

Neuromodulation **Reversible Modulation of Nerve Transmission**

Intrathecal Drug Therapy (Medication Acting Locally Near the Spinal Cord)

Intrathecal Drug Therapy

In this procedure a medication, for example morphine, modulates neuronal transmission by acting as a neurotransmitter. Other medications such as local anesthetics are also used.

The safety and effectiveness of the procedure is tested and established on a patient-to-patient basis. Movement, feeling and sympathetic nerve system reflexes are not affected by the procedure.



Indications

- chronic pain of spinal cord origin which has not responded to systemic opiate therapy
- unacceptable side effects associated with systemic opiate therapy

Value

An individual trial therapy is required before proceeding with intrathecal drug therapy. Long-term follow-up including documentation of the therapy is mandatory.

Advantage

The dosis-dependent side-effects of opiate treatment can be significantly reduced.

Follow-Up

Physical therapy parallel to treatment is recommended with emphasis on the patient's pain-related symptoms. As the level of pain decreases a carefully structured program of movement and strength training is implemented.

Work

Resumption of work is possible after the therapy has begun to take effect and pain is reduced.

Sport

Mobility is often much improved after the therapy has begun to take effect.

Results

International conferences in Memphis in 1997 and in Brussels in 1998 lead to the development of recommendations for the implementation of long-term intrathecal opiate therapy in the treatment of cancer- and non-cancer-associated pain. The recommendations are based on retrospective studies by Paice et al. and Winkelmüller. Both studies involved patients with cancer-associated pain and patients with either non-cancer-associated neuropathies, nociceptive-associated pain and/or nociceptive-neuropathy-associated pain. On average a pain reduction of over 60% was achieved with a subsequent marked improvement in quality of living.

Neuromodulation

Reversible Modulation of Nerve Transmission

Epidural Spinal Cord Stimulation (Electrical Stimulation of the Spinal Cord)

Epidural Spinal Cord Stimulation

An electrode is carefully placed in the epidural space near the spinal cord, similar to spinal catheter procedures. A temporary neuronal pacemaker is brought into place and activated. The patient then describes the quality and location of the stimulation. The physician must adjust the position of the electrode until an optimal stimulation of the affected area is achieved.

When the electrode is properly situated the patient should feel a tingling where he or she previously felt pain. The neuronal pacemaker is implanted underneath the skin after successful placement.



Indications

- neuropathy (nerve pain)
- radiculopathy (irritation of nerve roots)
- phantom pain
- pain syndromes such as failed back surgery syndrome (pain continuing even after back surgery)
- arterial occlusive disease
- polyneuropathy (multifocal nerve pain)

Value

A substantial reduction of pain is possible with the procedure. For many patients, especially those who have already undergone surgery, it is the only solution available to long-term drug therapy.

Patients are often able to reduce their use of powerful pain medications and thus the side-effects that go along with them. Quality of life and mobility, often severely restricted by the use of pain medication, is greatly improved.

Advantage

This is a minimal invasive procedure, available on an out-patient basis. Medications can be reduced after treatment.

Follow-Up

Activity should be minimized immediately following the procedure. Sudden movements must be avoided until after the implant has been stabilized, which can take up to several weeks. Stimulation can change during the first week after the procedure, making reprogramming of the implant by the physician necessary. The patient can resume his or her activities after this initial period of adjustment.

Work

Physical activity is not possible for up to several weeks after the procedure. Light physical activity can be resumed after this initial period of stabilization.

Sport

The extent of physical activity is determined by the healing and stabilization processes. Light physical activity such as hiking, biking and swimming can eventually be resumed.

Results

The international literature reports a reduction in pain following successful treatment of 50% to 75%.