

Post-isometric Relaxation in Rehabilitation of Patients with Late-stage Coxarthrosis

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Received date: April 18, 2019; Accepted date: May 02, 2019; Published date: May 09, 2019

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Abstract

End-stage coxarthrosis is a hip joint disease which creates severe pain and movement constraints. To analyze the effectiveness of the inclusion of post-isometric relaxation in conservative treatment 34 patients with stage III coxarthrosis were examined. The study used: BASH, algofunctional Leken index, Harris test, McGill and WOMAC questionnaires. The inclusion of post-isometric relaxation techniques reduce pain syndrome (2.5 times) and improve (2.1 times) the functional activity of the joint.

Keywords: Coxarthrosis; Post-isometric; Rehabilitation

Introduction

Coxarthrosis occupies the second place after gonarthrosis in incidence and the first place of persistent disability. The share of invalids due to coxarthrosis of different genesis makes up of those who are unable to work from joint diseases [1]. Coxarthrosis usually affects elderly people and most cases progress steadily. Patients suffering from coxarthrosis experience severe pain in the hip joints, reduction functional capacity and social isolation. Treatment of such patients is an actual problem of rheumatology, traumatology, and orthopedics [2,3]. The urgency of treatment of these diseases is determined by its high social significance, since in the last decade the indicator of disability of the population due to arthrosis, has been increased [4]. The replacement of the hip joint is a serious surgical intervention but has a number of contraindications. Which, could create a pronounced pain syndrome [5]. Thus, the problem of conservative treatment of coxarthrosis is still topical. Modern medicine has a large arsenal of funds aimed at treating patients with osteoarthritis. The leading method is a complex of conservative therapies, which includes medical therapy, physiotherapy, exercise therapy, massage, and Post-Isometric Relaxation Techniques (PIRT) [6]. The aim of this work is to evaluate the effectiveness of PIRT in the treatment of patients with stage III coxarthrosis.

Material and Methods

This study was conducted in 34 patients aged 16 to 79 years (mean=52 ± 2) The duration of the disease was from 1 year to 24 years, (mean=9.7 ± 1.2). All patients were divided into two groups. The first group (18 patients) were prescribed chondroprotection, vascular and metabolism-improving drugs (trental, B vitamins, actovegin), Nonsteroidal Anti-Inflammatory Drugs (NSAIDs) with a short course (According to the recommendations of the European Antirheumatic

League (EULAR) [7]), physiotherapy methods (ultrasound and laser exposure), massage with ischemic compression of trigger points and exercise therapy with gravitational weighting. The use of physiotherapeutic procedures and massage was performed at trigger points along the sacroiliac joint and on the lateral surface of the hip joint, on points localized in the gluteus and gluteus maximus muscles, causing pain on the hip joint back surface and trigger points in the large adductor muscle and anterior medial thigh surface.

The second group consisted of 16 patients were additionally treated by PIRT.

They affected both periarticular muscles of the hip joint, and, if necessary, on the sacroiliac joint and the lumbar spine. With the limitation of lead in the hip joint, the admission with the effect on the muscles leading to the hip was performed. With the restriction of the hip reduction, a procedure was performed with an effect on the group of muscles of the hip femora. With the restriction of the external rotation of the thigh, the admission was made to the muscles that perform the internal rotation of the thigh, and when the internal rotation is limited, the muscles of the thigh are guided from the outside. When working with the hip joint, special attention was paid to the ilio-lumbar and gluteus muscles, the quadriceps femoris, the biceps femoris, the semitendinous and semimembranous muscles of the femur, pear-shaped and the muscles of the posterior surface of the tibia. PIRT was performed on these muscles. The soreness of the iliolumbar, sacroiliac and sacro-ligamentous ligaments was studied and, if necessary, muscle relaxation was performed. The principle of taking PIRT was to create a slight isometric strain towards painless movement for 10-15 seconds, then the pause was 15-20 seconds, followed by relaxation and stretching towards the limitation of mobility until the appearance of a springing resistance, avoiding the appearance of pain, then from repeated reception was repeated 3 to 5 times.

Methods for measuring the effect of treatments were four:

The Alhenfunctional Leken Index: to determine the intensity of the pain syndrome and the severity of functional disorders

WOMAC [8] questionnaire: to determine the severity of pain syndrome, functional disorders, and stiffness of movements

3. Harris test: combining subjective assessment of patients with their condition and objective examination of the patient by a doctor

4. V.V. Kuzmenko (Russian version of McGill questionnaire): identify the main components of pain syndrome [9,10].

Results

Table 1 presents data on the severity of the main clinical symptoms of coxarthrosis obtained in testing patients before and after complex conservative treatment and the results obtained in patients with the inclusion of PIRT in the treatment complex.

Testing methods			Group 1	Group 2
Algofunctional index (score)	Leken	pain	-1	-2.7
		function	-1	-2.1
Questionnaire		pain	-2	-2.5
		stiffness	-2	-2.5
		function	-2	-2.5
Harris's test (score)		pain	1.6	2.2
		function	1.1	1.2
McGill (score)	questionnaire	rank index of pain (sensory)	-2	-3.4
		rank index of pain (affective)	-1	-3
		rank index of pain (evaluating)	-1	-2

Table 1: Effect of various rehabilitation techniques on the improvement of patient conditions.

The numbers inside the table represent the rate of the results obtained from after treatment compared to the pre-treatment. The negative sign means a decrease and the positive sign means an increase in results of tests after treatment. When interpreting the results of the Harris test, it is necessary to remember here that an increase in the score in points indicates an improvement in the patient's condition.

Discussion

The patients of the first group showed a marked decrease in the intensity of the pain syndrome. While the inclusion of the methods of PIRT for the second group made it possible to achieve a more significant decrease in the severity of the pain syndrome.

The obtained results show that together with the decrease in the pain intensity, it's emotional coloring also changes, which has a beneficial effect on the patient's quality of life.

The use of a complex of conservative therapy for the purpose of restoring joint function in the first group of patients is less effective than for the purpose of removing the pain syndrome. Introduction to the complex of conservative treatment of PIRT increased the efficiency of joint function restoration in patients of the second group.

Thus, the presented combination of medical treatment with physiotherapeutic procedures, exercise therapy with exercises of gravitational weighting and massage with ischemic compression of trigger points is characterized by high efficiency of eliminating the main clinical manifestations of coxarthrosis.

Conclusion

Inclusion of the methods of PIRT greatly enhances the obtained positive effect of treatment. Repeated implementation of the proposed rehabilitation course will improve the quality of life of patients and maximally postpone the period of arthroplasty.

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