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## **GLOBAL YEAR AGAINST MUSCULOSKELETAL PAIN**

OCTOBER 2009 – OCTOBER 2010

### **Evidence-Based Invasive Treatment of Chronic Musculoskeletal Pain**

#### **Introduction**

Patients who do not respond to conservative treatments and have an unacceptable quality of life are possible candidates for invasive treatments. This fact sheet summarizes the current evidence on the most commonly performed invasive procedures in chronic musculoskeletal pain.

#### **Diagnostic Procedures**

Nerve blocks are the most common type of invasive diagnostic procedure. Their rationale is simple: if a certain anatomical structure is the source of pain, then anesthetizing its nerve supply should temporarily relieve the pain. Face and construct validity have been demonstrated for blocks of the nerves that supply the zygapophysial (facet) joints of the cervical and lumbar spine [6]. There is some evidence that selective blocks of the spinal nerves are sensitive and specific for identifying a nerve root as the source of pain [3]. Unfortunately, other types of nerve blocks have not been subjected to rigorous validation studies.

Disk stimulation (diskography) is used for the diagnosis of diskogenic pain, i.e., pain arising from painful structures of the intervertebral disks. The test relies on the assumption that, if the disk is the source of pain, applying a nonpainful stimulus to the disk (an injection of contrast medium at low pressure) would evoke the patient's typical pain. Its rationale is based on basic investigations on the nociceptive innervation of the intervertebral disk and on data in healthy volunteers. The theoretical background is sound. However, in the absence of a reference standard for the diagnosis of diskogenic pain, the validity of disk stimulation remains uncertain.

#### **Therapeutic Procedures**

Radiofrequency denervation of the nerves that supply the zygapophysial joints is superior to a placebo procedure in both cervical and lumbar pain [7,9]. This finding applies only to those studies in which patients have been selected by local anesthetic blocks [6], which are the only validated diagnostic methods for zygapophysial joint pain. Studies that have employed other selection criteria have led to conflicting results. Radiofrequency denervation is highly effective, having the potential to provide complete pain relief. The main disadvantage is the limited duration of action due to nerve regeneration (on average 9–10 months). The procedure can be repeated with the same probability of success.

Pulsed radiofrequency is less effective than radiofrequency denervation in lumbar zygapophysial joint pain [9] and is better than placebo in the short-term treatment of chronic cervical radicular pain [10].

Despite wide use, injection of steroids into the zygapophysial joints is not better than placebo [2]. No controlled study has demonstrated positive results. Epidural steroid injection has no rationale in low back pain and is not better than placebo in radicular pain [1]. Studies on transforaminal selective root injections have led to conflicting results. The balance of the literature suggests that this treatment may have short-term efficacy in lumbar radicular pain. Local or systemic steroid administration seems to yield similar effects in shoulder pain [4]. Thus, the evidence does not support the current wide use of steroid injections for different musculoskeletal pain states.

In a randomized trial, spinal cord stimulation was better than the conventional management of patients with failed back surgery [5]. Importantly, only patients with predominant leg pain of neuropathic origin were included. The results are therefore not necessarily applicable to patients with predominant low back pain. Indeed, the effect was relevant for leg pain, but modest for back pain [5]. No randomized trial on intrathecal opioid therapy has been performed. The available data show limited efficacy on pain and function.

The literature on intradiscal electrothermal annuloplasty (IDET) for the treatment of diskogenic pain is controversial [8]. At best, the procedure provides at least 50% long-lasting pain relief in 50% of highly selected patients.

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