FUNCTIONAL EVALUATION OF PHYSIOTHERAPY IN PATIENTS AFTER STROKE LASTING THREE MONTHS

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A b s t r a c t

The aim of this study was to evaluate the questionnaire Functional Impairment Measure (FIM) and the Barthel test in patients after stroke before and after three months of rehabilitation and ergotherapy. We examined 65 patients after stroke with the FIM questionnaire and Barthel test. After three months of rehabilitation and ergotherapy using FIM and Barthel test, we have found improvement of functional state in patients after stroke. Rehabilitation and ergotherapy is indicated in all patients with stroke without regard to functional state.

K e y   w o r d s

Stroke, Quality of life, Rehabilitation, Functional impairment measurement

INTRODUCTION

At present there are living in the Czech Republic almost 1.4 million citizens at the age of 65 years and older than 65 years (i.e. 13.6 % citizens of the Czech Republic). More than 18 % of the citizens are older than 60 years and 2.5 % of them are older than 80 years. Among the causes of morbidity in old age, cardiovascular system diseases are number one, whereas strokes are the third most frequent cause of death. In our country there is still one of the highest numbers of strokes in the world. The annual incidence of ischaemic ictus is in the range of 550 – 570/100 000 citizens in our country, the annual ischaemic ictus mortality is 70 – 80/100 000 citizens. With regard to the fact that the phenomenon "ageing of old population" appears in all EU countries and that atherosclerosis is present in 90 % people over 75 years of age, further considerable increase of these figures can be expected (*1,8,11,13*).

AIM OF THE STUDY

The aim of our study was to evaluate the results of subsequent physiotherapy and ergotherapy in 65 patients with diagnosis I60 – I69, in general affection of the

central nervous system on the basis of vascular disease with motor activity disorders and cognitive functions, and evaluation of the independence measure in basic daily activities by means of a test of functional examination (Functional Impairment Measure, FIM) and Barthel test (BT).

METHODS

In 2005 we had 1064 treated 205 patients who were hospitalised at the unit of long-term physiotherapy. These patients with diagnosis I 60 – 69 had CNS affection on the basis of vascular disease with motor activity disorders. Individual physiotherapy and ergotherapy was prescribed to these patients.

After three months of therapy, the patients were discharged:
43 of them were discharged to home care .... 62 %
22 of them were discharged to social service institutions .... 31 %
5 of them were transferred to emergency wards .... 7 %

The FIM test and BT were evaluated in 65 patients from the total number of 70, who completed physiotherapy and ergotherapy and were discharged to home care or to institutions for social services. In five patients who were moved to emergency wards these programs were not finished, and that is why this group was excluded from further processing.

The average age of these patients was 71 years and the median age was 74 years. The average age of the patients discharged to home care was 72 years and that of the patients discharged to social service institutions was 68 years. The age distribution of all 65 patients can be seen in *Fig. 1*.
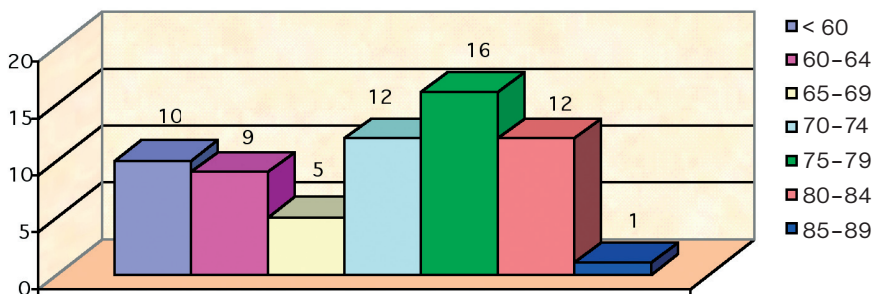
Fig. 1
The age distribution of 65 patients with stroke
The duration of physiotherapy and ergotherapy in our ward was 56 days on average, the intensity of rehabilitation was 1 hour of individual physiotherapy and half an hour of ergotherapy 5 days a week.
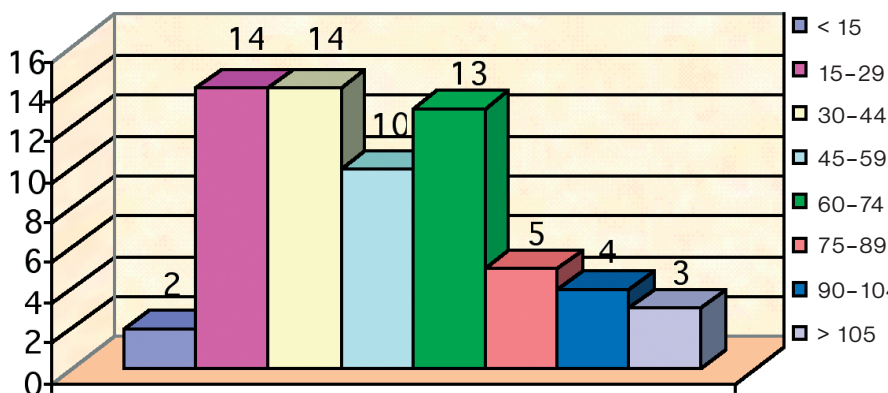
Fig. 2
Duration of hospitalisation in patients with stroke

For our purposes we used the FIM test and the Barthel test evaluating independence in basic everyday activities; these tests are therefore suitable for monitoring progress of treatment and therapeutic procedures.

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 means full assistance and 7 full independence. The total score can be 18 – 126 points (*2,5,6,7,10*).

The Barthel test – test of basic everyday activities evaluates 10 activities:
1. Eating, drinking
2. Dressing
3. Taking a bath
4. Personal hygiene
5. Incontinence of defecation
6. Incontinence of urination
7. Ability to use WC
8. Displacement from bed to chair
9. Walking on even ground
10. Climbing stairs

The individual items are evaluated either in three degrees of dependence – does not accomplish (0), accomplishes with assistance (5), and accomplishes independently without assistance (10), or in two degrees of dependence – does not accomplish (0), accomplishes independently or with assistance (5), or in four specific degrees according to circumstances (0,5,10,15). The total score can be therefore 0 – 100 points (*2, 3, 4, 6, 12, 13*).

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

RESULTS

We compared the results of the motor score of the FIM test and the results of the Barthel test at the beginning of rehabilitation and at subsequent discharge in the

whole set of 65 patients, and then separately in a subgroup of 43 patients who were discharged home and 22 patients discharged to social service institutions.

|	FIM input	FIM output	Barthel input	Barthel output
Means of whole set	46±23	58±24**	42±30	55±30**
Discharged home	54±21	67±19*	53±28	67±24*
Discharged to social service institutions	31±17	40±23*	22±22	32±27*

* $p < 0.05$, ** $p < 0.01$

For the evaluation of the functional state of input and output parameters of both tests we used a Wilcoxon paired test and the results showed statistically significant improvement of the function at the level $p < 0.01$ in both functional tests in all groups.

The input and output results of both tests can be seen in *Figs 3 and 4*.
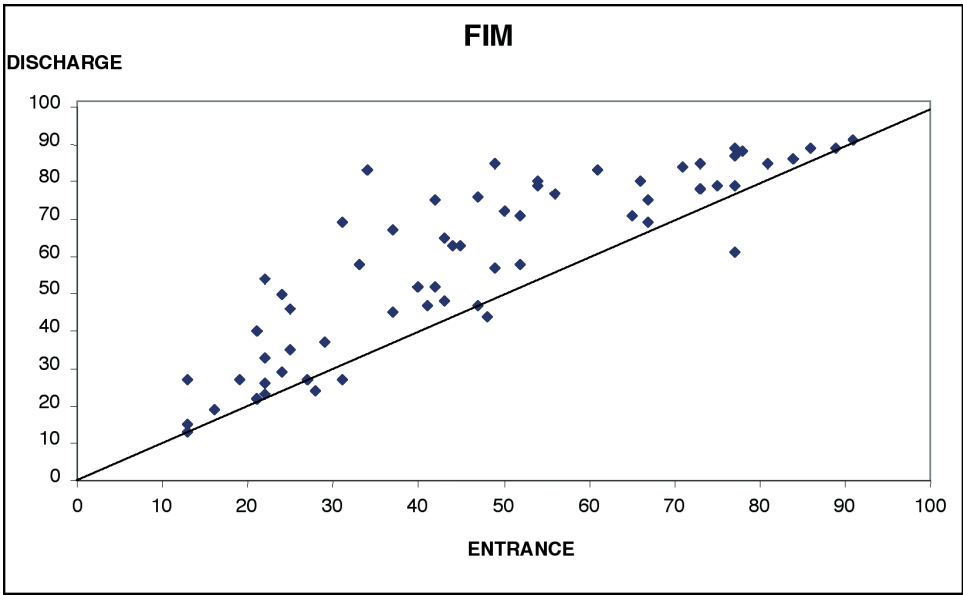
Fig. 3
Results of functional state (FIM test) before and after 3-month rehabilitation of patients with stroke

200
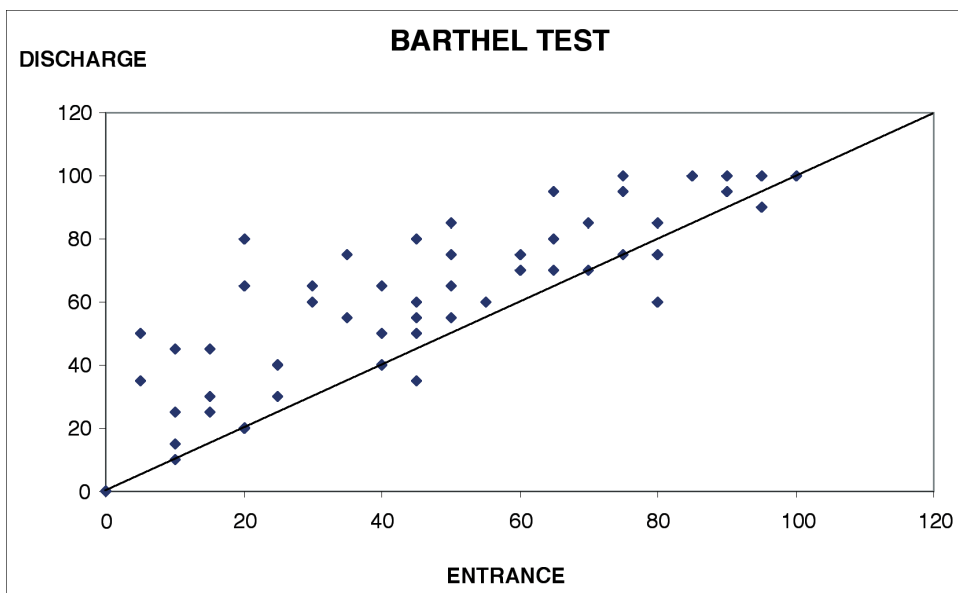
Fig. 4.
Results of functional state (BT) before and after 3-month rehabilitation of patients with stroke

DISCUSSION

The results measured show that a long-term rehabilitation of patients with stroke leads to a substantial improvement of their independence in basic daily activities, which eases their reintegration into normal life. These people can then leave the hospital and go home. If their functional limitation does not allow it and they must go to a social service institution, any improvement of their self-attendance needs the help of the nursing staff.

Expectations after stroke vary. Some patients die in spite of all possible care, the least affected patients return to their original health state in the course of several hours or days. Then, however, there are many patients who will have some subsequent problems. Here different tests of basic everyday activities can be applied in a large extent, both as indicators of the rehabilitation progress and as an advice to a problematic part of self-attendance, necessity of prescribing compensatory aids, or adjustment of the flat (*9,11,13*).

CONCLUSION

By means of functional tests (BT and FIM test) we demonstrated successfulness of three-month rehabilitation in patients after CMP. Physiotherapy and ergotherapy are indicated in all patients, regardless of the measure of functional impairment.

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