

## Evaluation of activity and effectiveness of occupational therapy in stroke patients at the early stage of rehabilitation

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**Key words:** stroke; rehabilitation; occupational therapy.

**Summary.** In Lithuania, the stroke is not only medical, but social issue as well, since only 20% of patients suffering from stroke remain active at work. Yearly stroke incidence in Lithuania is 7000–8000 cases. The most common outcome of stroke is unilateral paralysis (hemiplegia) followed by disorders of coordination, balance, and movements. Due to dysfunctions of movements, self-care, cognition, behavior, and communication, some part of stroke patients remains disabled. They need assistance and care provided by other people.

Occupational therapy, which is part of rehabilitation of patients after stroke, is directed to independence training. There are scarce data related to effectiveness of occupational therapy depending on motor, cognitive, and psychosocial dysfunctions. Goals of study were to estimate effectiveness of occupational therapy at the early stage of rehabilitation depending on type of stroke, localization of brain injury, grade of lesion, age, and gender, to identify factors influencing effectiveness of occupational therapy, and to estimate their positive predictive value.

The study included 106 patients at the early stage of rehabilitation, who were admitted to Department of Neurorehabilitation after stabilization of clinical condition from Departments of Neurology and Neurosurgery (mean duration of  $14 \pm 2$  days after stroke). The program of occupational therapy was not fulfilled by 6 patients: 2 patients were transferred to Nursing Hospital due to severe condition, and 4 patients were discharged prematurely and continued rehabilitation in outpatient setting. Hence, study population consisted of 100 subjects (47 men and 53 women) who were diagnosed with stroke (ischemic or hemorrhagic). Patient's functional status and disorders of activities were evaluated using Barthel Index and Functional Independence Measure.

Complexes of occupational therapy were adjusted according to examination of patient's disorders of activities, age, grade of lesion, other diseases, and complications during rehabilitation process.

Effectiveness of occupational therapy in patients after stroke at then early stage of rehabilitation was influenced by gender, age, degree of lesion, type of stroke. Better effectiveness of occupational therapy was observed in men ( $P < 0.05$ ), persons younger than 59 years ( $P < 0.05$ ), persons with hemiparesis ( $P < 0.05$ ) and hemorrhagic stroke ( $P < 0.05$ ). Low effectiveness in stroke patients at the early stage of rehabilitation was influenced by neglect ( $P < 0.05$ ), hemiplegia ( $P < 0.001$ ), and older age of patient ( $P < 0.05$ ).

Application of individualized occupational therapy complexes for stroke patients at the early stage of rehabilitation with consideration of motoric and cognitive-psychosocial disorders, significantly improves recovery of impaired functions, though occupational therapy should be continued in later rehabilitation stages, since patients after early stage of rehabilitation still have limited independence in daily activities.

### Introduction

In Lithuania, the stroke is not only medical, but social issue as well, since only 20% of patients suffering from stroke remain active at work (1, 2). Yearly stroke incidence in Lithuania is 7000–8000 cases (3).

The most common outcome of stroke is unilateral paralysis (hemiplegia) followed by disorders of coordination, balance, movements and cognitive disorders. Due to dysfunctions of movements, self-care, cognition, behavior, and communication, some part of

stroke patients remains disabled. They need assistance and care provided by other people (4–7).

Balance dysfunction is one of the key factors putting restriction on possibilities in daily activity of patients after stroke (8). International classification of functioning, disability, and health enables to evaluate dysfunctions of activity and participation in social life of patients with diseases of the circulatory system. There is scientific evidence that patients after stroke most frequently have problems in learning, knowledge application, task performance, information perception and conveyance, speech, balance, ability to use things, mobility, daily activity, and interpersonal relations (6, 9).

The emphasis on the importance of early rehabilitation in stroke patients is put by many scientists in their scientific researches, as it plays a great role in further disease progress as well as it improves the quality of life in future (10–12).

Rehabilitation in multiprofile hospitals is performed by the principle of specialist team of rehabilitation ensuring the required specialist consultation (13). Importance of early rehabilitation in patients after stroke is apparent as it increases the possibility of recovery or compensation of dysfunctions (14). Occupational therapy is applied in rehabilitation of patients after stroke (15).

During rehabilitation, occupational therapy sessions should be applied, since they determine improvement of patient's independence and enable training of work skills. The evaluation of certain occupational therapy methods is an integral part of complex rehabilitation development. There exist several occupational therapy methods and models enabling to adjust motor and cognitive dysfunctions; however, in occupational therapy practice there is still a lack of evidence-based evaluation of factors influencing effectiveness of occupational therapy, and evaluation of cognitive and motoric functions and disorders of activities by stroke patients.

#### *Goals of study:*

1. To estimate effectiveness of occupational therapy at the early stage of rehabilitation, depending on type of stroke, localization of brain injury, grade of lesion, age, and gender;
2. To identify factors influencing effectiveness of occupational therapy and to estimate their positive predictive value.

#### **Material and methods**

*Material.* The study included 106 patients at the early stage of rehabilitation, who were admitted to

Department of Neurorehabilitation after stabilization of clinical condition from Departments of Neurology and Neurosurgery (mean duration of  $14 \pm 2$  days after stroke). The program of occupational therapy was not fulfilled by 6 patients: 2 patients were transferred to Nursing Hospital due to severe condition, and 4 patients were discharged prematurely and continued rehabilitation in outpatient setting. Hence, study population consisted of 100 subjects (47 men and 53 women) who were diagnosed with stroke (ischemic or hemorrhagic).

The program of occupational therapy was composed depending on prevailing disorders of activities and was applied twice a day for 20–40 min. Every patient had 70–76 procedures of occupational therapy in total during rehabilitation. Sessions of occupational therapy included not only patients, but their relatives and other patients as well.

*Methods.* Patient's functional condition and disorders of activities were evaluated using Barthel Index and Functional Independence Measure (FIM). In order to analyze in detail patient's motoric and cognitive dysfunctions, FIM instrument was divided into two subscales: evaluation of motoric and cognitive-psychosocial dysfunctions. Motoric evaluation consisted of eating, personal hygiene, bathing, dressing lower and upper body, toileting, bladder management, bowel management, transfer (bed, chair, wheelchair; toilet, tub, shower), and locomotion (walk, wheelchair, stairs). Evaluation of cognitive and psychosocial dysfunctions included comprehension, expression, social interaction, problem solving, and memory.

The process of occupational therapy was separated in the following parts: selecting of practice model, data collection, data analysis, adjusting of individualized complex of occupational therapy measures, implementation of the complex, and evaluation of effectiveness of occupational therapy.

Complexes of occupational therapy were adjusted according to examination of patient's disorders of activities, age, grade of lesion, other diseases, and complications during rehabilitation process. Those complexes included measures for improvement of daily and work activities, leisure time. Every field of activity had measures for improvement of sensomotoric and cognitive functions, psychosocial condition, depending on patient's disability, emotions and motivation for rehabilitation.

Occupational therapy was applied according to individualized complex of occupational therapy methods (Table 1).

**Table 1. Individualized complex of occupational therapy measures for stroke patients at the early stage of rehabilitation**

| Tasks of occupational therapy<br>(FIM for certain activity < 5 points) | Occupational therapy                                                                                                                                                                                                                                                                                                    |
|------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| I. Training of independent eating                                      | <ol style="list-style-type: none"> <li>1. Choosing and keeping stable posture</li> <li>2. Choosing and adjusting of appropriate splint</li> <li>3. Observation and correction of eating process</li> <li>4. Training of hand movements</li> </ol>                                                                       |
| II. Training of bathing                                                | <ol style="list-style-type: none"> <li>1. Setting posture</li> <li>2. Choosing and adjusting of auxiliary splints</li> <li>3. Training of personal hygiene skills (teeth brush, soap, sponge, comb, mirror, <i>etc.</i>)</li> <li>4. Observation and correction of bathing</li> </ol>                                   |
| III. Training of dressing<br>(upper body and lower body)               | <ol style="list-style-type: none"> <li>1. Choosing and keeping posture</li> <li>2. Setting and adjusting of auxiliary measures</li> <li>3. Training, observation and correction of dressing technique</li> </ol>                                                                                                        |
| IV. Training of transfer<br>(wheelchair, toilet, shower)               | <ol style="list-style-type: none"> <li>1. Training of sitting down</li> <li>2. Training of sitting</li> <li>3. Setting auxiliary measures (<i>e.g.</i> transfer board)</li> <li>4. Training, observation and correction of transfer technique</li> </ol>                                                                |
| V. Training of locomotion<br>(wheelchair)                              | <ol style="list-style-type: none"> <li>1. Choosing and adjusting of wheelchair</li> <li>2. Setting auxiliary measures (additional support, gloves, <i>etc.</i>)</li> <li>3. Training of wheelchair technique</li> <li>4. Observation and correction of wheelchair and maneuvering</li> </ol>                            |
| VI. Training in occupation therapy room                                | <ol style="list-style-type: none"> <li>1. Occupational therapy when arm function is present and hand function is absent</li> <li>2. Occupational therapy when hand flexion function is present and arm function is absent</li> <li>3. Training of fine digital motor</li> <li>4. Betterment of comprehension</li> </ol> |

FIM – Functional Independence Measure.

According to evaluation of disorders of activities by FIM instrument, at baseline (beginning of the early stage of rehabilitation), patients were divided into three groups: 1) motoric function FIM score is 13–52 points (patient needs assistance from other person); 2) 53–65 points (patient needs assistance from other person); and 3) 66–91 points (patient is independent). In the same manner, patients were divided into three groups according to their cognitive-psychosocial functions: 1) cognitive-psychosocial FIM score is 5–19 (patient needs assistance from other person); 2) 20–25 points (patient needs assistance from other person); and 3) 26–35 points (patient is independent). Effectiveness of occupational therapy was evaluated for those groups separately, observing changes from baseline to the end of early stage of rehabilitation. If patient moves from group 1 or group 2 to group 3, he/she shows high effectiveness of occupational therapy, and if patient moves from group 1 to group 2

or leaves in group 2 without change, effectiveness is considered as moderate. Staying from baseline to the end of early stage of rehabilitation in group 1 shows low effectiveness of occupational therapy.

*Statistical analysis.* Statistical analysis of data was performed using standard statistical software – Statistica 5.5 and Excel 2000. Continuous variables were described by mean ( $\bar{x}$ ) and standard deviation (SD). For normal distribution, we used Kolmogorov-Smirnov test. If distribution was normal and sample size was sufficient, means of independent samples were compared using Student's *t* test.

Comparing means of small samples ( $n < 20$ ), non-parametric variables and when non-Gaussian distribution was present, Mann-Whitney U test was used. Comparison of means for related samples included Student's *t* test (normal distribution) or Wilcoxon (nonparametric distribution) dependent sample test.

Comparison of proportions for small samples was

performed using Fisher's exact test.

Relationship between potential risk factor and outcome was established using logistic regression analysis and calculating odds ratio (OR, including 95% confidence interval (CI)). Statistical significance was set at  $P < 0.05$ .

## Results

During early rehabilitation process, BI score increased in men by 35 points and in women by 29 ( $P < 0.001$ ; Fig. 1). The difference between men and women did not reach statistical significance. On the other hand, FIM score increased in men by 46 points on average ( $P < 0.001$ ), and in women by 39 points, and this difference was statistically significant ( $P < 0.05$ ).

BI score among 18–59-year-old stroke patients at the early stage of rehabilitation increased statistically significantly by 34 points ( $P < 0.001$ ) and in the elderly group by 31 points on average. The difference between those two age groups was not statistically significant. Functional condition as measured by FIM instrument increased by 41 points in 18–59-year-old group ( $P < 0.001$ ), while in the elderly group, an increase was 43 points, and this difference was not statistically significant as well.

Patients suffering from ischemic stroke at the beginning of early stage of rehabilitation had an improvement of 33 points as measured by BI ( $P < 0.001$ ), while hemorrhagic stroke patients showed an improvement of 30 points. At the end of early stage of rehabilitation on FIM scale, an improvement in these patient groups was 43 ( $P < 0.001$ ) and 41 points, re-

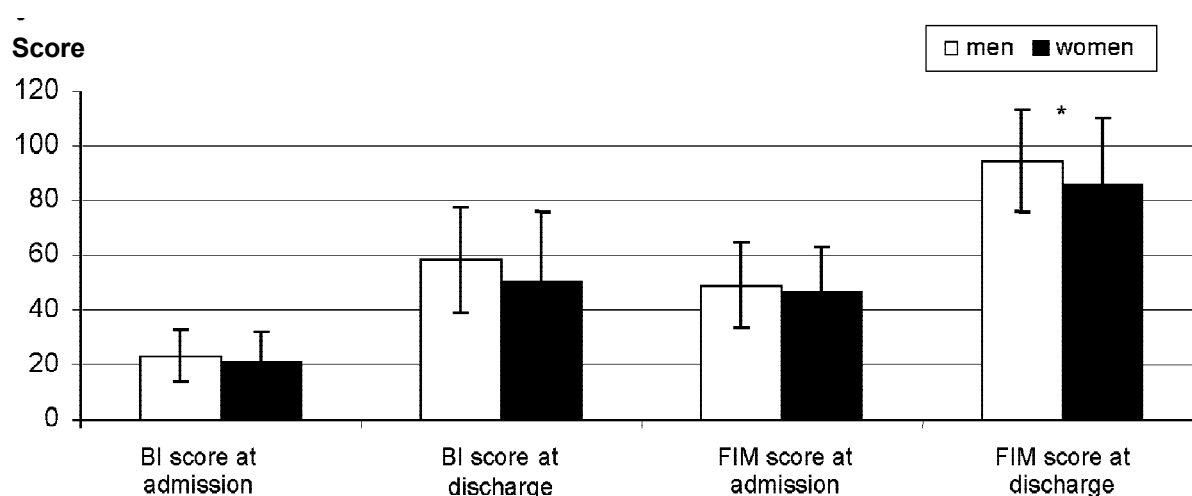
spectively. There were no statistically significant differences in changes of functional status between patients after ischemic and hemorrhagic stroke.

Patients who were diagnosed with hemiplegia during early rehabilitation had an improvement of BI score by 24 points ( $p < 0.001$ ), while in case of hemiparesis improvement was 37 points. Corresponding values on FIM scale were 36 points ( $P < 0.001$ ) and 46 points (Fig. 2). The difference between patients with hemiplegia and hemiparesis was statistically significant ( $P < 0.05$ ), and this is explained by the fact that hemiplegia has influence on patient's functional status through limitation of daily activities.

One of the goals of this study was identification of factors that have influence on effectiveness of occupational therapy and evaluation of their positive predictive value.

On FIM motoric subscale, high effectiveness of occupational therapy was found in 56% of patients; moderate, in 19%; and low effectiveness, in 25% of patients. Cognitive-psychosocial subscale showed high effectiveness for 63% of patients, moderate for 16%, and low for 21% of patients.

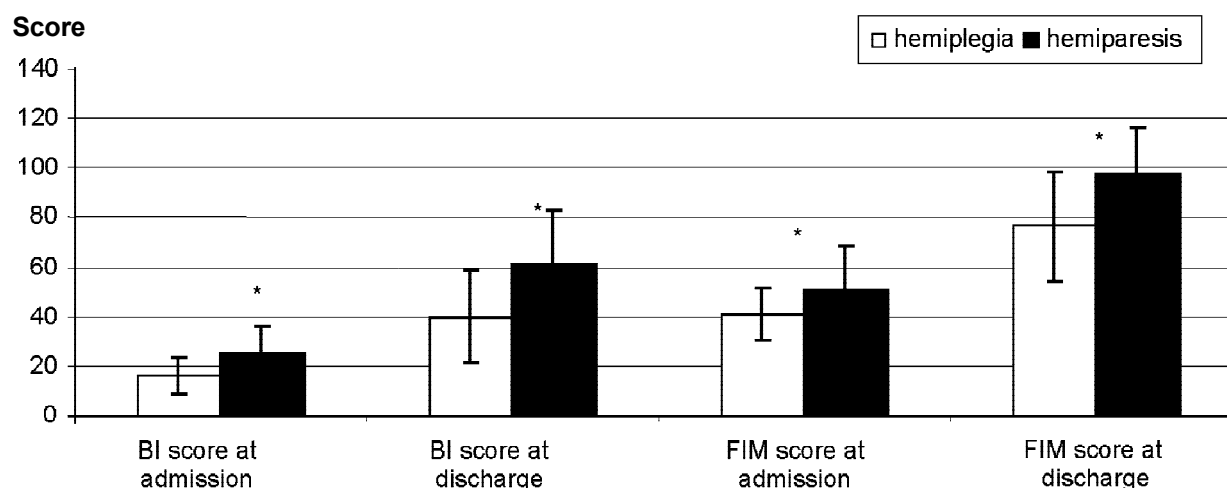
Evaluation of effectiveness of occupational therapy at the early stage of rehabilitation revealed that high effectiveness on FIM motoric subscale was achieved in 63.8% of men and 49% of women. This difference in effectiveness of occupational therapy was statistically significant ( $P < 0.05$ ). Moderate effectiveness was found for 21.3% of men and 17% of women ( $P > 0.05$ ), and low effectiveness of occupational therapy was for 14.9% of men and 34% of women ( $P < 0.05$ ). On cognitive-psychosocial subscale



**Fig. 1. Changes in functional status of stroke patients at the early stage of rehabilitation by gender**

BI – Barthel index; FIM – Functional Independence Measure.

\*Difference is statistically significant ( $P < 0.05$ ).



**Fig. 2. Changes in functional status of stroke patients at the early stage of rehabilitation by grade of lesion**

BI – Barthel index; FIM – Functional Independence Measure.

\*Difference is statistically significant ( $P < 0.05$ ).

of FIM, high effectiveness of occupational therapy was found for 72.4% of men and 54.7% of women. According to this finding, we can state that cognitive functions in men improved more than in women ( $P < 0.05$ ). Moderate effectiveness was for 10.6% of men and 20.8% of women. Low effectiveness of occupational therapy on cognitive-psychosocial subscale of FIM was for 17% of men and 24.5% of women ( $P > 0.05$ ).

Depending on age group, effectiveness of occupational therapy at the early stage of rehabilitation also differed: on motoric subscale of FIM, high effectiveness of occupational therapy was achieved for 63.3% of 18–59-year-old patients and for 52.9% of the elderly. According to these data, high effectiveness was significantly more often in younger patients ( $P < 0.05$ ). Moderate effectiveness of occupational therapy was for 10% in younger and 22.9% in older group, while low effectiveness in 26.7% and 24.2%, respectively. On cognitive-psychosocial subscale of FIM, high effectiveness of occupational therapy was for 66.7% of younger patients and for 61.4% of elderly patients ( $P > 0.05$ ). Medium effectiveness was for 10% of younger and 18.6% of older patients, and low effectiveness for 23.3% and 20%, respectively ( $P > 0.05$ ).

Relationship between effectiveness of occupational therapy during early stage of rehabilitation and type of stroke was almost absent, since patients with ischemic stroke had high effectiveness on FIM motoric subscale in 55.6% of cases, and patients with hemorrhagic stroke in 56.8%. Moderate effectiveness was in 20.6% of ischemic stroke patients and 16.2%

of hemorrhagic, and low effectiveness was in 23.8% and 27.0%, respectively. These differences between types of stroke were statistically insignificant. On cognitive-psychosocial subscale, high effectiveness was reached for 58.7% of patients with ischemic stroke and 70.3% with hemorrhagic stroke. This difference was statistically significant ( $P < 0.05$ ), showing that effectiveness of occupational therapy is more expressed in patients with hemorrhagic stroke. Moderate effectiveness was for 15.9% of ischemic and 16.2% of hemorrhagic stroke patients, and low effectiveness for 25.4% and 13.5%, respectively. Hence, patients with ischemic stroke had significantly more often low effectiveness of occupational therapy ( $P < 0.05$ ) than patients with hemorrhagic stroke.

Looking for differences in patients with hemiplegia versus hemiparesis, we found that high effectiveness of occupational therapy at the early stage of rehabilitation as measured on FIM motoric subscale was only in 28.6% of patients with hemiplegia and 70.8% with hemiparesis ( $P < 0.05$ ). Corresponding proportions for moderate effectiveness were 22.8% and 16.9%, and for low effectiveness 48.6% and 12.3%, respectively. Low effectiveness was significantly more expressed in patients with hemiplegia ( $P < 0.05$ ) than with hemiparesis. On cognitive-psychosocial scale of FIM, high effectiveness of occupational therapy was present in 42.8% of patients with hemiplegia and 73.9% with hemiparesis ( $P < 0.05$ ). Moderate effectiveness was in 14.3% and 16.9% and low effectiveness in 42.9% and 9.2%, respectively. The difference between patients with hemiplegia and patients with

hemiparesis on FIM cognitive-psychosocial subscale was statistically significant ( $P<0.05$ ).

Additionally, we performed logistic regression analysis with the aim to identify factors that have negative influence on effectiveness of occupational therapy and established their positive predictive value. Logistic multifactorial analysis model showed that low effectiveness of occupational therapy is 7 times more likely when hemiplegia is present ( $OR=6.8$ ;  $P<0.01$ ) in comparison with patients that suffered from hemiparesis. Similar negative effect was shown by neglect that increases low effectiveness of occupational therapy by 7 times ( $OR=6.9$ ;  $P<0.001$ ) comparing with patients without this condition. Older age is also strongly related to low effectiveness of occupational therapy, since increases odds ratio for low effectiveness by 4 times ( $OR=4.1$ ;  $P<0.05$ ) when comparing with younger patients (Table 2). Other factors that were included into logistic analysis (gender, type of stroke, cardiovascular and respiratory diseases, and

depression) had no significant effect on low effectiveness of occupational therapy ( $P>0.05$ ). Using logistic regression model, we calculated positive predictive value of occupational therapy for low effectiveness by the set of following factors that are most related to low effectiveness: older age (elderly), hemiplegia, and neglect (clinical pathology). We found that this set has limited 44% sensitivity, and very high specificity – 96%. Predictive value with this set of factors is 78.6%.

Alternatively, we performed logistic regression also with the cognitive-psychosocial subscale of FIM with intention to find out, which factors are mostly related to low effectiveness of occupational therapy in cognitive and psychosocial domains. We found that hemiplegia was significantly related to low effectiveness of occupational therapy by 6 times more than hemiparesis was ( $OR=6.4$ ;  $P<0.001$ ). On the other hand, neglect increases odds ratio for low effectiveness of occupational therapy by 4 times ( $OR=4.2$ ;

**Table 2. Low effectiveness of occupational therapy (motoric subscale) and related factors (logistic regression)**

| Factor                                       | B            | SD                    | P                | Odds ratio (95% CI)                            |
|----------------------------------------------|--------------|-----------------------|------------------|------------------------------------------------|
| Gender<br>Male<br>Female                     | 0.813        | 1.000<br>0.511        | NS               | Reference group<br>2.255 (0.829–6.135)         |
| Age group<br>18–59 y/o<br>60+ y/o            | <b>1.415</b> | 1.000<br><b>0.607</b> | <b>&lt;0.05</b>  | Reference group<br><b>4.115 (1.252–13.517)</b> |
| Type of stroke<br>Ischemic<br>Hemorrhagic    | 0.170        | 1.000<br>0.474        | NS               | Reference group<br>1.185 (0.468–3.000)         |
| Grade of lesion<br>Hemiparesis<br>Hemiplegia | <b>1.919</b> | 1.000<br><b>0.575</b> | <b>&lt;0.001</b> | Reference group<br><b>6.815 (2.208–21.034)</b> |
| Cardiovascular diseases<br>Absent<br>Present | 0.359        | 1.000<br>0.466        | NS               | Reference group<br>1.432 (0.575–3.569)         |
| Respiratory diseases<br>Absent<br>Present    | 0.234        | 1.000<br>0.568        | NS               | Reference group<br>0.792 (0.260–2.412)         |
| Depression<br>Absent<br>Present              | 1.007        | 1.000<br>0.539        | NS               | Reference group<br>2.738 (0.952–7.872)         |
| Neglect<br>Absent<br>Present                 | <b>1.931</b> | 1.000<br><b>0.820</b> | <b>&lt;0.01</b>  | Reference group<br><b>6.895 (1.381–34.416)</b> |

NS – not significant; CI – confidence interval.

**Table 3. Low effectiveness of occupational therapy (cognitive-psychosocial subscale) and related factors (logistic regression)**

| Factor                                       | B            | SD                    | P               | Odds ratio (95% CI)                            |
|----------------------------------------------|--------------|-----------------------|-----------------|------------------------------------------------|
| Gender<br>Male<br>Female                     | 0.460        | 1.000<br>0.503        | NS              | Reference group<br>1.584 (0.592–4.242)         |
| Age group<br>18–59 y/o<br>60+ y/o            | 0.546        | 1.000<br>0.521        | NS              | Reference group<br>1.727 (0.622–4.794)         |
| Type of stroke<br>Ischemic<br>Hemorrhagic    | 0.778        | 1.000<br>0.561        | NS              | Reference group<br>0.459 (0.153–1.380)         |
| Grade of lesion<br>Hemiparesis<br>Hemiplegia | <b>1.858</b> | 1.000<br><b>0.562</b> | <b>&lt;0.01</b> | Reference group<br><b>6.409 (2.132–19.265)</b> |
| Cardiovascular diseases<br>Absent<br>Present | 1.018        | 1.000<br>0.573        | NS              | Reference group<br>2.767 (0.899–8.513)         |
| Respiratory diseases<br>Absent<br>Present    | 0.016        | 1.000<br>0.021        | NS              | Reference group<br>1.016 (0.976–1.059)         |
| Depression<br>Absent<br>Present              | 0.795        | 1.000<br>0.515        | NS              | Reference group<br>2.215 (0.807–6.083)         |
| Neglect<br>Absent<br>Present                 | <b>1.437</b> | 1.000<br><b>0.733</b> | <b>&lt;0.05</b> | Reference group<br><b>4.209 (1.001–17.696)</b> |

NS – not significant; CI – confidence interval.

$P < 0.05$ ) in patients with neglect comparing with the ones without this clinical pathology (Table 3). Predictive value using this logistic regression model, if we include hemiplegia and clinical pathology as related factors, reached 41% (sensitivity, 76.2%, and specificity, 70.9%).

### Discussion

Since disorders of activities in patients depend on motoric, cognitive, and psychosocial dysfunctions, we paid attention to those factors in sessions of occupational therapy. Certain activities and their dynamics were evaluated using FIM instrument, which included motoric and cognitive-psychosocial subscales.

Analysis of disorders of activities in stroke patients at the early stage of rehabilitation revealed that abilities to go up- and downstairs, to bathe, and to use toilet were mostly impaired. When exercising these activities, patients were totally dependent on assistance from other person. Evaluation of cognitive func-

tions revealed that at the baseline of early stage of rehabilitation, the patients had very poor ability of problem solving, relatively significant memory and social interaction disorders. Patients needed moderation and encouragement by other person.

At the early stage of rehabilitation, we paid attention to recovery of function and activities, and special attention was paid to the period of rehabilitation, when this recovery occurred. Activities of our scope were the ones that are mostly influenced by occupational therapist during training sessions, namely eating, personal hygiene, bathing, dressing (upper body and lower body), toileting, transfer (bed, chair, wheelchair; toilet, tub, shower), and comprehension.

Recovery of stroke patients during early rehabilitation process is uneven: at the beginning improvement of cognition, eating, personal hygiene, dressing upper part of the body, and transfer from the bed to wheelchair and back appears. Latest improvement emerged in skills of dressing lower body, bathing, and toileting

independently.

At the end of early rehabilitation, the patients with hemiplegia needed more care by other persons (standing by side, encouragement, persuasion, setting splints); patients still needed assistance when cutting meat, buttering, pouring drink. On the other hand, patients with hemiparesis during early rehabilitation got more independent, and they only needed some special tools, like a straw or knife with curved edges. Hemiplegia has influence on patient's functional status through limitation of daily activities.

Hence, patients with ischemic stroke had low effectiveness of occupational therapy significantly more frequently ( $P<0.05$ ) than patients with hemorrhagic stroke.

Using logistic regression model, we calculated positive predictive value of occupational therapy for low effectiveness by the set of following factors that are most related to low effectiveness: older age (elderly), hemiplegia, and neglect (clinical pathology). In summary, we can state that low effectiveness of occupational therapy in motoric domain is influenced by hemiplegia ( $P<0.01$ ), neglect (clinical pathology;  $P<0.05$ ), and older age group ( $P<0.05$ ); in cognitive-psycho-

social domain, these factors are hemiplegia ( $P<0.01$ ) and neglect ( $P<0.05$ ).

Application of individualized occupational therapy complexes for stroke patients at the early stage of rehabilitation with consideration of motoric and cognitive-psychosocial disorders significantly improves recovery of impaired functions, though occupational therapy should be continued in later rehabilitation stages, since patients after the early stage of rehabilitation still have limited independence in daily activities.

### Conclusions

1. Effectiveness of occupational therapy for patients after stroke at the early stage of rehabilitation was influenced by gender, age, degree of lesion, type of stroke. Better effectiveness of occupational therapy was observed in men ( $P<0.05$ ), persons younger than 59 years ( $P<0.05$ ), patients with hemiparesis ( $P<0.05$ ) and with hemorrhagic stroke ( $P<0.05$ ).

2. Low effectiveness in stroke patients at the early stage of rehabilitation is influenced by neglect ( $P<0.05$ ), hemiplegia ( $P<0.001$ ), and older age of patient ( $P<0.05$ ).

## Ligonių, persirgusių galvos smegenų insultu, aktyvumo bei ergoterapijos efektyvumo vertinimas ankstyvuoju reabilitacijos laikotarpiu

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**Raktažodžiai:** insultas, reabilitacija, ergoterapija.

**Santrauka.** Lietuvoje galvos smegenų insultas yra ne tik medicinos, bet ir socialinė problema, nes po insulto tik apie 20 proc. žmonių vėl būna darbingi. Kasmet Lietuvoje insultą patiria vidutiniškai 7–8 tūkstančiai žmonių. Dažniausia insulto pasekmė yra vienos kūno pusės paralyžius, atsiranda koordinacijos, pusiausvyros, judėjimo sutrikimų. Dalis ligonių lieka neįgalūs dėl judėjimo, apsitarnavimo, pažintinių funkcijų, elgesio, bendravimo sutrikimų. Persirgusieji galvos smegenų insultu tampa neįgaliais dėl pažintinių, psichosocialinių, motorikos funkcijų pažeidimų, sutrikdančių jų kasdienę veiklą bei darbingumą, kai kuriems asmenims po persirgto galvos smegenų insulto reikalinga nuolatinė kitų žmonių pagalba arba priežiūra. Reabilituojant sergančiuosius galvos smegenų insultu yra taikoma ergoterapija atsižvelgiant į jų motorikos, pažintinių ir psichosocialinių funkcijų sutrikimus.

Tiriamųjų kontingentą sudarė 100 ligonių (47 vyrai ir 53 moterys), kuriems buvo diagnozuotas galvos smegenų insultas. Analizavome pažintinių, motorikos ir psichosocialinių funkcijų bei veiklų sutrikimų atsigavimą taikant ergoterapiją ankstyvuoju reabilitacijos laikotarpiu. Motorikos bei pažintinių funkcijų įvertinimui taikėme Barthel indeksą bei funkcinio nepriklausomumo testą. Individualizuoti ergoterapijos kompleksai buvo sudaromi ištyrus ligonių veiklos sutrikimus, numatytos priemonės ligonių kasdieniui veiklai gerinti bei laisvalaikiui užtikrinti.

Ankstyvuoju reabilitacijos laikotarpiu veikliam atsigavimui įtakos turėjo ligonio lytis, amžius, pažeidimo laipsnis, insulto pobūdis. Geresnis veiklų atsigavimas nustatytas vyrams ( $p<0,05$ ), kurių amžius iki 59 metų ( $p<0,05$ ), esant hemiparezei ( $p<0,05$ ), hemoraginiam galvos smegenų insultui ( $p<0,05$ ).

Ankstyvuoju reabilitacijos laikotarpiu nepakankamą ergoterapijos efektyvumą sąlygoja: pažeistosios kūno pusės neigimo sindromas ( $p < 0,05$ ), hemiplegija ( $p < 0,01$ ), vyresnis ligonių amžius ( $p < 0,05$ ).

Individualizuotų ergoterapijos kompleksų taikymas sergantiesiems galvos smegenų insultu ankstyvuoju reabilitacijos laikotarpiu labai gerina sutrikusių veiklų atsigavimą, tačiau šio laikotarpio pabaigoje dar išlieka nepakankamas ligonių savarankiškumas kasdienėje veikloje, todėl būtinas ergoterapijos tęstinumas.

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