

Title: The Effect of Multimodal Method of Rehabilitation of Cognitive Functions using Computer-Assisted program NEUROP

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Abstract:

Neuropsychological rehabilitation of cognitive functions is an important field of clinical psychology application. It can moderate brain damage sequelae and has a major impact on patients' quality of life. At present, with an improving medical knowledge and care, we are able to cure previously fatal conditions. That is associated with the fact, that a number of people who are facing the cognitive impairment is steadily growing. Therefore it is important to develop new methods of rehabilitation of cognitive functions and to assess their effectivity.

In our thesis we outline the theoretical background of rehabilitation of cognitive functions and map different types of interventions. The main goal is to assess the effectivity of our group multimodal complex cognitive training program. It combines the conventional methods of cognitive rehabilitation with a computer-assisted program NEUROP and education. The program is designed for a small group of max. 10 patients. The length of the program is 8 weeks, with 2 weekly sessions (2x 40 mins each). We evaluated the effectivity in two diagnosis groups: in patients with first-ever ischemic stroke and patients with amnesic or amnesic multiple domain mild cognitive impairment (MCI). The results of study are introduced in an empirical part.

We used a quantitative test-retest design in a randomized controlled study. The effect on cognitive functions was measured with a neuropsychological battery (RAVLT, TMT, VF, Block Design (WAIS III), Digit Span (WAIS III) and ROCFT) and a screening test of global cognitive performance (TIP). The "well being" and neurotic symptoms were evaluated with N-70 questionnaire of neurotic symptoms. For subjective measures of memory, attention and global mental performance we used a 5 point self-reporting scales. 101 patients were included in our study. The research sample consisted of an intervention group of ischemic stroke patients

(N=27), a control group of ischemic stroke patients (N=21), an intervention MCI group (N=27) and MCI control group (N=21).

Results of the study showed a significant improvement in both trained groups comparing to controls in cognitive performance (ischemic stroke: visual construction, verbal fluency, memory and a moderate effect in attention, working memory and a global cognitive performance. MCI: visual construction, memory and a moderate improvement in verbal fluency, working memory and a global cognitive performance). Subjects with ischemic strokes also scored higher in VAS of quality of life. An improvement of quality of life and subjective memory was significant in MCI patients. Stroke patients after training scored better in several scales of the neurotic symptoms questionnaire: Phobia and total score, moderate improvement was shown in Vegetative lability and Psychastenia and Depression. MCI group after training showed a moderate improvement in Anxiety, Depression, Psychastenia and a total score.

Both training groups improved in a number of parameters in post-test while control groups showed a decline in several neuropsychological tests, reported more neurotic symptoms and scored slightly lower in Quality of life. In conclusion, our method of neuropsychological rehabilitation is a useful and effective tool in clinical psychological practice. We also validated the possible usage of computer-assisted program NEUROP for a group intervention.

Key words: Neuropsychological Rehabilitation of Cognitive Functions, MCI, Stroke, Effectivity of Cognitive Training, NEUROP