

## PHYSIOTHERAPY AND OCCUPATIONAL THERAPY IN PATIENTS WITH STROKE

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### Abstract

The aim of this study was to evaluate the questionnaire of Functional Independence Measure (FIM) and Barthel test (BT) in 148 patients with stroke with impairment of motor and cognitive functions before and after three months of physiotherapy and combination of physiotherapy and occupational therapy.

Methods: We examined 148 patients with stroke by means of the FIM questionnaire and the Barthel test.

Results and conclusion: We have found an improvement of the functional state in our patients after physiotherapy and combination of physiotherapy and occupational therapy.

### Key words

Stroke, Physiotherapy, Occupational therapy, Functional independence measure

### INTRODUCTION

Strokes (CMP) are the third most frequent cause of death. Improved quality of medical care in the acute phase of CMP reduced mortality and extended life of disabled persons; however, many surviving patients are afflicted with serious residual functional deficit in the field of motor and cognitive functions. These patients then require considerable economic costs for further treatment and the subsequent long-term care.

After CMP the differential movement ability of the hand can be lost and overlooked, and uncorrected disorders can then be the cause of the resulting ineptitude of the patient in usual handling activities. Many people after CMP live with a substantial sensomotor disability of the upper limb worsening considerably the level of their functional independence. This disability can be frustrating for them; it can increase the risks of their impairment and bring about worse social contacts.

That is why the early starting of comprehensive rehabilitation that should be able to prevent the origin or at least reduce the measure of various types of disabilities is very important. Occupational therapy (ET), which is dominant in helping to restore personal independence in daily life activities, is an integral part of comprehensive rehabilitation. The results of various studies show that patients who went through ET have a higher degree of independence in daily life activities than patients without ET (1, 7, 8, 14).

#### AIM OF THE STUDY

The aim of our study was to evaluate the results of subsequent rehabilitation in 148 patients with diagnosis I60–I69, general affection of central nervous system on the basis of vascular disease with motor activity and cognitive functions disorder, divided into the group attending only physiotherapy, and into the group going through a combination of physiotherapy and occupational therapy, and evaluation of independence measure in basic daily activities by means of the test of functional examination (Functional Independence Measure, FIM test) and Barthel test (BT).

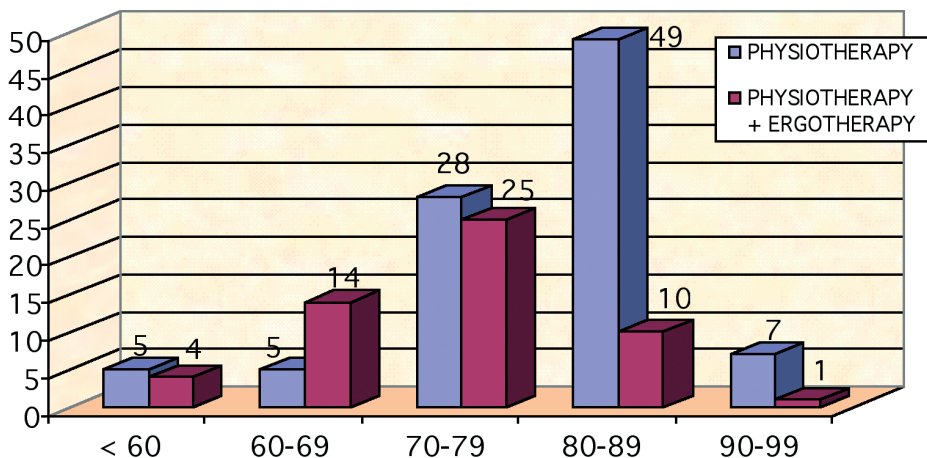
#### GROUP OF EXAMINED PATIENTS

In 2007, 174 patients with diagnosis I 60 – 69, CNS affection on the basis of vascular disease with motor activity disorder, were hospitalised in the post-treatment and rehabilitation ward in our hospital.

89 of them were discharged to home care .....	51%
59 of them were discharged to social service institutions .....	34 %
12 of them were moved back to emergency ward .....	7 %
14 of them died .....	8 %

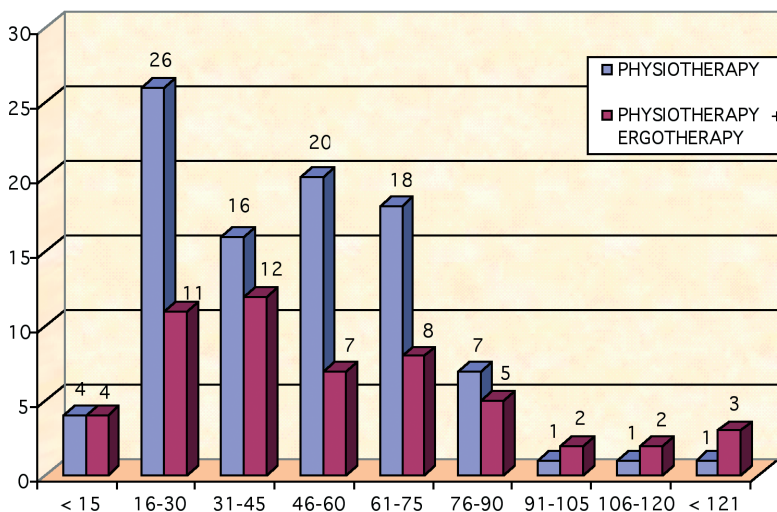
The FIM test and BT were evaluated in a group of 148 patients from the total number of 174, who completed the rehabilitation and occupational therapy program and were discharged to home care or to institutions for social services, separately in a group of 94 patients for whom only physiotherapy was prescribed, and in 54 patients who went through both physiotherapy and occupational therapy.

The average age of the patients for whom only physiotherapy was prescribed was 79 years, and the average age of the patients who went also through occupational therapy was 72 years. The age distribution of the patients in both groups can be seen in *Graph 1*.



*Graph 1*  
Age distribution of all 148 patients with CMP

The duration of rehabilitation in our ward was 49 days on average; in the group of patients for whom only physiotherapy was prescribed it was 47 days on average, and in the patients for whom also occupational therapy was prescribed it was 54 days on average. The intensity of rehabilitation was 1 hour of individual physiotherapy and half an hour of occupational therapy for 5 days in a week.



*Graph 2*  
Duration of hospitalisation in patients with CMP

## METHODOLOGY

For evaluation of functional fitness of the patients we used the test of Functional Independence Measure (FIM test) and the Barthel test, evaluating independence in basic everyday activities and thus suitable for monitoring progress of the treatment.

The FIM test, or measurement of functional independence, evaluates 18 activities in 6 categories: 1. Self-attendance, 2. Control of sphincters, 3. Displacements, 4. Mobility, 5. Communication, 6. Social abilities. Each item has a scale consisting of seven points, where 1 point means full assistance and 7 points full independence. The total score can be 18–126 points (2, 5, 6, 9, 11, 14).

The Barthel test, a test of basic everyday activities, evaluates 10 activities: 1. Eating, drinking, 2. Dressing, 3. Taking a bath, 4. Personal hygiene, 5. Continence of defecation, 6. Continence of urination, 7. Using WC, 8. Displacement from the bed to the chair, 9. Walking on even ground, 10. Climbing stairs. Individual items are evaluated mainly in three degrees of dependence: does not accomplish (0), accomplishes with assistance (5), and accomplishes independently without assistance (10). The total score can be therefore 0 – 100 points (2, 3, 4, 6, 13, 15).

As the Barthel test does not contain evaluation of cognitive components, we used only the corresponding items of evaluation of the motoric score of the FIM test to compare the results with the FIM test.

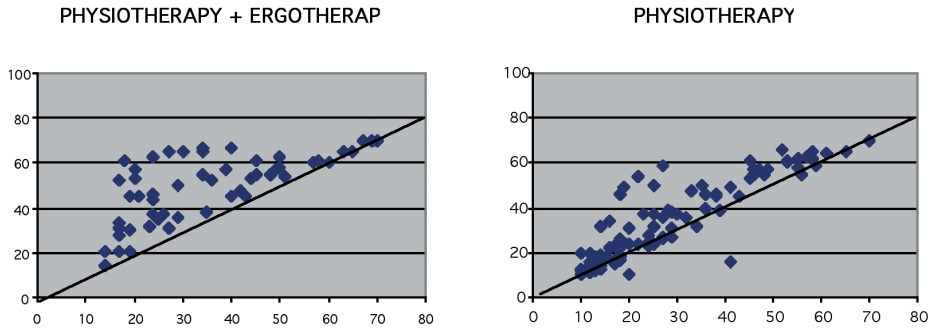
## RESULTS

We compared the results of the motoric score of the FIM test and the results of the Barthel test at the beginning of rehabilitation and on discharge in the group of 94 patients for whom only physiotherapy was prescribed, and in the group of 54 patients who went through both physiotherapy and occupational therapy (ET).

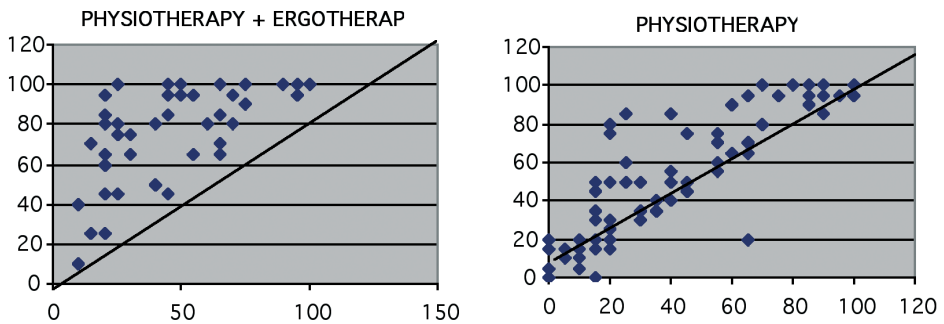
Groups	FIM input	FIM output	Barthel input	Barthel output
Patients with physiotherapy	28±16	34±19**	37±30	47±33**
Patients with physiotherapy and ET	35±16	49±15**	49±27	74±24**

\*\*  $p < 0.0001$

For evaluation of the functional state of the input and output parameters of both tests we used a Wilcoxon paired test, and the results showed a statistically significant improvement of the function at the level  $p < 0.0001$  in both functional tests in all groups.



*Graph 3*  
Results of functional state (FIM test) before and after 3-month rehabilitation in both groups of patients with CMP



*Graph 4*  
Results of functional state (BT) before and after 3-month rehabilitation in both groups of patients with CMP

## DISCUSSION

Functional disorders accompanying CMP are often a serious complication for senior patients. The conclusions of our tests, however, confirm the assumption that age is not a factor excluding in advance senior patients from the rehabilitation program and that also elderly people are able to improve their physical functions, which leads to improvement of their quality of life and reduces social and economic impacts on the society.

The results measured show that a long-term rehabilitation of patients with CMP connected with occupational therapy brings about a substantial improvement of their independence in basic daily activities. With regard to the increasing number of elderly people in the population, connected with a high number of disabilities and polymorbidities, the utmost necessity of prevention and rehabilitation programs directed at this very segment of our population is more and more noticeable (7, 10, 12, 15).

On the basis of functional tests (BT and FIM test) we have proved the effectiveness of rehabilitation in patients after CMP. Rehabilitation and occupational therapy are indicated in all patients, regardless of their age and the measure of functional impairment.

## CONCLUSION

The results of the test of functional examination after the subsequent rehabilitation of 148 patients with the diagnosis of general affection of the central nervous system on the basis of vascular disease with motor activity and cognitive functions disorder, divided into a group attending only physiotherapy and into a group going through the combination of physiotherapy and occupational therapy, showed improvement of both groups of patients in basic daily activities.

## A c k n o w l e d g e m e n t

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