe (pool, spa, lake, etc.).
- Medication
  - Take all prescribed medication as recommended by your physician.
  - Do not reduce or discontinue your medication without consulting your physician.

BE ATTENTIVE TO PUMP ALARMS

Two alarms sound to indicate a lack of medication, a malfunction, or a shutdown of your pump. The clinical nurse will explain these alarms during implantation so you can learn to recognize them. If you hear an alarm from your pump, go to the emergency department of the CIUSSS de l'Estrie CHUS Fleurimont Hospital, if your condition allows, or go to the emergency department of your nearest hospital centre.

GENERAL RECOMMENDATIONS

1. During your medical visits to a dentist, physician, or other specialist:
   - Show your implant card given to you during the surgery;
   - Inform them that you have an intrathecal pump, especially before a procedure/surgery;
   - If your intrathecal pump is used to administer narcotic drugs (pain medications), precautions should be taken to avoid overdose due to simultaneous oral or injection administration during a procedure/surgery.
2. Be aware of the signs and symptoms of withdrawal or overdose in relation to the medication used. Tell your social circle that you have an intrathecal pump and explain any signs and symptoms of withdrawal or overdose (see table above).
3. Do not touch or rub the implantation site of the intrathecal pump to avoid damage and irritation of the skin.
4. Powerful magnetic fields, such as those used in magnetic resonance imaging (MRI), can affect the proper functioning of the intrathecal pump. If you must undergo this examination:
   - Always go to the hospital where your pump was installed for the MRI;
   - Inform the neuromodulation clinic nurse beforehand to check the proper functioning of the intrathecal pump after the examination;
   - Inform the medical imaging technology team that you have an intrathecal pump during the pre-MRI questionnaire and the appointment.
5. If you plan to travel, ensure the pump has a sufficient amount of medication (check with the neuromodulation nurse). At the airport, show your intrathecal pump implantation card to the security officers and do the security check (physical search).
6. Consult your physician and the neuromodulation team before engaging in any activities at high altitudes, underwater diving, or using a hyperbaric chamber.

QUESTIONS?

Neuromodulation Department (Clinical Nurse) 819-346-1110, ext. 13954.

Appointments: 819-346-1110, ext. 13954.

Info-Santé 811 during evenings, nights, and weekends.

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