

In the “Backache” chapter you can find out more about the causes of back pain. Here we provide a brief outline of the available drug-based and invasive approaches to pain treatment.

### Drug-based therapy

The use of medicine to treat back pain should always be discussed with the treating physician since potential drug intolerance or incompatibility due to preexisting diseases may prohibit the use of some medicines in specific cases and must be identified before treatment begins.

It is important to remember when using medicines to treat pain that even the use of strong painkillers does not always guarantee freedom from pain.

Drugs from the non-steroid antirheumatics class and related preparations with the following active substances are often used for the treatment of back pain:

- Acetylsalicylic acid
- Diclofenac
- Ibuprofen
- Paracetamol
- Novamine sulfone
- and other active ingredients that act in a similar manner

If taken over longer periods, some of the preparations in these active substance groups may irritate the stomach lining or even cause gastric bleeding. Special care is therefore advised and in general, an additional medication to protect the stomach should be taken.

For cases of severe or massive chronicized pain deriving from spinal column diseases, the use of opioid drugs may be indicated. The following classes of opioids are defined:

#### Weak opioids

- Tramadol
- Tilidine

#### Strong opioids

- Fentanyl
- Hydromorphone
- Pentazocine
- Oxycodone
- Morphine

A combination of painkillers, muscle relaxants and psychopharmaceuticals are frequently used for the adequate drug-based treatment of severe pain.

### Interventional techniques in pain treatment

#### · Periradicular infiltration therapy

The pain therapy method is used to treat pain resulting from irritation due to pressure exerted on a nerve root by a herniated intervertebral disc that does not require surgery. This method is also used to treat degenerative stenoses of the intervertebral foramina.

Monitored with x-ray or CT imaging equipment, a thin needle is introduced into the vicinity of the affected nerve root. Once the needle is correctly positioned, the nerve root is flushed with a mixture of painkilling and anti-inflammatory drugs, i.e. a local anesthetic and a drug containing cortisone. This technique ensures that a high concentration of active substances actually arrives at the origin of the pain.

This treatment is then repeated several times over a 3-week period depending on the intensity of the symptoms. Due to the effect of the local anesthetic, a feeling of weakness or numbness may occur in the arm or leg, though this is of brief duration.

#### · Trigger point blocks

Trigger points are tissue areas that react sensitively to pressure with pain. Myofascial trigger points are points in muscles, muscle fasciae and tendons up to 1 cm in size that may cause pain. Pain can be “projected” into other regions from these trigger points. This type of pain is frequently observed in the back of the head (occiput), the back, the nape of the neck and the shoulders.

Tender trigger points may set off chain reactions, especially in muscle tissue. Overloading or favoring a muscle in response to muscle pain causes the affected muscle to contract and tense up, resulting in a localized circulation deficiency in the muscle tissue. The patient may respond by favoring this area to ease the pain, causing other muscle groups to tense up, producing more trigger points and exacerbating the pain. To interrupt this cycle, the trigger points are localized in an examination and blocked by the targeted infiltration of a local anesthetic.

This treatment quickly lowers local pain levels.

#### · Sympathicus block

The vegetative nervous system (sympathicus) features a number of vegetative centers with sensitive nerve fibers that influence, among other things, pain centers and pain-conducting fibers. Sympathicus blocks are set along the cervical spine (at the ganglion stellatum) and lumbar spine (at the lumbar sympathetic trunk). In this method, local anesthetic is injected at these neural structures, resulting in increased circulation to the tissues controlled by these nerve centers. Improved muscle circulation relaxes the muscle fibers, thus reducing pain.

#### · Facet block

A facet block is an injection treatment of the facet joints, or small vertebral joints.

Under computer tomographic control, a local anesthetic is accurately injected at the small vertebral joints, resulting in rapid pain relief.

### Invasive pain therapy

#### · Facet denervation

Chronic pain arising from the small vertebral joints can be reduced by interrupting the conduction of neural signals, and thus of pain conduction, from the facet joints.

In this method, a probe is inserted into the nerve branches supplying the affected facet joint under computer tomographic control. Once the probe is correctly positioned, 80-90°C of heat created by a high-frequency or laser source is applied to the nerve branches, destroying them.

In most patients, pain is significantly reduced after this treatment.

#### · Epidural spinal cord stimulation

This method is used for the treatment of severe therapy-resistant neuropathic pain or rhizopathies (root irritations) following intervertebral disc surgery. Under local anesthesia, an electrode is inserted between the spinal cord sheaths and the vertebral arches. Stimulation of the electrode allows it to be placed with great accuracy. A pulse generator implanted under the skin of the chest ("neural pacemaker") stimulates the electrode by sending electrical impulses through a connecting cable to the electrode and thence to the spinal cord. These electric pulses interrupt the conduction of pain signals in the spinal cord, effectively reducing pain.

### TENS (transcutaneous electrical nerve stimulation)

TENS sends electric pulses to the nerves of a painful region through electrodes attached to the skin, thus suppressing pain signal conduction. The effectiveness of neural stimulation in pain therapy is based on two different ideas. Stimulation of the nerves with high current frequencies from electrodes located either externally or in the spinal cord sheaths, as is the case in epidural spinal cord stimulation, renders the nerves incapable of passing pain signals on to the brain. If TENS therapy is done with a low-frequency current, this results in the increased secretion of endorphins or physiological painkillers. These endorphins occupy the receptors where the messenger substances normally responsible for passing on pain impulses to the brain normally dock, thus reducing the sensation of pain.

### Acupuncture

In addition to its many other applications, acupuncture is now also used for the treatment of back pain.

Acupuncture is part of traditional Chinese medicine. This therapeutic approach is based on the concept of energy pathways called meridians spanning the body. There are 361 points along these meridians with a direct relation to organic systems or areas of the body. During acupuncture, sterile single-use needles are inserted into the skin at these fixed points. The dysfunctions are then regulated via the connection of these points to the corresponding regions of the body.

Acupuncture has been used in traditional Chinese medicine for over 3,000 years for the treatment of a wide variety of diseases. In China it is even used as anesthesia during surgery. Acupuncture in the West is primarily used to treat pain.