

# TREATMENT FOR PATIENTS WITH NEGLEKT AFTER ISCHEMIC STROKE

## LECZENIE CHORYCH Z ZESPOŁEM ZANIEDBYWANIA POŁOWICZEGO WTÓRNYM DO UDARU NIEDOKRWIENNEGO MÓZGU

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### ABSTRACT

**Introduction:** Motion disturbances are one of the main causes of disabling patients after a stroke, causing problems of walking and balance. Only 20% of patients after a stroke are returned to work, and only 10% of patients can return a daily activity level that was before the disease. Cognitive impairment occurs in 30-50% of patients who have suffered a cerebral stroke. One of the most important and ultimately unresolved problems in rehabilitation of patients is the rehabilitation of patients with a syndrome of ignorance (neglekt). **The aim** was to improve the recovery of motor deficit in patients with neglekt and cognitive impairment after ischemic stroke using mirror therapy and adaptive techniques. **Materials and methods:** 102 patients after ischemic stroke were examined. Mirror therapy was performed 3 times a week for 20 minutes, initially on the basis of the department further outpatient for 3 months. Adaptation methodology included stimulating (visual, tactile, motor - from the side of the weak) and compensating. **Conclusions:** According to the results of the study, it was found that involvement in the rehabilitation of patients with neglekt after a cerebral stroke of mirror therapy in combination with adaptive techniques probably improves motor function, and improves cognitive function.

**KEY WORDS:** ischemic stroke, cognitive impairment, mirror therapy, neglekt.

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### INTRODUCTION

Motion disturbances are one of the main causes of disabling patients after a stroke, causing problems of walking and balance. Only 20% of patients after a stroke are returned to work, and only 10% of patients can return a daily activity level that was before the disease. Cognitive impairment occurs in 30-50% of patients who have suffered a cerebral stroke.

The rehabilitation of patients with cerebral stroke is based on non-drug and drug-induced methods of exposure. One of the most important and ultimately unresolved problems in rehabilitation of patients is the rehabilitation of patients with a syndrome of ignorance (neglekt). This syndrome, according to several researchers, is one of the important factors that impede the adequate restoration of neurological functions. Typically, this syndrome occurs when stroke in the right hemisphere of the brain - in 33 - 85% of patients, with damage to the left hemisphere - 24%, and manifests itself in a milder form.

### THE AIM

Improve the recovery of motor deficit in patients with neglekt and cognitive impairment after ischemic stroke using mirror therapy and adaptive techniques.

### MATERIALS AND METHODS

The study was conducted on the basis of the department of vascular neurology of the Uzhhorod Central City Clinical

Hospital during the six months of 2017. 102 patients after ischemic stroke were examined. The criteria for inclusion in the study were: consciousness (15 points on the scale of Glasgow), age from 40 to 74 years, verified diagnosis of ischemic stroke of hemisphere localization, absence of severe somatic diseases, normal language and writing function, neglekt.

General clinical examination, neuroimaging examination (computed tomography, magnetic resonance imaging of the brain), functional cardiological examination (electrocardiography, echocardiography), neuropsychological examination using a battery of tests: Mini-mental State Examination (MMSE), Frontal Assessment Battery (FAB) and Clock Drawing Test (CDT), to study of functions using the Scandinavian scale of stroke and the Ashworth scale for assessing the tone of muscles and Geriatric Depression Scale (GDS) to determine the emotional state of the all patients.

Mirror therapy was performed 3 times a week for 20 minutes, initially on the basis of the department further outpatient for 3 months. Adaptation methodology included stimulating (visual, tactile, motor - from the side of the weak) and compensating. Statistical processing of materials was carried out with the help of the standard statistical package „Microsoft Exel 2007”.

### RESULTS AND DISCUSSION

The study was attended by 102 patients, residents of Uzhhorod, after a hemisphere ischemic stroke. The average age of patients was  $58,1 \pm 1,1$  years. The patients were

Table I. Laboratory indices of the studied groups

Nº	Indicators	Main group	Control group	p
1.	Hemoglobin	142,3±3,7	146,7±2,3	>0,05
2.	Leucocytes	6,7±0,6	6,8±0,4	>0,05
3.	Glucose	4,3±0,2	5,1±0,3	>0,05
4.	Cholesterol	4,4±0,2	4,9±0,2	>0,05
5.	Fibrinogen	4,2±0,3	4,9±0,3	>0,05
6.	Hematocrit	0,52±0,01	0,53±0,01	>0,05

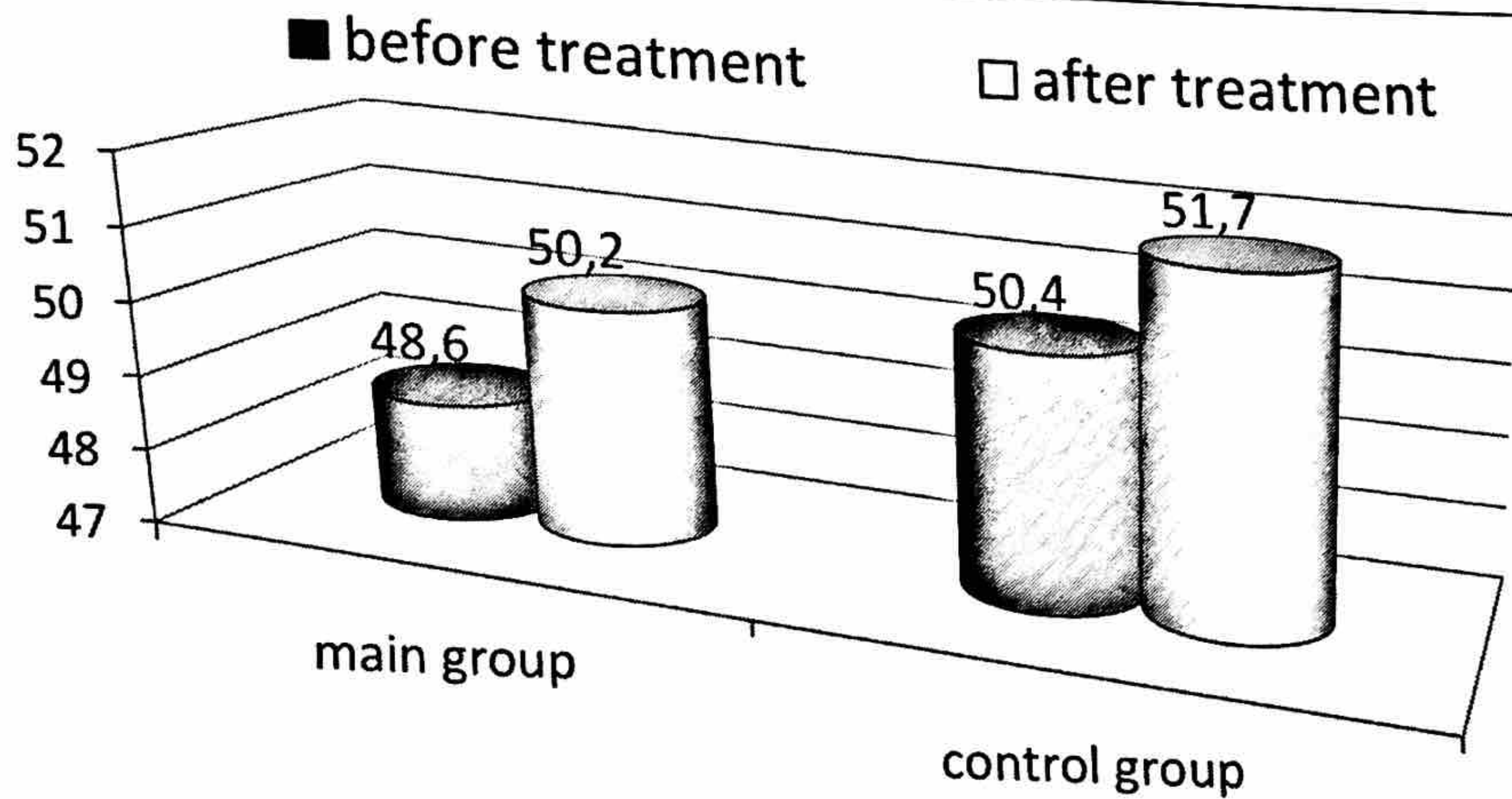


Fig. 1. Dynamics of the functional state of patients in Scandinavian scale stroke

randomly divided into two groups of 51 patients. The age of patients in the main group was  $57,1 \pm 0,6$  years, and in the control group,  $59,2 \pm 0,4$  years. In the main group were 26 men (60,5%) and 17 women (39,5%), in the control group, respectively, 31 men (72,0%) and 12 women (28,0%). Defects of the right hemisphere in the main group were detected in 59,3% of patients, left - 40,7%, and in the control group 47,5% and 52,5% respectively.

In both groups, laboratory tests were conducted that confirmed the absence of a possible difference between the study groups (tab.I).

The average number of years of study in the main group was 12,51 years, in the control group - 13 years. Indicators of blood pressure were as follows: systolic  $164,6 \pm 5,0$  mmHg, diastolic  $101,8 \pm 3,1$  mmHg - in the primary, and  $161,6 \pm 4,5$  mmHg,  $92,6 \pm 2,4$  mmHg - in the control group.

The Scandinavian scale of stroke in patients in the main group had an average score of  $48,6 \pm 0,8$  at baseline and  $50,2 \pm 0,7$  points in the control group. At the end of therapy, improvement was observed in patients in both groups, which was expressed in the following: in the main group, the Scandinavian scoring score stood at  $50,4 \pm 0,6$  points, in the control group -  $51,7 \pm 0,7$  points (fig.1).

According to Ashworth's scale, the muscle tone in the paretic limb of the patients in the main group before

the study was  $2,6 \pm 0,8$  points, and in the control group patients -  $2,4 \pm 0,6$  points. After rehabilitation, the muscle tone decreased to  $1,2 \pm 0,4$  points in the baseline and to  $1,8 \pm 0,6$  points in the control groups.

On the MMSE scale, the average score in the main group before the start of the study was  $23,2 \pm 0,8$  points, and in the control  $24,3 \pm 0,4$  points. After the rehabilitation course, the average score for the main group was  $27,1 \pm 0,6$  points, while in the control group it was  $26,4 \pm 0,4$  points.

Using the FAB test, it was found that the average score in the main group before the study began was  $13,1 \pm 0,2$  points, while in the control group it was  $13,1 \pm 0,1$  points. At the end of rehabilitation therapy, the average score in the main group and in the control group was  $14,9 \pm 0,1$  points. The results of the clock drawing test in the patients in the first group showed an average score of  $6,63 \pm 1,1$  points before the start of rehabilitation measures and  $7,97 \pm 0,9$  points after completion. In the control group -  $7,5 \pm 0,7$  points, and  $8,5 \pm 0,9$  points, respectively. At the same time, reduction of depression in patients of both groups was established. According to the GDS scale, at the beginning of treatment in the main group, the rate was  $6,03 \pm 0,2$ , and after therapy -  $4,25 \pm 0,4$  points, the control group patients' rates were  $5,43 \pm 0,3$  points and  $4,31 \pm 0,6$  points, respectively.

### CONCLUSIONS

According to the results of the study, it was found that involvement in the rehabilitation of patients with neglect after a cerebral stroke of mirror therapy in combination with adaptive techniques probably improves motor function, and improves cognitive function.

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