

ROLE AND IMPORTANCE OF REHABILITATION TREATMENT IN PATIENTS WITH PARKINSON'S DISEASE

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Abstract

Parkinson's disease is a neurodegenerative disorder of the extrapyramidal system, which occurs following the slow and progressive destruction of the pigmented dopaminergic neurons in the brain stem, particularly the substantia nigra and the presence of Lewy bodies. Parkinson's disease has a progressive evolution and its signs and symptoms develop in time. The aim of this study was to analyze the potential role of rehabilitation treatment for the prevention of complications in patients with Parkinson's disease, compared to patients with drug therapy alone. The study included 30 patients aged between 50 and 82 years, divided into two groups: group A, including 15 patients who received both anti-Parkinson drug treatment and rehabilitation treatment consisting of massage, kinesiotherapy and occupational therapy, and group B, patients who received only anti-Parkinson drug treatment. The duration of treatment was two weeks. The study included patients with stages I-IV (the Hoehn and Yahr scale). The evaluation scale used was the Garden City Scale for the testing of tremor, bradykinesia, stiffness, gait, posture, facies, upper limb balance, speech, vegetative disorders and the self-care ability. At the end of the study, the study group, with rehabilitation treatment, had statistically significant improvements compared to the control group, with drug treatment alone. The highest improvements were found in the items "stiffness" and "bradykinesia", and due to these, the quality of gait was also improved. The exercises for the increase of facial mobility are extremely important, because they improve the verbal and non-verbal communication function. Our data suggest the fact that early individualized rehabilitation treatment plays an important role in the improvement of the quality of life of patients with Parkinson's disease, by the reduction of the degree of disability, the prevention of complications and the increase of the quality of life. Each patient should benefit from rehabilitation treatment that should be continued at home for better results.

Keywords

Parkinson's disease, Garden City Scale, anti-Parkinson therapy, medical rehabilitation in Parkinson's disease

Introduction:

Parkinson's disease is a major health problem, with medico-social as well as economic implications. It is a neurodegenerative disease of the extrapyramidal system, which occurs following the slow and progressive destruction of pigmented dopaminergic neurons in the brain stem, particularly the substantia nigra and the presence of Lewy bodies [1].

The existence of a nigrostriatal dopaminergic neuronal system, whose disturbance generates many extrapyramidal manifestations (Parkinson's disease), is unanimously recognized [1].

During the course of the disease, many patients encounter mobility difficulties, including transfer, arm mobility and gait difficulties. Due to the frequency of these symptoms, a fear of falling, getting hurt, as well as a loss of independence and inactivity develop, which leads to social isolation and the increase in the risk of osteoporosis and cardiovascular disease [2].

Parkinson's disease causes not only motor disorders such as rest tremor, stiffness, bradykinesia and gait disorders, but also cognitive disorders, autonomous dysfunction: constipation, orthostatic hypotension, postprandial hypotension, perspiration, depression, sleep disorders, dementia. Given that these manifestations occur as early as in stage I of the disease, the idea that these non-motor symptoms are prior to the diagnosis of Parkinson's disease can be supported [4].

There are clear indications that motor disorders cannot be treated with drug therapy alone, which is why the best rehabilitation treatment method must be chosen [5, 6].

The aim of the study is to show the importance and the role of rehabilitation therapy in patients with Parkinson's disease compared to drug therapy and to improve the medical education of patients, through a kinesiotherapy program to be followed at home.

Material and method

The study included 30 patients aged between 50 and 82 years, diagnosed with Parkinson's disease stages I-IV according to the Hoehn and Yahr classification, who were assigned to two groups. The exclusion criteria were patients with Parkinson's disease stage V and those with contraindications for the physical-kinetic rehabilitation therapy methods.

Group A, the study group, included 15 patients who received, in addition to anti-Parkinson drug therapy, rehabilitation therapy. Group B, the control group, included 15 patients who were treated only with drug therapy. This was a prospective study that was carried out at the Clinical Rehabilitation Hospital in the period November 2012 – July 2013. In order to establish the degree of physical deficiency, we used for evaluation the Garden City Scale that tested 10 items: tremor, stiffness, bradykinesia, gait, posture, upper limb balance, facies, speech, vegetative disorders, self-care ability. The total score of the scale is obtained by adding up the scores from 0 to 3 for each item; the lower its value, the better the general status of the patient; the maximal score (30) corresponds to a highly disturbed clinical-functional status, with multiple dysfunctions. The evaluation test was performed twice, before the beginning of rehabilitation therapy and after the last session.

For both groups, the duration of treatment was 10 days. The study group benefited in addition to anti-Parkinson medication from rehabilitation therapy consisting of kinesiotherapy, massage and occupational therapy, while for the control group, treatment consisted of anti-Parkinson drug therapy.

Limitations of the study

The major limitation of the study consisted of the short treatment period (10 days). The continuation of an individualized rehabilitation program at the patient's home is recommended.

Results

After the completion of treatment, the total score of the Garden City Scale in the study group was 210 compared to 267, the total score recorded before treatment. In the control group, the total score of the Garden City Scale was 301 initially, and after treatment it was 291, which was statistically significant ($p < 0.05$).

At the final testing, 54% of the patients of group A had improvements, which means a 5 point decrease of the final score compared to the initial score. In the case of moderate improvements, there was a 3 point decrease of the score, and for partial improvements, a 1 point decrease was recorded (Fig. 1). The items for which the highest improvements were obtained were bradykinesia and stiffness.

The diagram of bradykinesia showed an increase of the 0-1 score segment from 27% to 60% at the final testing (Fig. 2).

The diagram of stiffness showed the following results: the 0-1 score segment increased from 4 to 10 patients, the 1-2 score segment decreased from 9 to 5, and the 2-3 score segment decreased from 2 to 0 patients (Fig. 3).

Due to the fact that the rehabilitation program of the study group A also included exercises in the mirror for the mobilization of facial muscles, a 4 point improvement in the facial mimicry score of these patients on the Garden City Scale was recorded (Fig. 4).

Following the improvement of the stiffness and bradykinesia items, an improvement in the quality of gait could also be seen in the study group A. Thus, if at the initial testing only 8 patients ranged within the 0-1 score interval, at the final testing, their number increased to 11 (Fig. 5).

Conclusions

The study shows that rehabilitation treatment associated with drug therapy had a beneficial effect on the quality of life of the patients and the reduction of the degree of disability.

The results show that the functions that were best recovered were stiffness and bradykinesia. Due to these two, the quality of gait was also improved.

The facial mimicry exercises contributed to the improvement of the verbal and non-verbal communication function of the patients.

The initiation of an early individualized therapy helps patients improve their self-care ability, maintain independence in ADL, and increase their quality of life in a statistically significant proportion compared to those without rehabilitation treatment.

The best results were found in patients with less advanced disease, those at stages I and II according to the Hoehn and Yahr classification.

Bibliography

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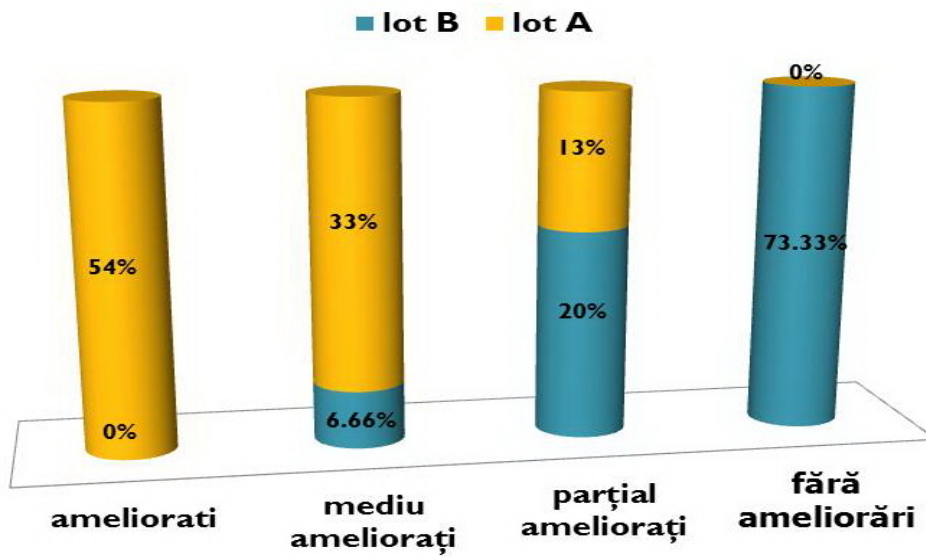


Fig. 1 Garden City score on day 10 in the two groups.

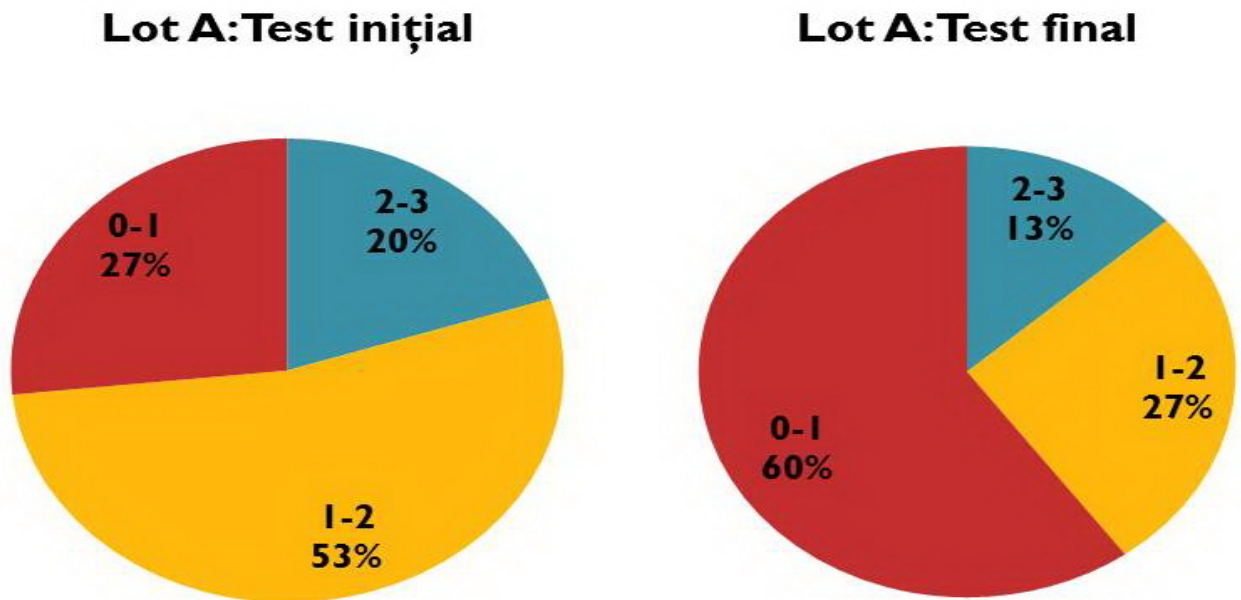


Fig. 2 Evaluation of the bradykinesia score at the initial and final testing for the study group A

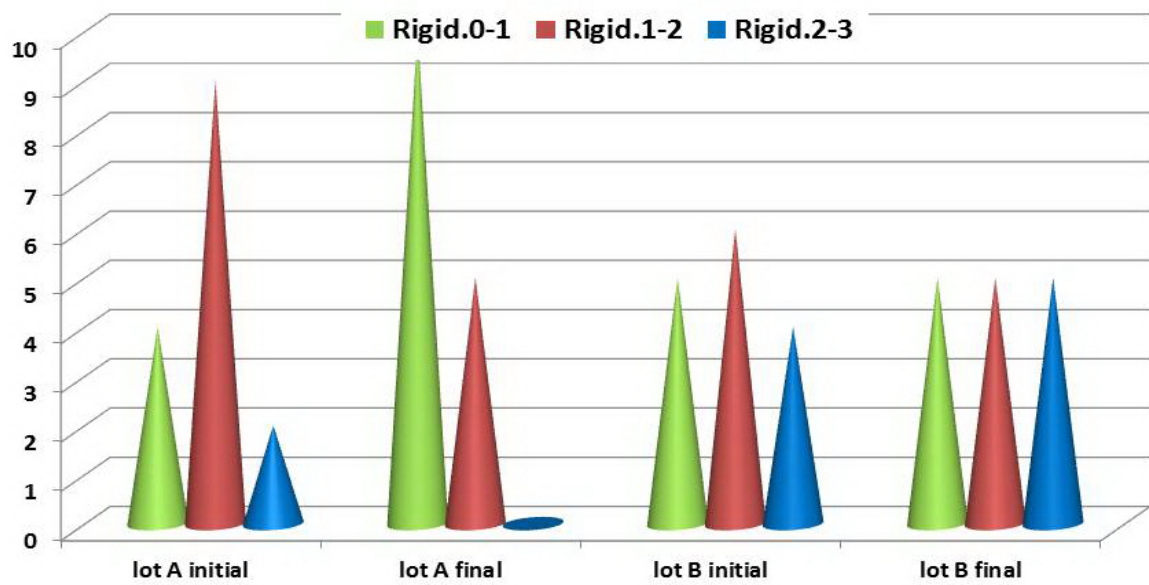


Fig. 3 Diagram of the stiffness score evaluated on the Garden City Scale

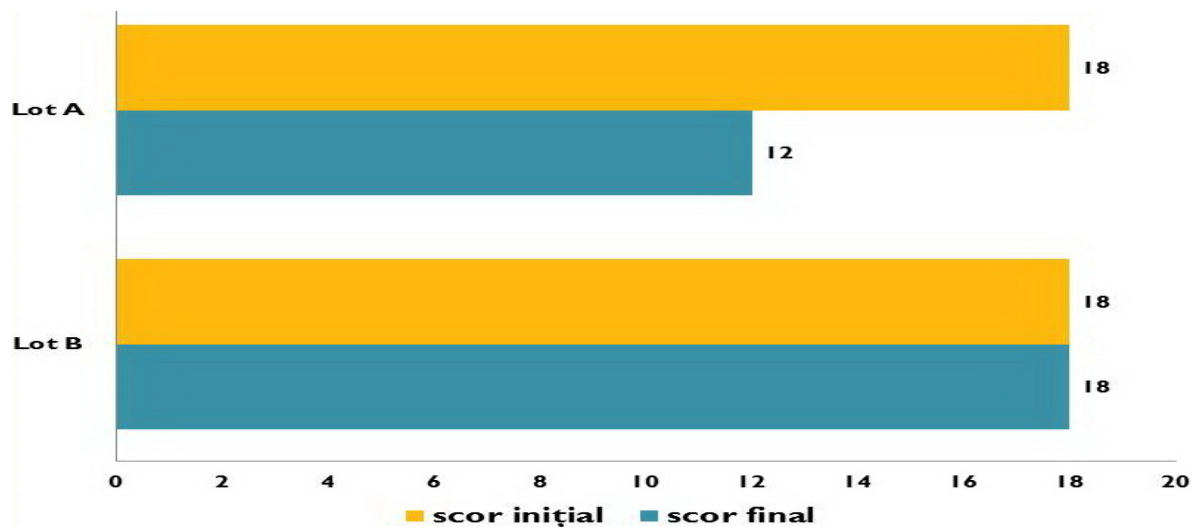


Fig. 4 Evaluation of the total facies score on the Garden City Scale

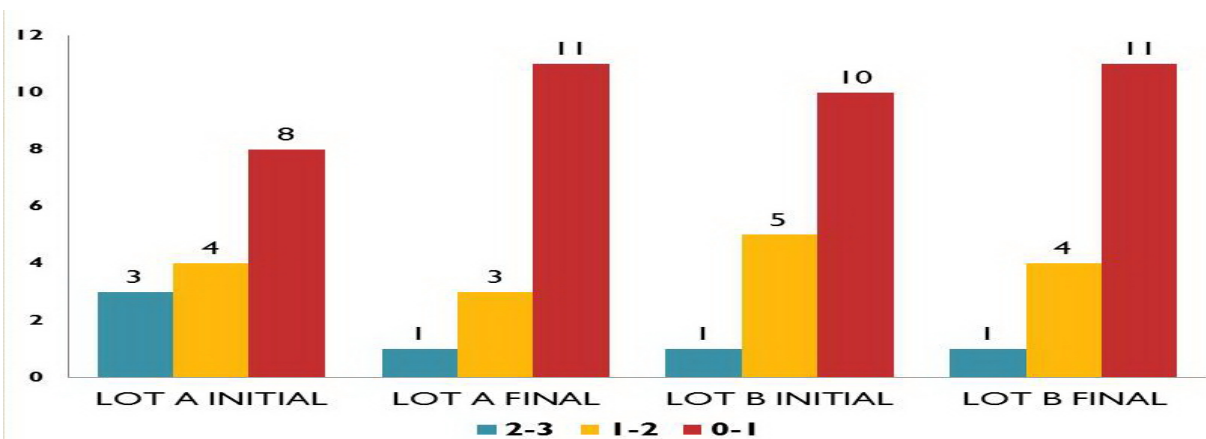


Fig. 5 Evaluation of gait on the Garden City Scale