



Intrathecal Pumps

About Drug Delivery Therapy

Drug pumps (also called “intrathecal drug delivery systems”) deliver pain medication and/or muscle relaxers directly to the fluid around the spinal cord. This may result in more effective pain relief and/or decreased muscle tightness (spasticity) with fewer side effects than oral medication, which goes through your circulatory system.

How It Works

The drug pump delivers pain medication/muscle relaxers directly to the fluid around the spinal cord, in an area called the intrathecal space.

The drug pump is connected to a thin, flexible tube called a catheter. Both the pump and the catheter are fully implanted under the skin.

Because the pump releases medication directly to the pain receptors near the spine instead of going through your circulatory system, pain relief can be achieved with a small fraction of the oral medication dose.

The Effect of Oral Medications

Studies have also reported that drug delivery therapy provided pain and spasticity relief in many patients who could not achieve adequate control even with high doses of oral pain medications.

Realistic expectations are essential to satisfaction with any pain treatment. Drug delivery therapy cannot eliminate the source of your pain or cure any underlying disease, but it may help you to better manage your pain and/or spasticity.

Drug Delivery System Components

Drug delivery therapy uses the Medtronic SynchroMed® II infusion system, which includes:

- **A programmable drug pump** – A battery-powered device that stores and dispenses medicine according to instructions programmed by your doctor
- **Intrathecal catheter** – A thin, flexible tube that connects to the pump and delivers medication from the pump to the area where fluid flows around the spinal cord
- **Physician programmer** – A computer at your doctor’s office that lets your doctor tailor your therapy to best meet your needs

The pump system is implanted just under the skin of the abdomen. Your doctor will work with you to ensure that it is comfortable and does not interfere with your movements.

During the surgery, your doctor fills the pump with saline using a needle. After the incision heals, the pump will be filled with medication in the office. The pump sends the medication through the catheter to the spinal area where pain receptors are located. You return to your doctor’s office for more medicine when the pump needs to be filled.

Most pump systems used in this office are programmable, allowing doses to be scheduled and changed using an external programming device.



What to Expect at Your Refill Appointment

During the refill appointment, your doctor will check your system to make sure you are receiving the most appropriate therapy.

The pump system will be emptied with a needle inserted through your skin. The pump will then be refilled with new medication. This is a relatively short and painless procedure. On average, a refill appointment lasts 35 to 45 minutes.

Benefits of Intrathecal Drug Delivery Therapy

Intrathecal drug delivery therapy offers a number of benefits, including:

- **Significant reduction in pain** – Approximately 50% or greater reduction in pain
- **Improved ability to function and participate in activities of daily living**
- **Lower medication doses** – Compared with oral medications, which may result in reduced side effects
- **Less oral pain medications**
- **Proven safe and effective when used as directed**
- **Reversible** – Therapy can be turned off, or if desired, it can be surgically removed

In addition, this treatment:

- Does not involve permanent changes to the spinal cord or nerves
- Can be adjusted to dispense medication according to your activity level and need
- Allows you try the therapy for a short period of time before you receive a permanent implant

Risks of Drug Delivery Therapy

The implanted drug pump and catheter are surgically placed under the skin. Surgical complications are possible and include infection, spinal fluid leak, and headache. You should not undergo the implant procedure if you have an active infection at the time scheduled for implant.

Once the infusion system is implanted, device complications may occur which may require surgery to resolve. Drug overdose or underdose can result because of these complications and have serious and even life-threatening adverse effects. Possible complications include the catheter or pump moving within the body or wearing through the skin. The catheter could leak, tear, kink, or become disconnected. The pump could stop because the battery has run out or because of failure of another part of the infusion system. Additionally, inflammatory mass has been reported at the tip of the catheter which may lead to complications, including paralysis.

Advantages Over Other Therapies

Drug delivery therapy offers several advantages over other therapies for chronic pain.

1. A screening test serves as a temporary evaluation period so you can see if drug delivery therapy relieves your pain before committing to long-term therapy



2. It does not have to be a permanent procedure like back surgery. The system can be turned off or surgically removed
3. Unlike oral medications, drug delivery therapy releases medication directly into the fluid surrounding your spinal cord rather than traveling throughout your body in your bloodstream. This may lead to fewer side effects, such as nausea and constipation
4. Drug delivery therapy may provide relief when other treatments – like medications or injections – have not