

## **THROMBOLYSIS AT KINESITHERAPY**

*(Professional paper)*

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### **Abstract**

*Thrombolysis is a great innovation in the treatment of ischemic stroke. The use of recombinant activator administered within the first three up to 4.5 hours from the acute condition, combined with adequate physiotherapy program solves the most important problem of the patient - disability in productive age. Owing to this method and the team of specialists, a large percentage of treated patients will be independent which will have an immediate social impact.*

**Keyword:** *physical therapy, ischemic stroke, physiotherapy program, physiotherapy and neurological tests, functional status of patients*

### **INTRODUCTION**

Stroke is a disease characterized by medico-social and economic importance, causing severe disability in the most productive age and often death. Bulgaria occupies leading positions in the number of brain events. Despite the high morbidity a very small number of patients in Bulgaria are treated with thrombolysis. For the implementation of thrombolysis team-resuscitator, doctors – specialists, neurologist and radiologist trained medical staff and physiotherapists should be trained. At the time of admission the patient is scored on the NIHSS scale (showing motor deficits) and Glasgow-Liege scale (degree of marred conscious). The physiotherapist gives points for the condition of the patient on the Barthelindex and Rankin scale.

Ischemic stroke is a disease characterized by acute ischemic attack with partial seizures (motor deficits, speech disorders, disorders of cranial nerves) and brain events (change of the consciousness).

The clinical picture depends on the arterial pool, which is developing an ischemic process.

*Etiology:* higher levels of blood pressure over 140/90, heart disease (arrhythmias, heart disease), diabetes, blood disorders, (anemia), hypercholesterolemia, atheromatous plaques in blood vessels (atherosclerosis), smoking, use of contraceptives during the menopause, AIDS, crapolence.

The treatment with thrombolysis is one of the latest treatments in Neurology. It was used for the first time in Bulgaria in 2005 in the town of Plovdiv.

The active substance is *alteplase* (recombinant tissue plasminogen activator) that refers to a group of

medicines called thrombolytic agents. It is a product of genetic engineering and used to dissolve the clots. The introduction of the preparation must be done by the third hour (therapeutic window, etc.) of an acute vascular accident. It is used for the treatment of acute ischemic stroke, and cardiac events, pulmonary embolism.

Within the second hour a brain CT or MRI must be done. Within the 3-4.5 hours the substance is added. Initial dose is made in a short time. The substance is administered i.v.-intravenous infusion syringe pump in one hour to an individually adjusted dose.

This is valid for patients between the ages of 18 - 75; however, it cannot be applied to of counter-experienced patients with invasive procedures (stent), pregnancy, subarachnoid hemorrhage, severe hypertensives.

Physiotherapy is a major part of the patient's recovery. It defines the functional potential, the program, the funding, the methods and mode of administration.

It saves the patient from severe disability in their productive age. It ensures the patient's independence and does not require efforts on behalf of their relatives.

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

*Standard physiotherapy and neurological tests:*

1. Examination of motor deficits:
  - Mingatsini-Shtryumpel Test
  - Establishment of muscle tone (Ashworth test)
  - NIHSS scale (recommended by the World Stroke Organisation-WSO)
  - Mishel's metod - 6 point scale

2. Examination of coordination
  - Knee-stage sample
  - Naso index test
3. Recovery of global motion-testing activities of daily living
  - Devetakov's test
  - Barthel index (recommended by the World Stroke Organisation-WSO)
  - FIM test
4. Study of sensitivity:
  - Sense of touch
  - Join-muscle sense
5. Study of aphasia
6. Examination of gait

#### Specialized neurological tests:

1. CT of the brain revealed hypodense-focus.
2. MRI - brain infarcts in the gray and white matter.

3. Doppler sonography, variable degrees stenoses, restorations and changes in the extracranial cerebral vessels.

#### Therapy

The physiotherapy begins in the subacute stage of the disease (the second or the third day). The hospital stay is 7 – 10 days from onset of illness.

Patient recovery lasts from 12 to 16 months with standard therapy and standard physiotherapy program.

#### RESULTS

The expected outcomes for patients treated with thrombolysis in the first hours after the dose, and physiotherapy program starts aggressively on the second day. From the 3rd to the 6<sup>th</sup> month, the patients remain without persistent focal symptoms and disorders without focus and aphasia.

*Purpose, objectives and resources:* quick recovery of patients without residual neurological symptoms or mild focal neurological deficit.

1. The use of the methodology with early initiation physiotherapy program (two days after the

acute process) quickly affects the general condition of the patients.

2. Motor deficits reduces quickly leaving no focal neurological symptoms or it is weak, which has a social and future professional relevance to the patient.

3. Early initiation of physical therapy leads to a rapid recovery of the global mobility schemes.

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