Physiotherapy

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Physiotherapy appears to be a sine-qua-non type of therapy in cases with lumbar pain due to degenerative diseases of the lumbar spine. Whether you decide to use surgery or you choose a conservative way of intervention, you need assistance by a person experienced in physical re-education of patients with painful musculoskeletal disorders, i.e. you need a physiotherapist. In these cases, physiotherapy should not be a solitary intervention. It has to be part of a total rehabilitation plan with a defined goal. Unfortunately, there is not always sufficient communication between the orthopedic surgeon and the physiotherapist and the goal is not clearly defined.

The aim of the physiotherapeutic intervention is

- to reduce the impact of pain
- to improve functional capacity and facilitate return to work
- to improve patients' knowledge of how to prevent and how to handle back pain.

The treatment priorities need to be individualized with regard to the duration of the back problems and to the physical and mental capacity of the patient. Reduction of pain is usually a primary goal in acute pain, while increasing feeling of control and reducing fear of pain should be aimed at in chronic pain cases. Team work representing different professional groups is necessary in most cases of chronic pain.

What can a physiotherapist do in order to reduce pain due to lumbar disc herniation? Are the treatment modalities commonly used based on a solid scientific ground? Unfortunately, most studies on treatment efficacy are focused on subacute or chronic mechanical low back pain without a defined pathoanatomical cause (e.g. Lindström et al 1992).

A routine physiotherapeutic intervention is to teach the patient postural control, how to rest and how to move in order to reduce the load on the spine. There seems to be agreement on the value of bed rest for up to two weeks in patients with radicular compression. After this, a guided physical activity should be started as soon as possible. However, there appears to be no study on the optimal duration of bed rest (Quebec Task Force on Spinal Disorders 1987).

In cases of moderate pain, certain physical therapy modalities might offer some help. Both heat and cold have a temporary effect probably due to a gate control mechanism (Michlovitz 1990). Local application of deep heat with the use of ultrasound or short wave apparently produces placebo effects only. The effect of ice massage has been shown to be equivalent to that of transcutaneous electrical nerve stimulation (Melzack et al 1980). Percutaneous nerve stimulation induced by acupuncture might also be helpful but the experimental experience in cases of disc herniation is limited (Nachemson 1991).

These treatment modalities might thus have a beneficial men transient effect. They have not been shown to accelerate return to work or to a normal degree of functional activity, if they are used as the only intervention.

Light treatment with soft or mid laser has become very popular, but there is no evidence that the laser beam might have any effect on deep structures. Most of the energy is absorbed in the skin. No controlled clinical studies on soft or mid laser treatment in low back pain due to disc herniation have been published (Moritz and Sjölund 1990).

Traction therapy has traditions from ancient times. There is a number of interesting studies on different types of traction therapy. However, to some extent they permit only limited conclusions since the studies are performed on selected patient groups considered for operation due to radicular compression, representing patients resistant to conservative treatment modalities.

Weber (1973) found no difference between TRU TRAC and sham treatment with regard to the effect on pain, neurological signs and symptoms and mobility. In a similar group of patients autotraction and manual lumbar traction had a limited effect with a definite improvement in 25% only, without any difference between the techniques used (Ljunggren et al 1984). However, the same authors pointed out that the patient's reaction during the first autotraction treatment was a good predictor.

Better results have been presented by Lind (1974) and Gillström (1985), indicating that autotraction still has a place in the treatment of patients with lumbar

disc herniation, especially in cases with an immediate positive reaction. However, it is difficult to understand the mode of action of this type of traction therapy. Measurement of the intradiscal pressure has shown a considerable increase of the pressure during active traction (Andersson et al 1983). It has also been shown by means of myelography and CT-scanning that the disc herniation is not influenced by the autotraction (Gillström 1985).

Manipulation as a treatment of the lumbar intervertebral disc syndrome has been recommended by Chrisman et al (1964). They reported good or excellent results in 20 out of 39 patients after rotatory manipulation of the spine under anesthesia. However, the myelogram was unchanged after manipulation. Until now, the scientific evaluation of manipulation in radicular compression is insufficient.

In cases with a persistent painful condition, functional training is important . Exercises should include training of muscle function (endurance, strength and postural control) and physical fitness programs. It is important to use repeated quantification of physical deficits to individualize and monitor the physical training.

If necessary, the work place should be modified to match the capacity of the rehabilitated patient (Nordin 1987). The Back School is usually part of the rehabilitation program. Additional studies are needed to explore the preventive effect of this type of patient instruction (Linton and Kamwendo 1987).

References

Andersson G, Schultz A and Nachemson A. Intervertebral disc pressure during traction. Scand J Rehabil Med (Suppl. 9) 1983: 88–91.

Chrisman O D, Mittnacht A and Snook G A. A study of the results following rotary manipulation in the lumbar intervertebral-disc syndrome. J Bone Joint Surg (Am) 1964; 46 (3): 517–524.

Gillström P. En klinisk och objektiv analys av autotraktion som behandlingsform vid lumbago ischias. Thesis. University of Stockholm, Sweden 1985.

Lind G. Autrotraction. Treatment of low back pain and sciatica. Thesis. University of Linköping, Sweden 1974.

Lindström I, Öhlund C, Eek C, Wallin L, Peterson L-E, Nachemson A. Mobility, strength and fitness after a graded activity program for patients with subacute low back pain. Spine 1992; 17 (6): 641–652.

Linton S J, Kamwendo K. Low back schools: A critical review. Physical Therapy 1987; 67: 1375–1383.

Ljunggren E, Weber H, Larsen S. Autotraction versus manual traction in patients with prolapsed lumbar intervertebral discs. Scand J Rehabil Med 1984; 16: 117–124.

Melzack R, Jeans M E, Stratford J G, Monks R C. Ice massage and transcutaneous electrical stimulation: Comparison of treatment for low-back pain. Pain 1980; 9: 209–217.

Michlovitz S. Thermal agents in rehabilitation (sec. ed.). ISBN 0-8036-6185-7. F.A. Davis 1990.

Moritz U, Sjölund B. Kan laser lindra smärta? Få kontrollerade studier och osäkra resultat. Läkartidningen 1990; 87: 2261–2264.

Nachemson A. Ont i ryggen. Orsaker, diagnostik och behandling. SBU The Swedish council on technology assessment in health care, Stockholm, Sweden 1991.

Nordin M. Physical rehabilitation. Low back pain. Report of a workshop. Rehabilitation Research and Training Center, Department of Orthopaedis and Rehabilitation. University of Virginia 1987: 63–68.

Quebec task force on spinal disorders (1987). Scientific approach to the assessment and management of activity-related spinal disorders. Spine (Suppl. 7) 1987; 12: 23.

Weber H. Traction therapy in sciatica due to disc prolapse. J Oslo City Hosp 1973; 23: 167–176.