



THE EFFECT OF KINESIOTAPE IN THE LOWER LIMB AREA ON IMPROVING LOCOMOTION IN PATIENTS WITH ISCHEMIC STROKE

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ABSTRACT:

The **aim** of the study was to investigate the effect of Kinesiotape in the lower limb area on improving locomotion in patients with ischemic stroke.

Materials and Methods: The study was conducted in the period 2014-2015 at the General Hospital for Active Treatment in Blagoevgrad. Forty patients were studied, divided into two groups of 20 patients - experimental (EG) and control group (KG). In addition, we have applied a standard kinesitherapy program in the two studied groups, in the experimental group, 3 kinesiotape tapes with a specific application "I" shape and a specialized method of application in the field of the foot and m. gluteus maximus were placed. The results were compared with the results of the patients from the control group and processed with descriptive statistics, as well as non-parametric tests to prove statistically significant differences.

Results: After research and analysis, we obtained faster recovery of locomotion in the experimental group and slowing of locomotor movements in the control group (Wilcoxon, ANOVA).

Conclusion: The results of our research show that the application of the author's methodology with kinesiotape creates an opportunity to improve the functions in the damaged lower limb, improves locomotion and quality of life.

Keywords: kinesiotape, stroke, damaged lower limb, locomotion and quality of life

INTRODUCTION

Restoring locomotion is extremely important to improve the quality of life in patients who have experienced a cerebrovascular accident. In standard kinesitherapy programs, patient verticalization begins within the first 12-24 hours of the patient's hospitalization by improving coordination and balance in sitting and standing positions. A number of authors are looking for different approaches and offer methods for restoring locomotion by stabilizing the trunk, the basis of which are exercises for balance and coordination - in a sitting and standing position [1, 2]. In the search for a better ap-

proach to kinesitherapy and faster recovery of patients, studies have been done on the impact of kinesiological tape on balance, coordination and gait in stroke patients [3,4,5]. A team of researchers came to the conclusion that the kinesio taping method in conjunction with other therapeutic interventions may facilitate or inhibit muscle function, support joint structure, reduce pain, and provide proprioceptive feedback [4]. Vasileva D, et al. in their study included lower extremity training and training of the balance of the trunk, which has been successfully used for the recovery of stroke patients [6, 7]. Huang YC et al. conducted kinesiotherapy in the subacute period of the disease by applying Kinesiotape to thirty-one patients who performed a procedure-5 days a week (for 3 weeks) following the effect of Kinesiotaping in one of the groups. Measurements were administered before the intervention, immediately after the intervention and at week 5. The results report a good effect on spasticity in patients [8]. Filipova, in her development, proposes a methodology that includes passive exercises, active exercises, elements of the Kabat methodology and mirror therapy, combined with the application of Kinesiotape in a hospital setting, for patients with cerebral stroke who are thrombolysed. In addition to the upper limb, an application is also applied to the lower limb. As a result, a statistically significant difference and restoration of active movements in patients with hemiplegia, without a tendency to spasticity, is verified. This is extremely important for the full recovery of these patients [9]. In the presence of a pain syndrome, a team of researchers conducted a study on the effect of a kinesiological tape and the reduction of pain symptoms [9]. Another team of authors suggests a reduction of pain syndrome in the lumbar region, which in turn will help restore locomotion [10] or seek a natural (non-medicaments) therapy on the damaged limbs [11].

THE AIM OF THE STUDY is to investigate the effect of the application of kinesio tape in the area of the lower limb to improve locomotion in patients with ischemic stroke.

MATERIALS AND METHODS.

The study was conducted in the period 2014-2015 in the Multispecialty Hospital for Active Treatment - Blagoevgrad. Forty patients participated in the study, divided into two groups of 20 patients each - experimental and control. After the acute condition, the neurological status reveals a marked motor deficit (hemiplegia), damage to the cranial nerves, discoordination disorders and severely difficult to impossible gait. In addition to the applied kinesitherapy program, in the experimental group (n=20) 3 kinesiological tapes with a specific application form "I" shape were applied and placed in the area of the foot (to maintain dorsiflexion) and m. gluteus maximus for 4 days –figure 1.

Fig. 1. Application form "I" shape was applied in the area of the foot.



The tests were carried out during the hospitalization and discharge of the patients. The prism 3.0 statistical package was used to analyze the obtained results. The data were compared with the data of the patients of the

control group by the Barthelindex, which can also be used as an index to determine the quality of life and processed with non-parametric statistics to prove statistically significant differences.

RESULTS AND DISCUSSION.

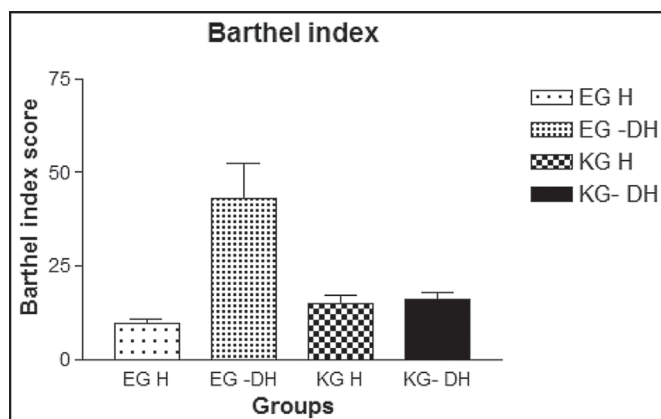
After research and analysis, we obtained the following results - faster recovery of active movements, without the presence of spasticity in the experimental group and a delay in the motor capabilities of the patients in the control group (Wilcoxon, ANOVA).

Table 1. Bartlett's test's results for the experimental and control groups.

Table Analyzed			
Data Table-1			
One-way analysis of variance			
P value	0,0001		
P value summary	***		
Are means signif. different? (P < 0.05)	Yes		
Number of groups	4		
F	9,007		
R squared	0,4288		
Bartlett's test for equal variances			
Bartlett's statistic (corrected)	45,15		
P value	P<0.0001		
P value summary	***		
Do the variances differ signif. (P < 0.05)	Yes		
ANOVA Table			
	SS	df	MS
Treatment (between columns)	6772	3	2257
Residual (within columns)	9023	36	250,6
Total	15790	39	

Results were determined by Bartlett's test, at $p < 0.0001$ for the experimental and control groups- table 1. A statistically significant difference was found in the data of patients from the experimental group $p < 0.0010$. It is noteworthy that upon discharge there is a significant improvement in the quality of life with a significant increase in the Barthel index- fig.2.

Fig. 2. Barthel index for EG I KG in hospitalization and dehospitalization.



No statistically significant difference was observed in the data of patients from the control group ($p < 0.20$). This is most likely due to the fact that only a standard kinesiotherapy program was implemented in the control group. In our opinion, the recovery of gait with the help of kinesio tape also improves the quality of life in patients with ischemic stroke. Kinesio tape gives patients greater stability.

CONCLUSION.

As a result of the applied specialized kinesiotherapy, which additionally included kinesio taping, an improvement of active movements, normalization of hypotonic muscles, improved movement, gait and quality of life.

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