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Original article

ROLE OF KINESIATRICS IN THE TREATMENT OF RHEUMATOID SHOULDER OF THE ELDERS

CRISTUȚĂ A.M.[1]

Abstract

Aim. In this work, my intent was to detect the methods of premature and systematic implementation of the cinesitherapeutical means and procedures, by which the elder's diminished or lost functional capacities are re-established as completely as possible. The aim of this work was to verify the role of the cinesitherapy-specific means in the therapy of the rheumatic shoulder at the elderly population, to contribute to the improvement of the recovery process, in the meaning of reduction of the recovery time and of increase of its efficiency.

Methods. The research methods used were set-up based on the research goals, and, therefore, the method of references study, the test method, the statistical mathematical method and the graphical method were used.

Results. Cinesitherapy finds broad application, with remarkable results, in any rheumatic form, by using a variable range of exercises, that the purpose is to prevent, retard or meliorate the process of illness installation or evolution.

Conclusions. As a result of the implementation of the cinesitherapy-specific means in the therapy of rheumatic shoulder, a contribution to the improvement / enhancement of the shoulder's functionality may be observed, as well as that, following the application of the specific means in the therapy of the rheumatic shoulder, their positive role may be highlighted.

Keywords: shoulder, rheumatism, elderly

Introduction

Growing old is a complex process, that is conditioned by manifold variables, out of which the life style has an overwhelming significance. Practicing regular physical activity throughout the life is rewarded with countless beneficial effects on the body, and the inactivity is directly related to the elder's poly-pathology. In the past decades, great efforts are made to promote physical activity independently of age, the advantages of the active life style regarding both the individual and its community (Albu and colab, 2007).

Elders represent worldwide a major segment of the total population, including in our country. The fragility of this group of age is more pronounced than that of the young people and adults, the chronic and acute illnesses, the immunological, metabolic, circulatory and bone illnesses playing an important part (Bălăceanu, 1998).

In our country, rheumatic illnesses also represent the group of illnesses with the highest morbidity rate; practically, beyond the 4th to the 5th decade of life, there is no individual that had not accused or that does not accuses rheumatic pains. For most of these individuals, the assistance issues consist of therapeutic assistance and secondary prophylaxis.

The entirety of normal morphological and functional changes that occur along the years also includes the osteoarticular ageing, that is characterized by biological involution at the level of the connective tissue of the locomotor system, ageing that occurs in terms of quantity and quality, (http://www.physiotherapy.ro/noutati/25Avectiuni%20reumatismale%20la%20varsta%20a%20III-a.html).

The researches have proven that, in terms of quantity, the bone involution process starts in the second decade of life, through atrophy of the bone tissue. Men lose approximately 27% of the quantity of bone tissue until they turn 80, and women lose approximately 42 % of the quantity of bone tissue existing at the age of 20. According to the patients' accounts, the shoulder pain has a prevalence of 16% to 26%, which, in terms of primary nursing, takes it to the third place in the top of the most common causes of the medical visit for locomotorium problems. Approximately 1% of the adults annually ask for the services of a general medicine physician due to the installation of a first episode of shoulder pain.

Kinesiatrics finds broad applicability, with remarkable results, in all rheumatoid forms, by using a varied range of exercises that the purpose is to prevent, retard or improve the process of illness

[1] University „Vasile Alecsandri" from Bacău, 157 Calea Mărășești, 600115, Bacău, ROMÂNIA,
E-mail address: a.cristuta@yahoo.com
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installation or evolution.

Hypotheses

In the development of this research I have started from the following hypotheses:

- let's assume that by applying means specific to kinesiatrics in the treatment of the rheumatoid shoulder, there is a contribution to its functionality improvement or increase;
- let's assume that, as a result of implementation of the specific means in the treatment of the rheumatoid
- shoulder, their positive role may be highlighted.

Methods

The research was performed in the Day Care Centre "Retirees Club" of Bacău, between December 2015 and June 2016, where I draw up the medical files of the patients that includes the Anamnesis, the Initial and Final Evaluations, and, respectively, the Arthric report, the Muscle report, the specific Functional tests (Neertest – that tests an overuse-type trauma at supraspinal level, fact that may also be observed on the patient's face, the Test of the Painful Arch – that identifies the conflict between the thews of the rotator and acromion muscles and consists of the slow arm abduction. The test is considered positive if the patient accuses pain between 70 and 120º, the Hawkins test - is considered positive if the patient accuses pain caused by the conflict between the tendon of the supraspinous muscle and the coracoid acromial ligament, and it consists of placing the side examiner on the patient, of shoulder blade immobilization, of positioning the arm under investigation in abduction, flexion at 90º and internal rotation, and then of the performance of the horizontal flexion simultaneously with rotation emphasis, the Jobe test – is performed with the patient's arm positioned at 90º abduction in scapular plan, internal rotation (the thumb is oriented towards the floor). The patient is asked to resist the force of the examiner's hand, and it is considered positive if the patient cannot resist. This test appraises the integrity of the supraspinous muscle), the Evaluation of the global functional mobility coefficient as well as the specific kinesitherapy intervention program. 2 female patients diagnosed with left-hand PSH, blocked shoulder and right-hand PSH, simple painful shoulder were followed-up, (Balint T colab., 2007, Cordun M, 1999, Cordun M, 2009, Sidenco E-L, 2002).

The goals of the individual kinetic program were to fight the pain: through anakinetic techniques (in acute attack), postures and short-term immobilizations; restoration of the shoulder's mobility through various types of exercises: passive, active and active with resistance; muscle reinforcement; restoration of the shoulder's force and stability, through exercises with resistance; reintegration in the social activity.

The basic law of the physical exercise prescription at the elders is to adjust the exercises from an individual to another, depending on the clinical functional capacity.

The development of the elders kinetic program shall consider a few recommendations: the effort shall be performed progressively for a step-by-step and appropriate body adjustment to effort; the pulse and blood pressure shall be checked during the sessions; the regular duration of the effort in a session shall be equal to 20 to 30 minutes; short breaks equal to the effort are preferred; an inverse ratio between the effort intensity and duration shall be maintained, and the rhythm shall be daily or every 3 to 4 times a week; dynamic exercises with resilience are unadvisable; the isometric exercises with negative impact on the blood pressure and completely counterindicated to those suffering from ischemic cardiopathy, anaemia, respiratory and cardiac insufficiency shall be avoided; in such cases, the activity of occupational therapy that exercises usual activities is recommended; in order to rebuild the movement depth, sudden stretching and brutal mobilizations should be avoided, for due to the scarce elasticity and low tissue fragility may lead to ruptures of the connective tissue; the pain threshold shall not be crossed with the elders because there is a risk of fracture on osteoporosis background; the start-up positions of the exercises shall be as stable as possible due to balance trouble of the elder people; the exercises with the trunk reclined, the extreme head positions (in particular, in extension), the sudden head movements to avoid brain circulatory disturbance shall be avoided; lifting heavy weights and making sudden position changes shall be avoided; the tiredness installation requires effort stoppage; the exercises should be accessible to the patient's performance capacity; it should achieve appropriate cooperation between the patient and the cinesitherapist, as to avoid the patient's refusal to participate (Ochiană & Cristuță, 2013).

The scope of the research was to check the role of the specific cinesitherapy means in the treatment of the rheumatoid shoulder of third aged individuals and the hypotheses developed based on the results obtained, to contribute at the improvement of the recovery process, in the meaning of reduction of the recovery time and increase of its efficiency and, why not, to discover new recovery procedures.

The research methods included: the method of the bibliographical study, the test

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method, the statistical mathematical method and the graphical method, (Ababei, 2006).

Results

Table nos. 1, 2, 3, and 4, include the initial and final values of arthric and muscle report on all movement segments, specific functional tests at the shoulder's level, as well as the evaluation of the global functional mobility coefficient.

Following the tests performed before and after the intervention, the results were the following:

In accordance with the results analyzed within the **arthric report** the following may be observed: the patient **A.A.** initially shows 110° flexion, 20° extension, 80° abduction-adduction, 60° internal rotation, 40° external rotation, and, at the end of the intervention period, the patient recorded 170° flexion, 40° extension, 160° abduction - adduction, 75° internal rotation, 60° external rotation (the flexion has increased by 60°, the extension by 20°, the abduction - adduction by 80°, the internal rotation by 15°, and the external rotation by 20°);the patient **D.E.** initially shows 30° flexion, 20° extension, 10° abduction - adduction, 30° internal rotation, 25° external rotation, and, at the end of the intervention period, the patient recorded 50° flexion, 40° extension, 40° abduction - adduction, 40° internal rotation, 35° external rotation (the flexion has increased by 20°, the extension by 20°, the abduction - adduction by 30°, the internal rotation by 10°, and the external rotation by 10°).

In accordance with the results analyzed within the **muscle report** the following may be observed: the patient **A.A.** initially shows F3 muscle force on flexion, F3+ extension, F3 -- abduction, F3 adduction, F4 internal rotation, F4 external rotation, and, at the end of the intervention period, the patient recorded F5 muscle force on flexion, F5 extension, F5-- abduction, F5 adduction, F4++ internal rotation, F5 external rotation, noticing an improvement; the patient **D.E.** initially shows F3 muscle force on flexion, F2 extension, F3-- abduction, F3-- adduction, F2 internal rotation, F2 external rotation, and, at the end of the intervention period, the patient recorded F3 muscle force on flexion, F3++ extension, F4 abduction, F4 adduction, F4 internal rotation, F4 external rotation, noticing an improvement.

In accordance with the results analyzed within the **specific functional tests at the shoulder's level** (table 4) the following may be observed:

Submitted to the **Neer** test, that tests an overuse-type trauma at the supraspinous level, the patient **A.A.,** according to table no. 3, recorded following the initial evaluation the positive value (+), and, following the final evaluation, the negative value (-), and the patient **D.E.,** according to the table no. 3, recorded following the initial evaluation the positive value (+), and, following the final evaluation, the negative value (-);

Table no. 1 **Arthricreport on all movement segments**

Patient		Flexion	Extension	Abduction	Adduction	Internal rotation	External rotation
A.A.	**T.I.**	110°	20°	80°	80°	60°	40°
	T.F.	170°	40°	160°	160°	75°	60°
D.E.	**T.I.**	30°	20°	10°	10°	30°	25°
	T.F.	50°	40°	40°	40°	40°	35°

Table no. 2 **Muscle report on all movement segments**

Patient		Flexion	Extension	Abduction	Adduction	Internal rotation	External rotation
A.A.	**T.I.**	F3	F3+	F3 - -	F3 +	F4-	F4
	T.F.	F5	F5	F5- -	F5	F4++	F5
D.E.	**T.I.**	F2 ++	F2	F3 --	F3--	F2+	F2+
	T.F.	F3	F3++	F4	F4	F4	F4

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Table no. 3 **Specific functional tests at the shoulder's level**

Patient		Neer test	Painful arch test	Hawkins test	Jobe test
A.A.	**T.I.**	+	+	+	+
	T.F.	-	-	-	-
D.E.	**T.I.**	+	+	+	+
	T.F.	-	-	-	-

Table no. 4 **Evaluation of the global functional mobility coefficient**

No.	First name and forename of the patients	Movement	Functional deficiency		Elementary functional coefficient		Global functional coefficient	
			T.I.	T.F.	T.I.	T.F.	T.I.	T.F.
1.	**A.A.**	Flexion	8%	0%	40%	48%	72,5% C.F.E.	95% C.F.E.
		Abduction	11%	2%	20,5%	29,5%		
		R.I. R.E. E.	8,5%	3%	12%	17,5%	27,5% D.F.	5% D.F.
2.	**D.E.**	Flexion	36%	28%	12%	20%	22,5% C.F.E.	43,5% C.F.E.
		Abduction	28,5 %	19,5%	3%	12%		
		R.I. R.E. E.	13%	9%	7,5%	11,5%	77,5% D.F.	56,5% D.F.

Submitted to the **painful arch test,** that identifies the conflict between the tendons of the cap and acromion muscles and consists of slow arm abduction, the patient **A.A.,** according to table no. 3, recorded, following the initial evaluation, the positive value (+), and, following the final evaluation, the negative value (-), and the patient **D.E.,** according to table no. 3, recorded, following the initial evaluation, the positive value (+), and, following the final evaluation, the negative value (-);

Submitted to the **Hawkins** test, that verifies the conflict between the supraspinous muscle tendon and the coracoid acromial ligament, the patient **A.A.,** according to table no. 3, recorded, following the initial evaluation, the positive value (+), and, following the final evaluation, the negative value (-), and the patient **D.E.,** according to table no. 3, recorded, following the initial evaluation, the positive value (+), and, following the final evaluation, the negative value (-);

Submitted to the **Jobe test,** that verifies the integrity of the supraspinous muscle, the patient **A.A.,** according to table no. 3, recorded, following the initial evaluation, the positive value (+), and, following the final evaluation, the negative value (-), and the patient **D.E.,** according to table no. 3, recorded, following the initial evaluation, the positive value (+), and, following the final evaluation, the negative value (-);

According to the results analyzed within the **evaluation of the global functional mobility coefficient** (table no. 4), the following may be observed:

For the patient **A.A.:** as a result of the functional deficiency evaluation the initial values of 8% flexion,11% abduction, internal rotation, external rotation and 8,5% extension were obtained. At the final test the patient recorded 0% on flexion, 2% abduction, on internal rotation, external rotation, and 3% extension, with a difference of 8% flexion, 9% abduction and internal rotation, external rotation, and 5,5% for extension;as a result of evaluation of the elementary functional coefficient, the initial values of 40% flexion, 20,5% abduction, on internal rotation, external rotation, and 12%extension were obtained. At the final test the patient recorded 48% on flexion, 29,5% abduction, on internal rotation, external rotation and 17,5% extension, with a difference of 8% flexion, 9% abduction and on internal rotation, external rotation and 5,5% on extension; regarding the global functional coefficient, the initial values of 27,5% functional deficiency and 72,5% elementary functional coefficient were obtained. At the final test, the values of 5% functional deficiency, and 95% elementary functional coefficient were obtained, with a difference of 22,5% functional deficiency as well as for the elementary functional coefficient.

For the patient **D.E.:** following the evaluation of the functional deficiency, the initial

values of 36% on flexion, 28,5% abduction, on internal rotation, external rotation and 13% extension were obtained. At the final test, the values of 28% on flexion, 19,5% abduction, on internal rotation, external rotation, and 9% extension were obtained, with a difference of 8% flexion, 9% abduction and on internal rotation, external rotation and 4% extension; following the evaluation of the elementary functional coefficient, the initial values of 12% flexion, 3% abduction, on internal rotation, external rotation and 7,5% extension were obtained. At the final test, the values of 20% on flexion, 12% abduction, on internal rotation, external rotation and 11,5% extension were obtained, with a difference of 8% flexion, 9% abduction and on internal rotation, external rotation and 4% extension; regarding the global functional coefficient the initial values of 77,5% functional deficiency and 22,5% elementary functional coefficient were obtained. At the final test, the values of 56,5% functional deficiency and 43,5% elementary functional coefficient were obtained, with a difference of 21% functional deficiency as well as for the elementary functional coefficient.

Discussion

Hurjui, 2004, considers growing old an unavoidable biochemical transformation, that extends throughout the life and produces structural and functional changes in every organ, including in the muscular osteoarticular system. Most of the population, after turning 60, suffers from degenerative changes of the articulations and backbone.

According to patients, the shoulder pain prevails as 16% to 26%, which takes it to the third place, in terms of primary care, in the top of the most common causes of the medical visit for osteomuscular troubles. Approximately 1% of the adults annually appeal to the services of a general practice physician, due to installation of a first episode of shoulder pain. The semiotics and the disability percentage are affected both by physical factors and by lifting heavy weights, by repeated movements in uncomfortable positions and by vibrations, as well as by psycho-social factors (http://www.bmj.ro/articles/2008/10/27/um%C4%83rul-dureros-diagnostic-%C5%9Fi-management-%C3%AEn-%C3%AEngrijirea-primar%C4%83).

Growing old is characterized by decrease of the physical activity level and increase of the chronic illness frequency, which in most cases lead to a vicious circle, with negative impact on functional skills. The physical activity also represents the best way to stop the vicious circle, positively impacting on the individual's autonomy.

The physical exercise has major influence on the main body systems, fading out the age-induced degenerative processes. The success of growing old is not limited to the absence of getting ill, but is also based on maintaining and improving the functional capacity, the independence.

Conclusions

The aim of the research was to achieve the proposed goals and to check the hypotheses. As a result of the experiment, and after recording all the results obtained following the implementation of the tests as well as following the kinesitherapy sessions performed with the patients, we may conclude that:

- ✓ the evaluation tests have proven their efficacy, and the patient's awareness of the evaluation practices in the beginning of the program ensures the patient's conscious and active participation;
- ✓ following the implementation of the kinesitherapy programs and following the analysis of the results obtained, one may allege that these kinesitherapy programs that are customized based on the pathology of the individual patients may have a beneficial impact and may lead to the significant increase of the functional capacity of the patients, of their personnel satisfaction and, implicitly, to the life quality improvement;
- ✓ following the results obtained, at the initial and final tests of the evaluations regarding the arthric report, the muscle report, the specific functional tests and the evaluation of the global functional mobility coefficient; we may notice their progressiveness, a functionality increase and life quality improvement;
- ✓ we specify that the initially set-up hypotheses were confirmed, and, hence, through implementation of the specific kinesitherapy means in the treatment of the rheumatoid shoulder, there is a contribution to the improvement / increase of the shoulder's functionality, and, as a result of implementation of the specific means in the treatment of the rheumatoid shoulder, we may observe their positive role.

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