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Clinical picture dynamics in lumboischiadic syndrome, with and without radicular irritation, using McKenzie concept principles

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ABSTRACT

Aim: Comparison of intensity, sensitive and affective components, disability, motion range of the m. erector spinae muscle activity during both dynamic and static activities at the sagittal level regarding the most frequent diagnoses, within the framework of classification by the McKenzie method.

Patient sample: The research sample consisted of 31 patients by the MRI-diagnosed discopathy, who were divided into two groups. Both of these groups were treated using the McKenzie method. Group 1 involved the central symmetrical posterior derangement ($n = 15$). Group 2 involved the unilateral asymmetrical derangement, with emanation of pain into the lower limb ($n = 16$).

Methods: For the measurement of the intensity and character of pain, the McGill Pain Questionnaire – its short form (SF MPQ) was used. The pain intensity was evaluated by the visual analogue scale (VAS). The disability was evaluated by the Roland Morris Questionnaire (RMQ). The m. erector spinae muscle activation measurement from L4 area paravertebrally was conducted by the surface EMG in μV. The range of motion was measured by a goniometry.

Results: Group 1: activation of the m. erector spinae: no significant lateral differences were found and activation of the m. erector spinae was declining symmetrically. Group 2: in this group, there was the occurrence of lateral differences recorded on the right side versus the left side. On the painful side, the activation changes manifested themselves most markedly with their increase during the flexion in the upright posture and with their decline occurring during extension while standing, which presented the therapeutic principle. In the assessment of intensity and perception of pain, disability and motion ranges, no significant differences were found. One month and three months after the treatment there was a significant decrease in pain in both of the groups ($p < 0.05$).

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Conclusion: During the treatment, we have managed to record changes in intensity, pain localization and motion ranges in the monitored groups, which was in compliance with the clinical picture syndromes according to McKenzie.

Introduction

In this study, we attempted to compare the intensity, the sensory and affective components of pain, disability, the range of motion into flexion and lateral shift and the tone of m. erector spinae by surface EMG during static and dynamic activities in the sagittal plane, while performing repeated maximal flexion and extension and at rest, with the diagnoses according to MKN-10 M 51.3. Other degeneration of the lumbar intervertebral discs – the central symmetrical posterior derangement and the M 51.1 damage of the lumbar intervertebral discs with emanation of pain in the lower extremities – the unilateral asymmetric derangement with pain emanating below the knee in patients with chronic pain in the lumbar spine area with the MRI-diagnosed discopathy. Measurements were made before, one month after, and three months after the treatments.

Mechanical diagnostics and therapy (MDT) is appropriate with patients with acute and chronic pains in the lumbar spine. In the diagnosis of most frequent occurrence – derangement – the so-called centralization phenomenon is a typical response to mechanical stress. One direction of movement or position produces worsens, and peripheries the symptoms. The reversed movement removes, reduces, and centralizes the symptoms, leading to full recovery of the momentum [1]. The phenomenon centralization is characterized by the recession of symptoms from the periphery in the proximal direction. The symptoms at the periphery are decreasing, those in the proximal direction may be enhanced. The basis of this therapy is auto-therapy – the active, by the therapist defined movement and the acquisition of autonomy of the patient [2–5]. In our study, the following most frequently occurring McKenzie diagnoses have deliberately been selected: posterior derangement and posterolateral derangement of the lumbar spine area. Validity of measuring the effects of treatment by the McKenzie method in patients with posterior derangement by measuring the range of motion in extension by inclinometer was dealt by the authors Clare et al. [6,7]. Ford [8] dealt with the issues of determining the most appropriate directional preferences in the treatment of pain of the discogeneous origin.

Central, symmetrical, posterior derangement in the lumbar area

The pain is usually located centrally in the lumbar spine area or may emanate symmetrically in the gluten area, in the groin. The causes of this syndrome are usually flexion activities, for example lifting a heavy object or a long-term persistence of slump sitting. The nucleus pulposus is usually convexed posteriorly. If symptoms are central and symmetrical, it is appropriate to apply the extension principle. The anticipated response is centralization (removal of pain or feeling of pressure, paraesthesia in the area of the buttock muscle or groin of this type of derangement) and an increase of the range of motion, which was initially limited. It is important for the patient to exercise regularly to maintain the optimum lordosis, postural correction, and the elimination of flexion is also of importance [6] (Fig. 1).

Unilateral asymmetric derangement with pain emanating below the knee

The pains of this type of derangement are asymmetrically localized in the lumbar area to the right or to the left, they may emanate in the lower limb down under the knee. Nucleus pulposus is usually convexed posterolaterally. We are starting to test the extension principles with the progression of forces and pressure. If the phenomenon of centralization occurs (removal of pain or feeling of pressure, paresthesia from the area of the lower limb with this type derangement), we proceeded as described above. If the response is uncertain, or if the patient peripheries, this shows the lateral component. The patient responds favourably to the extension principle in combination with the lateral principle. If symptoms are alleviated, the exercise in the sagittal plane continues (Fig. 2).

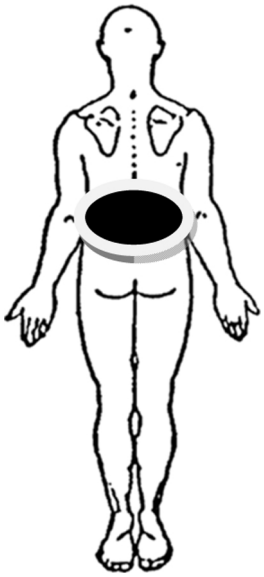

Fig. 1 – Central symmetrical posterior derangement – localization of pain.