STUDIU COMPARATIV PRIVIND DUREREA LA COPIII CU SCOLIOZĂ DUPĂ APLICAREA TRATAMENTULUI KINETIC

COMPARATIVE STUDY ON PAIN IN CHILDREN WITH SCOLIOSIS AFTER THE APPLICATION OF KINETIC TREATMENT

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Abstract

Introduction: At the level of the school population in Romania, current studies have shown an increased incidence of spinal deformities. Scoliosis is one of the controversial pathologies of the spine in that although the changes on the spine are impressive, the pain being an unpleasant sensory and emotional experience is among the last symptoms felt by the patient.
The aim of the study is to evaluate, according to the visual analog scale, the incidence of back pain in children diagnosed with scoliosis.
Methods: Pain assessment was performed using a visual analog scale with 5 levels of pain, applied at the beginning and end of kinetic treatment.
Results: The results of the study on pain in children with scoliosis after the application of kinetic treatment show significant improvements. There was also an increase in joint mobility in the spine and a decrease in fatigue.
Conclusions: The pain registered a downward evolution. Predominant were the cases with a pain level of "it hurts a little more", at the beginning of the recovery, and at the end the cases with "absence of pain" predominated. The age and level of development of the child must be taken into account when approaching the assessment and kinetic treatment. Pain assessment methods must be simple, safe and easy for subjects to understand.

Keywords: *pain, visual scale, kinetic treatment*

Rezumat

Introducere. La nivelul populației școlare din România studiile actuale au arătat o incidență crescută a deformărilor coloanei vertebrale. Scolioza este una dintre patologiile coloanei vertebrale controversate prin faptul că, deși modificările asupra coloanei vertebrale sunt impresionante, durerea fiind o experienţă senzorială şi emoţională dezagreabilă este printre ultimele simptome resimtițe de către pacient.
Obiectivul studiului este de a evalua, conform scalei analong vizuale, incidenţa durerilor de spate la copiii diagnosticați cu scolioză.
Metodă. Evaluarea durerii s-a realizat prin utilizarea scalei analong vizuale cu 5 niveluri de durere, aplicându-se la începutul și sfârșitul tratamentului kinetic.

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Rezultate. Rezultatele studiului asupra durerii la copiii cu scolioză după aplicarea tratamentului kinetic evidențiază îmbunătățiri semnificative. De asemenea s-a observat o creștere a mobilității articulare la nivelul coloanei vertebrale și scăderea stării de oboseală.
Concluzii. Durerea a înregistrat o evoluție descendentă. Predominante au fost cazurile cu durere *„doare puțin mai mult”*, la începutul recuperării, iar la final au predominat cazurile cu *„absența durerii”*. În abordarea evaluării și a tratamentul kinetic trebuie să se țină cont de vârsta și nivelul de dezvoltare al copilului. Metodele de evaluare a durerii trebuie să fie simple, sigure și ușor de înțeles de către subiecți.

Cuvinte cheie: *durere, scală vizuală, tratament kinetic*

Introduction

According to specialized studies, every year more and more children and adolescents are diagnosed with scoliosis [1]. Despite the high prevalence of this pathology, there is a significant gap in the literature, with limited evidence reporting the effect of exercise on back pain in patients with scoliosis [2].

Scoliosis is a permanent deviation of the spine in the frontal plane with progressive evolution and important consequences on the morphology and functionality of the spine. The scoliotic attitude is only a problem of vertebral statics, reversible and without definitive changes of the spine. The carriers of this condition must consult a series of specialists, from different medical branches: orthopedist, rheumatologist, neurosurgeon, recovery doctor, physiotherapist, and psychologist.

Scoliosis is one of the controversial pathologies in that although changes in the spine are important (having profound implications such as: respiratory and cardiovascular disorders, changing patient quality of life, low self-esteem) pain is among the last symptoms experienced by the patient [3].

Specialist studies have shown that pain in patients diagnosed with scoliosis occurs especially in those with lumbar and thoraco-lumbar curves, and pain intensity is significant in the case of curves exceeding 45 degrees Cobb [4]. Chronic back pain has an important impact on the quality of life of patients with scoliosis. Teles et al. pointed out in their study that there is a high prevalence of pain in the study group [5]. However, persistent back pain associated with progressive scoliosis should always be taken seriously in children [6]. The association between the severity of the deformity and the somatosensory dysfunction may suggest that spinal deformity may be a trigger for pain. Pain-related factors include: changes in balance, instability, and pathological mechanical loads on the elements of the spine [7, 8].

The visible signs in scoliosis are the asymmetry of the posture of the body, stated by: the asymmetry of the shoulders, the inequality of the scapula prominence, the asymmetrical waist line, the ribs are higher on one side at the flexion of the trunk (Adam test) etc. As the scoliotic curvature progresses and puts pressure on the nerves and paravertebral muscles, it causes decreased joint mobility, back pain, weakness, numbness or pain in the lower extremities. Sometimes it can be difficult to manage pain, it can be present when lifting, walking or joint mobilization, being associated with the severity of the deformity [9].

According to the International Association for the Study of Pain (IASP), pain is an unpleasant sensory and emotional experience associated with an actual or potential tissue injury or

described in terms that suggest tissue injury (International Association for the Study of Pain, 1994). Chronic being caused by trauma, surgery or a chronic illness. „Acute pain can be considered a symptom or injury, chronic and recurrent pain is a specific health problem, a disease in itself" (The European Pain Federation (EFIC) Statement) [10] Chronic pain is defined as being any type of persistent pain for more than twelve weeks (three months). Although the causes of acute pain are usually clear, the etiology of chronic pain is extremely diverse, which can be induced by a wide variety of clinical situations. [11]

Weiss, HR., States that several clinical studies have shown that in early adulthood, most patients with scoliosis suffer from pain. Among patients with scoliosis who reported pain, they described it as "horrible, excruciating, and painful" [12]. Adolescents and adults with chronic back pain require physical treatment as well as psychological support. These patients have to deal with two different problems at the same time, spinal deformity and pain, which require more complex approaches than for the rehabilitation of pain alone.

The behavior of the child who presents with pain during the assessment or kinetic treatment may include: reduced motor activity, facial expressions, grimaces, specific positions, irritability. Older children can locate pain in the back with a body sketch. Pain information, obtained from children using assessment scales, is important in establishing a recovery therapeutic plan.

The correct assessment of pain is made according to the age and level of development of the patient. Pain assessment in older children and adolescents is performed by direct involvement of the patient, namely, by using methods of self-report (self-assessment) of pain. The numerical evaluation scale is the most used pain evaluation scale for children aged 10-15. The numbers used on this scale are placed in ascending order, thus indicating a gradual increase in pain intensity. To use this type of scale, the child must understand the concept of numbers and their proportionality. This numerical assessment scale has the advantage of not requiring complicated materials and being understood by children.

Informing the physiotherapist in case of pain during treatment increases the patient's confidence in the therapist and physical treatments.

The aim of the study is to evaluate the incidence of back pain that occurs after the application of kinetic treatment in children diagnosed with scoliosis according to the visual analog scale.

Depending on the intensity of the pain, the appropriate therapeutic action is planned. Subsequently, the pain is reassessed to assess the therapeutic efficacy.

Objectives of pain assessment:

1. Identifying the presence and intensity of pain;
2. Assessing the impact of pain on the individual;
3. Establishing the kinetic treatment.

Method and subjects

Pain assessment was performed using the visual analog scale with 5 levels of pain, applied at the beginning and end of kinetic treatment. The children self-assessed their pain on a scale from 0 to 5, where: 0 = absence of pain; 1 = hurts a little; 2 = hurts a little more; 3 = hurts more; 4 = it hurts a lot; 5 = it hurts unbearably. Physiotherapy program aimed to correct the curves of the spine by toning the muscles of the posterior plane, reducing rib hump, straightening the pelvis and balancing the scapular girdle, awareness of vicious postures of the spine by adopting corrective postures [13].

Therapeutic intervention was performed for 45 minutes twice a week for a period of 6 months. Prior to treatment, children were given individual sheets to describe pain and were instructed on the pain assessment scale and recovery program through both verbal and practical description.

The evaluation of the subjects focused on the following parameters: pain in orthostatism, gait and joint mobilization. The study was performed on a group of 20 children diagnosed with scoliosis from the Special Gymnasium School No.3. Bucharest.

Results and discussions

The group of subjects with scoliosis was analyzed in terms of distribution by age groups and sex. The research involved 20 children aged 10-15 years (average is 13 years).

* Gender structure. It confirms the data from the literature that shows the predominance of females. The analysis of the cases studied shows a preponderance of the disease in females (70% girls out of the total number of students studied, i.e. 14 cases of girls and 30% boys, ie 6 boys).

* The topography of scoliosis presented:

- 9 cases with a single thoracic curvature with right convexity.
- 3 cases with a single thoracic curvature with convexity on the left.
- 5 cases with a single thoracolumbar curvature with right convexity.
- 3 cases with 2 curves of right chest and left lumbar

* Data analysis was performed using the Excel program. The intensity of pain before and after the kinetic treatment is presented in the tables below in tables 1, 2 and 3.

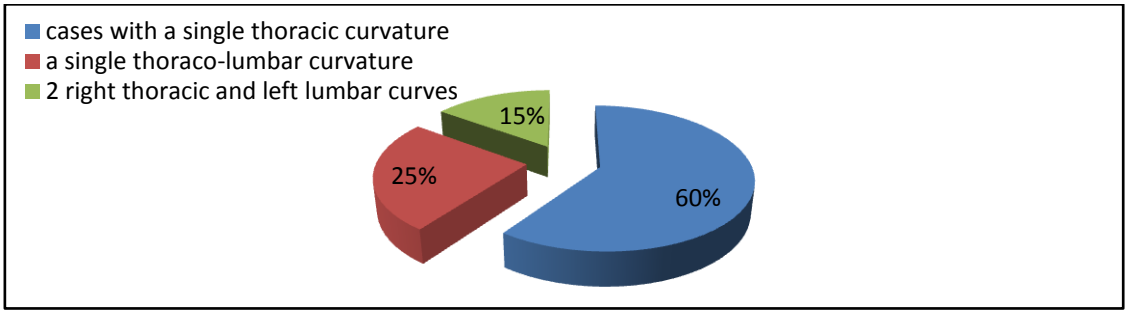

Fig.1 Distribution of scoliosis according to topography

Table 1. Analysis of pain in orthostatism in the cases studied before and after treatment.

At the beginning of the recovery:	**At the end of the recovery:**
4 cases - absence of pain	14 cases - absence of pain
3 cases - it hurts a little	3 cases - it hurts a little
6 cases - it hurts a little more	2 cases - it hurts a little more
5 cases - more pain	1 case - more pain
2 cases - it hurts a lot	
0 cases - it hurts unbearably	

Table 2. Analysis of pain while walking before and after treatment.

At the beginning of the recovery:	**At the end of the recovery:**
5 cases - absence of pain	11 cases - absence of pain
6 cases - it hurts a little	7 cases - it hurts a little
8 cases - it hurts a little more	2 cases - it hurts a little more
0 cases - it hurts more	
1 case- it hurts a lot	
0 cases-it hurts unbearably	

Table 3. Analysis of pain at joint mobilization before and after treatment.

At the beginning of the recovery:	**At the end of the recovery:**
3 cases - absence of pain	9 cases - absence of pain
2 cases - it hurts a little	6 cases - it hurts a little
4 cases - it hurts a little more	3 cases - it hurts a little more
7cases - it hurts more	2it hurts more
13case- it hurts a lot	
1 cases-it hurts unbearably	

The pain was downward. Predominant were the cases with pain, it hurts a little more, at the beginning of the recovery, and at the end the cases "absence of pain" predominated.

The analysis of pain in orthostatism showed a predominance of pain, it hurts a little more, and after the kinetic treatment, the absence of pain is 70% in the studied cases.

Analysis showed pain on walking pain predominant „just slightly more", and after the kinetic treatment „absence of pain" is 55% of the cases studied.

The analysis of the pain at the joint mobilization showed a predominance of the pain „ it hurts more „ and after the kinetic treatment „the absence of the pain„ is in proportion of 45% in the studied cases.

The intense pain was present in one subject during the joint mobilization after completing kinetic treatment has reached the 3 scale evaluation. The study of the correlation between the sexes showed significant differences. Also there was an increase joint mobility in the spine and decrease fatigue in subjects.

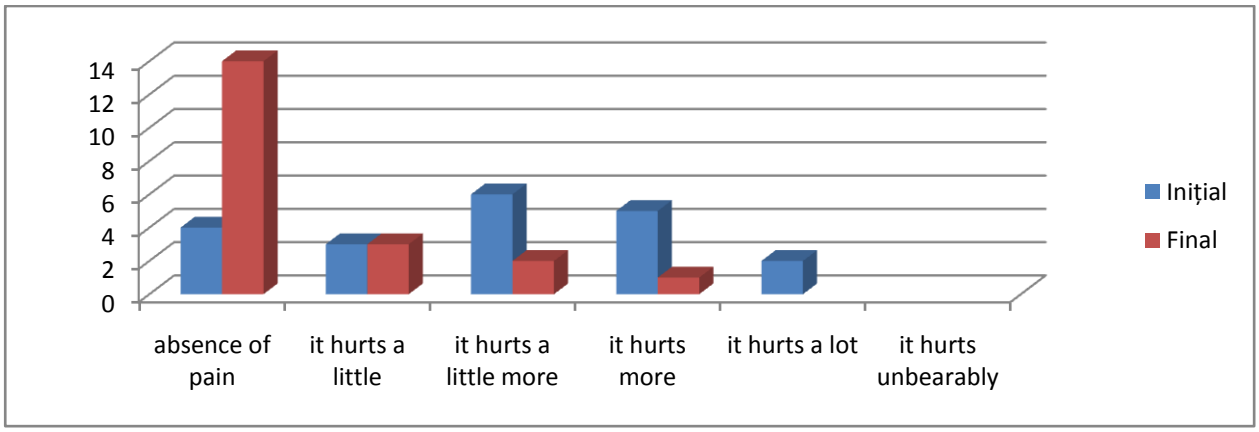

Figure 2. Graphical representation of pain in orthostatism -a) initial test b) final test

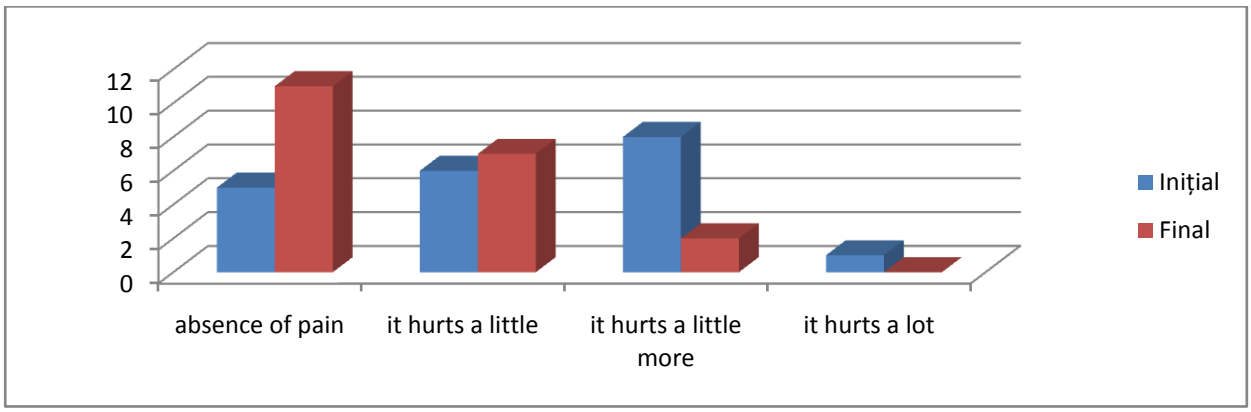

Figure 3. Graphical representation of pain on walking -a) initial test b) final test

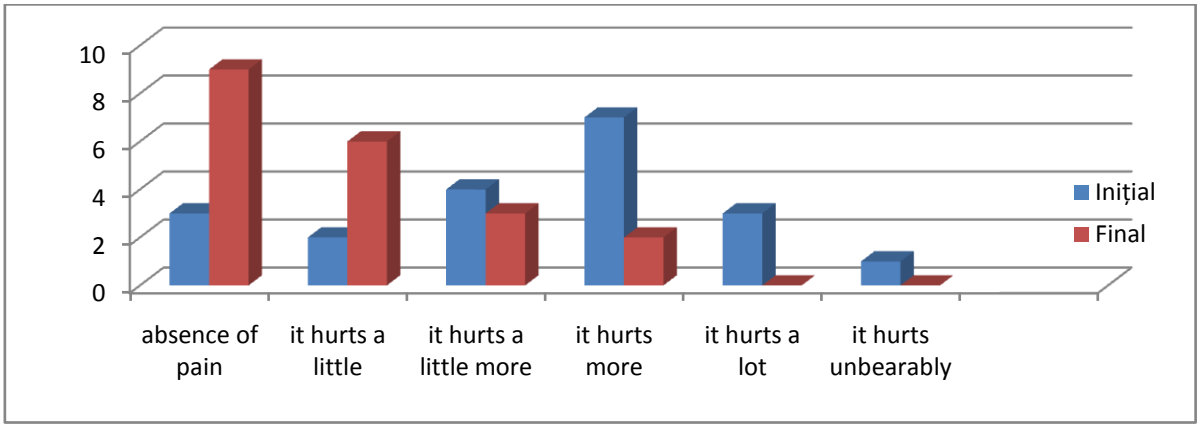

Figure 4. Graphical representation of pain at joint mobilization -a) initial test b) final test.

Conclusions

There is a higher incidence of scoliosis cases in females, in a percentage of 70%, this being confirmed by the literature.

The pain was downward. Predominant were the cases with pain "it hurts a little more", at the beginning of recovery, and at the end the cases "absence of pain" predominated.

Pain assessment methods must be simple, safe and easy for children to understand, taking into account the child's age and level of development.

The success of recovering children with scoliosis depends on the positive relationship that is established between the physiotherapist and the child/his family. Any change in the patient's condition must be monitored and can be remedied as soon as possible by a specialist.

Depending on the age and level of understanding, the child must become involved in his own improvement in health.

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