

## RECOVERY ASSESSMENT OF DAILY AND LABOUR ACTIVITIES (FOOD PREPARING AND FEEDING) IN PATIENTS WITH CEREBRO-VASCULAR DISEASE

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### ABSTRACT

Bulgaria is in a leading position concerning morbidity and mortality rate from cerebrovascular disease (CVD). **The goal** of this research was to examine, follow up and assess the recovery and the ability for food preparation and feeding in patients with CVD.

**Materials and methods:** Sixty one patients were included in the research. All of them underwent physical rehabilitation program, based on their individual status. The program included: kinesitherapy, labour-therapy [(occupational therapy (OT) and activities of daily life (ADL)]; electrotherapy. The patients were assessed twice: in the beginning and at the end of the rehabilitation course. They self evaluated the basic parameters nevertheless which of the limbs was particularly affected. Wilcoxon rank test was used for the statistical analysis of non parametrical data and distribution.

**Results and analysis:** At the end of the rehabilitation course the Wilcoxon's curves were found shifted to the right, which confirms improvement of the main parameter (self independence in the main task set to be fulfilled), no matter which limb was paretic.

**Conclusion:** Early initiation of the rehabilitation course including labour activities and elements of ADL, given as instructions is essential for achieving better results in the rehabilitation of patients with CVD and for enhancing the self service ability. Functional OT stimulates the independence of patients and facilitates their recovering to independent everyday life and social activities.

**Key words:** rehabilitation, occupational therapy, cerebro-vascular disease

### INTRODUCTION

Bulgaria is in a leading position in the world as regards morbidity, sick rate and mortality of CVD (1). Recently, young adults are often affected. Severe

disability as motor disorders, difficulties with self service, professional and social dysadaptation, impaired quality of life and depression are the main consequences of CVD. (2-4)

About 80% of the survivors from a cerebrovascular vascular incident overcome the dependence of other people's help, about 26% of them were diagnosed with vascular dementia and impairment of communication, and about 20% remain confined to their bed (5-8).

Causes for this epidemic of CVD are increasing the frequency of risk factors such as atherosclerosis of the brain vessels, arterial hypertension, chronic ischemic heart disease, overweight, diabetes mellitus, malnutrition, alcohol abuse and smoking, chronic stress, etc. (9).

Physical and rehabilitation medicine is of vital importance for optimal recovery and saving self-dependence ability achieved in patients with consequences of CVD, as in the beginning of the rehabilitation process the stress is mainly on everyday activities (10-11).

### AIM AND TASKS OF THE SURVEY

The aim of our research is to investigate, follow up and assess the recovery level of important activities in everyday life (ADL), namely the ability of food preparation and feeding in patients with CVD.

#### The tasks were:

1. To select an adequate test for registering by the self service level (food preparation and feeding) of the patients by appropriate indexes before and after the rehabilitation course in the subacute period of the disease (12).

2. To detect the level of improvement of self service as a result of the physical rehabilitation program at the end of the first rehabilitation course.

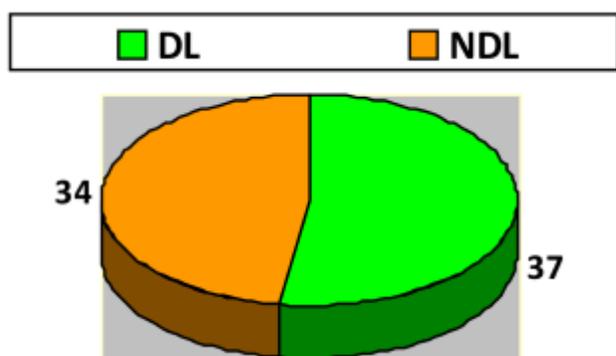
3. To analyze the obtained results and to recommend activities concerning facilitation and improvement of self service (food preparation and feeding) in patients with consequences of CVD.

4. To analyze the dependency of daily and labour activities ensuing from the paretic limb-dominant (DL) or non dominant (NDL).

### MATERIALS AND METHODS

During the period 2011-2012 year 61 patients with consequences of CVD (23 women and 38 men, 37 - 75 years old), were admitted at the Department of Hospital Rehabilitation and the Clinic of Physical medicine and rehabilitation, University Hospital "Dr. Georgi Stranski" – Pleven, Bulgaria.

A right-sided paresis was found in 37 of the patients, 34 of them were with NDL affected (table 1). The side of the paretic limb was of decisive importance for ADL (13-14).



**Table 1.** Distribution of patients by DL and NDL affected

All of the patients followed physical rehabilitation program consistent with their individual status. It generally included: kinesitherapy; labor therapy (OT and ADL), electrotherapy (15-17).

All patients were tested for ADL at the beginning of the rehabilitation course. This test was created by H. Rusk at the Centre of medical rehabilitation, New York. Four stages were included in it - personal grooming and hygiene, putting on shoes, dressing; food preparation and feeding; different social and labor activities (18).

The assessment is based on a 6-grade score (from 0 to 5), and the patients assessed themselves following basic activities no matter a dominant or NDL was affected:

grade 0 - the tested patient cannot perform the activity;

grade 1 - the tested patient is trying to do the activity but needs significant help;

grade 2 - the tested patient is doing the activity, but needs an assistant to oversee it;

grade 3 - the tested patient is doing the activity slowly and with limited capacity;

grade 4 - the tested patient is doing the activity with almost normal power, velocity, coordination and durability;

grade 5 - the tested patient performs the activity normally, with good quality, totally independent;

Signs (+) and (-) are given when marks are not full.

For the purpose of our research, we focused only on ADL, particularly activities for preparing food and feeding (19-21). The results from the first rehabilitation course were processed (subacute period at the start and at the end of the research). This was about one month after the stroke onset.

**Activities for preparing food and feeding:** set in/pull out a plug, turning on/off a heater switch, turn on/off a water tap, washing up kitchen utensils, pouring and drinking liquids in a cup, serving the food in a plate, feeding with a spoon, feeding with a fork, cutting products with a knife, cleaning the table.

These are activities from everyday life that every person confronts with. Using the switches of a heater requires significant strength for clutching and enough volume motion in the radio-ulnar joint. At the beginning of the rehabilitation process this is difficult, even impossible, for most of the patients. This situation requires considerable support of the healthy limb, especially when the DL is paretic, grasping the clutch and supporting the locomotion for turning over the switch.

Switching on and especially switching off requires considerable strength of the palmar grasp, acting of the healthy limb is needed, while the paretic limb supports the contact, (if possible) - figure 1).



**Fig. 1.**

The turning on/off of a tab water is not such a difficult activity, especially if it is a pick up/down nozzle, but if it is a traditional one, with hand clutches that turn, it requires also considerable strength and enough motion in

the radio-ulnar joint. We recommend the patients to include the paretic limb (if possible) and to support the motion with the healthy limb (figure 2).



**Fig. 2.**

When washing plates one must be very careful, if plates are fragile. Beware of slipping, breaking down and eventually cutting themselves. The plate must be held with the healthy limb while the paretic one is doing the washing with gel and sponge; and for rinsing the activities of the hands may be changed.

When pouring liquids in the glass, the patients must keep in mind the weight of the bottle. It should not be too heavy. The intact hand mainly takes the weight, while the paretic one is only supporting pouring into cup. We recommend turning on and off of the stopper to be performed with the paretic limb (if possible), and the healthy one supports the activity, if needed.

When drinking liquids from a glass we recommend the use of the paretic limb, but taking in consideration the weight and material which the cup is made of - not too heavy, of anti-fragile materials and with the biggest possible diameter. This stimulates the cylindrical clutch and trains extensor muscles of the fingers and the wrist.

When the DL was affected the pouring of food in a plate and feeding becomes significantly difficult. In this case we recommend using a deeper food plate, placed on the plot of the table and then the paretic limb slowly and carefully moves to it. If not impossible to perform this activity by the DL, in the beginning of the recovering process it has to be performed with the intact one.

In the beginning of the recuperation the patients with DL affected are advised to feed themselves with the healthy limb, in order not to be depressed additionally, then gradually to include the paretic one. We recommend the affected limb to hold a piece of bread, a spoon with

non-liquid food or a fork, the clutch in most cases being in position pronation of the ante brachium.

When patients are using a knife, they should be very careful. A person might have difficulties with NDL and he/she may injure by accident the paretic limb. So the knife should be at a distance from the food fixed by the paretic limb. The food must not be too hard (frozen meat, butter) and must be positioned on a non-slipping surface. If the NDL is affected, the attention of the patient should be towards its fixing role - if there is enough strength to hold the cutting object and to keep in mind his/her status (figure 3).



**Fig. 3.**

In the process of cleaning the table with both limbs one of them takes the cleaning object and the other the kitchen spade. The activity of both hands can be changed alternatively. The affected limb plays a supportive function.

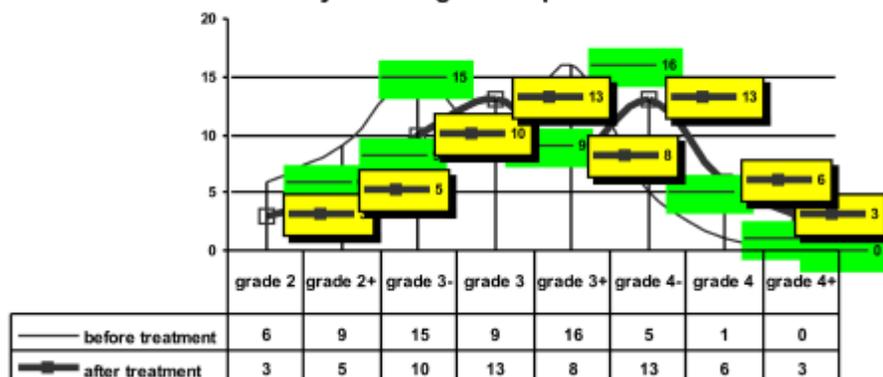
## **RESULTS AND ANALYSIS**

The results of the tests were recorded in a specially developed individual patient card. The data of the study were processed with a statistical computer program STATGRAPHICS, WINDOWS, EXCEL and Wilcoxon rank test (a statistical method for analyzing of non-parametrical data and distribution).

The significance of the results for conclusions and key points have been determined at  $P < 0,05$ .

On table 2 we present the curve of the Wilcoxon expressing the results for the activity „feeding with a spoon” in all the patients at the beginning and at the end of the first rehabilitation course.

### Activity: feeding with spoon



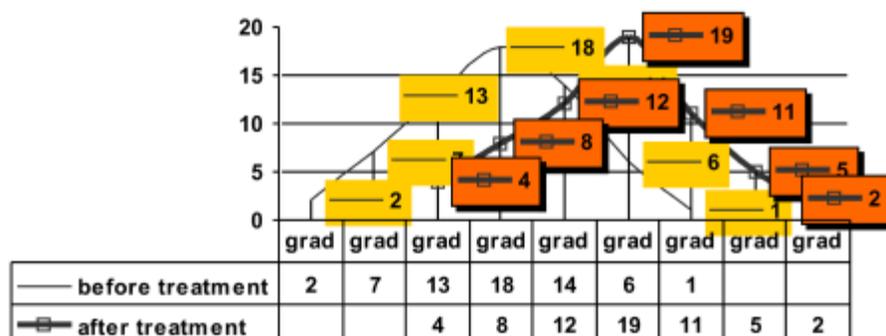
**Table 2.** Results for the activity of „feeding with a spoon” at the beginning and at the end of the rehabilitation course.

Similar were the results for the activities as washing dishes, serving food in a plate and cutting, which are very difficult for patients with PL.

as switching on/off of a heater, plugging in/out, turning on/off of a water tap, drinking from a cup, feeding with a fork, cleaning the table, which can be successfully performed by the NDJ and are not so difficult for the patients.

On table 3 are presented the results for the activities

### Activity: switching on/off of a heater



**Table 3.** Results for the activity “switching on/off a heater” at the beginning and at the end of the rehabilitation course

## CONCLUSIONS

After receiving the double-peaked Wilcoxon’s curve in some of the studied activities we made the conclusion that preparing food and feeding is much more difficult for the patients with paretic DL as compared with those with paretic NDJ.

The Wilcoxon’s curve forms a peak in the activities that can be performed by the healthy limb (equally well by DL or NDJ) and they don’t provide significant difficulty in

some patients activities such as preparing food and feeding even at the beginning of the rehabilitation process. At the end of the rehabilitation course the Wilcoxon’s curves was found shifted to the right, which means improvement in the self independence of the patients with a DL or a NDJ.

A significantly positive influence of the functional motion of the paretic limbs and the intensity of the pain of the humero-scapular joint was observed.

## SUMMARY

Early initiation of the rehabilitation including labour activities and elements of ADL, given as instructions is of significant importance for achieving better results in the rehabilitation course of patients suffering from CVD and for enhancing their ability of self service. Functional OT stimulates the independence of patients and facilitates the process of recovery to independent everyday life and social activities.

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