

## **KINESITHERAPY AND HEALTH CARE IN PATIENTS WITH ISCHEMIC STROKE TREATED WITH INTRAVENOUS THROMBOLYSIS**

(Research note)

**Mariela Filipova and Daniela Popova**

*SWU „Neofit. Rilski“ Blagoevgrad*

*Department of Kinesitherapy, Blagoevgrad, Bulgaria*

### **Abstract**

*Use of recombinant tissue plasminogen activator administered up to a 3-4.5 hour from the acute condition, combined with an adequate kinesitherapeutic program prevents severe disability in most productive age. Owing of this method and a team of experts, a large percentage of treated patients will be independent and this will have an immediate social impact. The present study was conducted in the period from 2008-2014 at Blagoevgrad's Hospital. Kinesitherapy was conducted in 40 patients (n=40) with ischemic stroke, 10 of which treatment with method of intravenous thrombolysis – an experimental group (EG). The average age of the study was 65.70 (standard deviation, 8,18, coefficient of variation – 12.45%) 7-70% – men , 3-30% – women. Activities are conducted daily, 2 times a day, procedure of 20-45 min., depending on the general state of the patient. There were regular and standard care. A diet was recommended, consistent with the main and accompanying diseases. Detailed studies have been made on the day of admission, the 5th, 7th day and on the day of hospital discharge. Studies were conducted in the 30th, 60th and 90th day and after a year.*

**Keywords:** *functional status testing, kinesitherapy, ischemic stroke, thrombolysis*

### **INTRODUCTION**

Kinesitherapy is a major part of the patient recovers. It defines the functional potential program, tools, methods and manner of application, saves the patient from severe disability in productive age and provides independence and disengagement from the relatives of the patient.

### **Methods for assessing the functional status of patients:**

1. Anamnesis;
2. Medical examination and analysis;
3. Mingatsini – Shtrumpel test – functional test to determine the severity of the functional potential;
4. NIHSS scale functional test to assess the severity of functional potential and mental status changes (National Institute of Health stroke scale);
5. Test Ashworth – establishment of muscle tone;
6. Test for signs of „crossed legs“;
7. Barthel Index test for global movements testing activities of daily living;
8. Fim test-a test for global movements;
9. Michels method – the ability to perform active movements;
10. Examination of sensation;
11. Study of coordination :
  - Knee-stage sample

- Naso index test

12. Examination of gait;

13. Manual muscle testing examination of facial muscles in damage to the cranial nerve – VII

Kinesitherapy begins in the subacute stage of the disease (2-3 days) . The hospital stay is 7-10 days of onset. Expected recovery *after 48th hour*. Restoration of patients with standard therapy and kinesitherapy standart program. lasts from 12-16 months.

Purpose of kinesitherapy: Rapid recovery of the patient, without residual focal neurologic symptoms or mild neurological deficits.

### **Tasks of kinesitherapy II-V day:**

1. Save passive joint amplitudes of the affected limbs.
2. Stimulation and fixing normal synkinetic scheme.
3. Volitional control.
4. Prevention of complications of respiratory (bronchopneumonia).
5. Prevention of thrombophlebitis.
6. Improve coordination.
7. Training in sitting and walking on flat terrain with help.
8. Training in self-service.
9. Coaching distal prehensile function of the hand.

**Kinesitherapy:**

1. Treatment by position;
  2. Corrective postures Bobath;
  3. Massage;
  4. Kinesiotaping in m.deltoides, on the muscles controlled by the n.facialis's lower branch;
  5. Mobilization of the shoulder joint;
  6. Passive exercises in the shoulder joint;
  7. Breathing exercises;
  8. Active movements of relief starting position;
  9. Method of Kabat;
  10. Static active exercises;
  11. Active exercises for upper and lower extremities;
  12. Mobilization of wrist – helps to increase extension in the wrist;
  13. Methodology for Brunnstrom;
  14. Verticalization;
  15. Mirror therapy;
  16. Exercises for fine hand movements to restore sensation to the hand – method of Perfeti.
- A different types of grips usage;
17. Facebuilding exercises – mainly lower branch of n.facialis. Kinesio taping can be applied in the same area;
  18. Exercises for healthy limbs;
  19. Exercises for coordination in seating position;
  20. Locomotor exercise. Training in walking on flat terrain with a mobile penetration;
  21. Training activities of daily living.

**RESULTS AND DISCUSSION**

Expected outcomes for patients treated by thrombolysis in the first hours of a dose, and kinesitherapeutic program starts aggressively on the second day. About 3 – 6 months the patients remain without persistent focal symptoms and disorders without focus and aphasia. In our program a rapid progress by the motor deficit has been achieved. On the third day of the acute condition to increase the density of the procedure and reduce the preparatory and final part, dominated by special exercises and elements of standard methodologies. Each procedure requires the active participation of the patient and proper execution of the exercises. In this period, learning activities of daily living exercises for upper and lower extremities are realized, which was subsequently supported locomotion, toward daily living and restoration of functional independence of the patient. Trained patient alone to conduct some exercises with support from the healthy limb, exercise for the healthy limb to avoid apraxia. There are breathing exercises, idiomotor exercises (mirror therapy) to support brain plasticity. Some of the exercises have made with a kinesio tape on the injured limb, whereby the skin rises above the muscle and tendon and creates additional interspace and facilitates lymphatic drainage and maintain the damaged area. Coordination exercises: the patient is trained in

proper walking. On taking up his starting position and execution of exercises, adjusting the proper execution of the exercises. The final part is performed breathing exercises to avoid hypoxia.

After analyzing the results of the research there is a significant improvement in motor deficit (muscle strength, muscle tone, coordination and activities of daily life) patients in the EG and KG 1 and degradation of performance was observed. Highest percentage recovery are achieved in patients with rt-PA. Most of patients in which we applied our specialized methods of physical therapy for the prevention and treatment of complications, have improved motor deficits at hospital discharge and follow-up of third, sixth, ninth month and 1 year. Statistically significant positive change we reported in EG and KG 1 at hospital discharge.

In EG achieved results visible recovery in the first days after intravenous thrombolysis and minimal complications.

The proven effectiveness of the applied our methodology allows us to recommend its application in a hospital setting in the acute period of the disease, and the application in an outpatient setting.

**CONCLUSION**

Venous thrombolysis is important for the rapid recovery of the patient. Early and aggressive use of the method has a good effect on the recovery of motor deficit and global opportunities for the patient in activities of daily living, which makes it independent and promotes more rapid socialization.

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Correspondence:

Mariela Filipova, Ph.d student  
SWU "Neofit Rilski" Blagoevgrad  
Department of „Kinesitherapy”  
66 Ivan Mihailov str., 2700 Blagoevgrad, Bulgaria  
E-mail mariela\_redm@yahoo.com