Nursing care of a patient with Parkinson's disease in domestic conditions

(Opieka pielęgniarska nad osobą z chorobą Parkinsona w warunkach domowych)

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Abstract – The authors have presented the etiopathogenesis and clinical picture of Parkinson's disease and the possibilities for its diagnosis and treatment and they have discussed the complications associated with the progression of the disease. Attention has also been drawn to the tasks of nurses for specific disorders and patient self-care constraints. The importance of support for the family in which a problem Parkinson's disease has occurred has been stressed. The authors have also discussed the education of the patient and his family on the actions to be taken to maintain the patient's fitness at the best level possible.

Key words – Parkinson's disease, nursing, nurse.

Streszczenie – Autorzy przedstawili etiopatogenezę i obraz kliniczny choroby Parkinsona oraz możliwości jej diagnozowania i leczenia, omówili powikłania, z jakimi wiąże się postęp choroby, zwrócili uwagę na zadania pielęgniarki w przypadku konkretnych zaburzeń i ograniczeń w samoobsługę pacjenta, podkreślili znaczenie wsparcia dla rodziny, w której pojawia się problem choroby Parkinsona, omówili również szczegółowo edukację pacjenta oraz jego rodziny w zakresie działań podejmowanych w celu zachowania jak najlepszej sprawności chorego.

Słowa kluczowe – choroba Parkinsona, pielęgnowanie, pielęgniarka.

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A. The idea and the planning of the study
B. Gathering and listing data
C. The data analysis and interpretation
D. Writing the article
E. Critical review of the article
F. Final approval of the article

I. INTRODUCTION

Once a disease affects a patient, it becomes a problem not only for him/her but also for the entire family, disturbing its functioning, particularly in the case of chronic diseases. Parkinson's disease can undoubtedly be classified as one of such diseases. It is one of the most frequent nervous system diseases occurring in old age. [1]. Average incidence age is 57 years and the risk increases with every subsequent year [2]. The symptoms intensify gradually and limit the patient's ability to function independently in social and professional environment. Such persons eventually become unable to perform everyday activities; they have increasing problems with moving around their home. The disease leads inevitably to complete dependence on care by other persons.

The aim of this paper is to present the problems of a person suffering from Parkinson's disease and the influence of the disease on the whole family as well as to discuss the tasks of a nurse in the care of the patient and his/her family.

II. PARKINSON'S DISEASE - HOW TO LIVE?

Parkinson's disease is classified as a degenerative idiopathic disease related to subcortical nuclei and - in particular - substantia nigra. The cause of the disease has not been found so far; however, an inflammatory factor was once taken into consideration. In recent years, it has been discovered that the subcortical nuclei of persons who died
from Parkinson's disease have lower dopamine content. Due to the dopamine deficiency, regulatory effects of substantia nigra on motor activity are suppressed and the symptoms of the disease appear. The pathogenesis of the disease is related to other mediators and correspondent receptors and neural systems: GABA, serotonin, glutamic acid, enkephalins [3]. So far, the cause of the degeneration of the extrapyramidal system cells is unknown. It is believed that the disease is linked to genetic factors, the effect of free radicals, potential infection and even poisoning. It has also been proven that certain substances, e.g. methylphenyl-tetrahydro-piridine (MPTP), can selectively damage the cells of substantia nigra [3].

The diagnosis of Parkinson's disease is a clinical procedure – there is no test (biochemical, genetic, neurophysiological or neuroradiological) which would enable to confirm the disease, and laboratory tests can be helpful only in terms of excluding other causes of parkinsonism (parkinsonian syndrome) [3]. Diagnostic criteria for Parkinson's disease by United Kingdom Parkinson's Disease Society Brain Bank (UK PDS BB) are commonly used and they comprise primarily clinical diagnosis of the parkinsonian syndrome. The subsequent stage of diagnostic procedure involves an interview, clinical examination and laboratory tests, which are then subject to analysis in the context of the occurrence of symptoms suggesting other cause of parkinsonism than Parkinson's disease. The parkinsonian syndrome is diagnosed when slowness of movement and one of the following symptoms are observed in the patient:

- muscle rigidity with the "lead-pipe" or "cogwheel" symptom;
- rest tremor with a frequency of 4-6 Hz;
- posture disorders which cannot be explained by visual, labyrinth or cerebellum disorders [4].

The disease usually commences between 50 and 60 years of age. It is more frequent among men [3].

A characteristic onset of the disease is related to the occurrence of one or more of the following symptoms:

- deterioration of mobility – slowness of upper or lower limb motions, usually at one side of the body and accompanying feeling of muscle rigidity, microphagia, impoverished spontaneous motions;
- tremor – at the initial stage of the disease development, typical tremor is discrete and unilateral. It intensifies when one's attention is averted and it diminishes when precise movements are performed. It includes primarily fingers and hands and it can be controlled by one's conscious effort. It is so-called rest tremor;

- slowness of movement – it can be noticeable e.g. in delayed reactions, difficulties with starting a motion, limited facial expression and slow gait;
- posture and balance disorders – flexed posture is a characteristic symptom [5].

Other typical symptoms of Parkinson's disease include: blood pressure drops (causing collapses), depressed mood with a possibility of strong depression and fear, sleeping disorders, slow thinking, memory and spatial orientation disorders, persistent obstructions, disorders in the functioning of urinary bladder, erectile dysfunctions, facial seborrhea, excessive salivation or dryness in mouth cavity, thermoregulatory disorders, strong sweating, feeling of hindered breathing [5].

In an advanced Parkinson's disease stage, the slowness can become extremely intensified, which is reflected in posturing and the inability to perform any motion without the assistance of another person [5]. The stages of Parkinson's disease and relevant symptoms are presented in Table 1.

Table 1. The stages of progression of Parkinson's Disease [4]

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
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<tbody>
<tr>
<td>Stage I</td>
<td>Unilateral symptoms, without apparent influence on everyday functioning of the patient and without apparent impairment of mobility, lasts for approx. 3 years</td>
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<tr>
<td>Stage II</td>
<td>Bilateral symptoms but significantly more distinct on the side at which the disease began; typical clinical picture – with hypomimia and hypophonia, flexion, impairment of synkineses and gait, lasts for approx. 3-4 years</td>
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<tr>
<td>Stage III</td>
<td>Distinct bilateral symptoms with the impairment of postural reflexes, the patient is still independent in everyday life but he/she performs many activities with difficulty and considerably slower; such a state can last for many years</td>
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<tr>
<td>Stage IV</td>
<td>Advanced impairment of mobility, the patient is dependent on other persons, he/she requires assistance with many everyday activities, the patient's standing and walking is maintained, it is much impaired, however, with falls – such a state can last for many years</td>
</tr>
<tr>
<td>Stage V</td>
<td>The patient is considerably dependent on others, he/she usually sits or lies, walking is possible with considerable assistance of other persons</td>
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The progression of Parkinson's disease is slow but it leads to complete disability. The development of the disease can be fast or mild with the symptoms not progressing for long time [3].

The late stage of Parkinson's disease is characterised by the occurrence of numerous complications related to the progression of the disease. These include, among others:
- speech, swallowing, vegetative, sleeping and mental disorders;
- femoral neck fractures due to falls, which is also related to orthostatic hypotonia, vertigo, postural instability;
- symptoms such as posturing or freezing of gait;
- reduced drug efficiency and the occurrence of undesirable symptoms related to prolonged treatment: motor fluctuations, choreic and dystonic dyskinesias;
- shortened duration of drug action or the lack thereof [4].

There are two parallel ways of treatment which involve potential neuroprotective treatment and symptomatic treatment.

Neuroprotective treatment slows down the development of the disease. Drugs with such an effect include:
- MAO-B inhibitors (selegiline, rasagiline);
- amantadine;
- coenzyme Q-10.

When deciding upon the commencement of the treatment and the selection of the drug, one has necessarily to take into consideration such factors as: age, professional activity, the severity of the symptoms, comorbidities, other drugs taken, concurrent mood disorders, and the costs of the treatment. In the case of patients below 70 years of age, the initial treatment involves administering neuroprotective drugs and amantadine + symptomatic treatment: a dopamine receptor agonist (ropinirole, pramipexole, rotigotine or piribedile) or a dopamine receptor agonist in connection with L-DOPA in small doses. Whereas in the case of persons over 70 years of age, only symptomatic treatment is preferred, in the form of L-DOPA monotherapy in at least 3 divided doses per day; the dosage should be gradually increased from the initial dose to an optimum dose [6]. At an advanced stage of the disease, the response to dopaminergic treatment deteriorates and other disorders occur, which reduce the patient's quality of life. At this stage, the therapy involves the treatment of motor and extramotor disorders [6].

Parkinson's disease is a chronic and progressive illness, therefore it affects the quality of life of patients and their families. Motor and extramotor disorders have various functional consequences for the patients and functional disability depends on the stage of the development of the disease. Studies carried out among persons with Parkinson's disease have confirmed that their everyday functioning is disturbed. Moreover, the most problematic factors for patients have been identified, namely: using telephone, preparing drugs and taking them on one's own, shopping, going to places beyond a stroll distance, preparing meals on one's own, performing some household chores on one's own, e.g. cleaning. Research by Królikowska et al. has also revealed deficiency in everyday functioning: i.a. mobility problems, problems with personal hygiene, with eating and getting dressed [7]. Minor disorders are observed in the area of emotional well-being and communication. The quality of life of persons with Parkinson's disease is also determined to a great extent by neuropsychiatric disorders: depression, impairment of cognitive functions, sleep disorders. Independent functioning in the household contributes to the improvement of the quality of life of persons suffering from Parkinson's disease. Therefore, nursing care needs to take into consideration the fact that Parkinson's disease affects every sphere of a patient's life. Disability, which leads to depression, excludes the patient from professional, social and family life. The role of the nurse is to improve the patient's quality of life [7]. It is important to ensure appropriate atmosphere, mutual trust and inclusion of the patients in various household tasks. Persons with Parkinson's disease remain mentally capable for long time, therefore excluding them from family matters can lead to the feeling of loneliness. It is necessary to enable such persons to pursue their interests and not to leave them alone with their illness [8].

Professional activity of such persons should be maintained, since leaving work usually increases disability due to the disease. One should, however, limit or refrain from driving [8].

Both the family and the patient himself/herself can receive support in various associations, clubs and mutual help groups. Participation in such meetings encourages those physically and mentally ill and helps to combat the symptoms of the disease.

Educational activities are intended to prepare the patient to cope with the symptoms of the disease as well as with side effects of the drug therapy administered, and also to facilitate the care of the patient by the family. The educational activities can include:
- encouraging the patient to daily physical activity;
o not showing impatience, not relieving the patient of his/her tasks, using visual, aural and tactile stimulation;
o hints facilitating dressing on one’s own: using sweatshirts, shirts without troublesome doing up, stretch trousers, Velcro shoes; avoiding clothes done up on the back; storing clothes in accessible and convenient place; the patient should dress himself/herself seated, having all necessary items at hand; when buttoning or zipping up he/she should use appropriate hook’ a long shoe horn should be provided;
o preventing falls: removing rugs, mats and other obstacles within the house and its surroundings; installing rails in the bathroom; avoiding standing in the bathtub – instead, shower should be taken in seated position; using rubber mats on the floor and in the bathtub; wearing dressing gown instead of drying oneself with a towel; using an electric toothbrush; leaving objects at the patient's hand; reminding the patient not to stand up abruptly from lying position; planning the activities reasonably so as not to exceed the patient's capabilities;
o in the case of increased tremor, encouraging the patient to relax mentally, to sit, to relax his/her shoulders and back, to breathe deeply; regular massages and physical exercises are also recommended; avoiding caffeine and alcohol, taking frequent rests and waiting with more difficult activities until one feels better;
o in the case of shuffling gait, instructing the patient to slow down or stop and to correct his/her posture; spacing feet conveniently; standing straight with head upright and raising feet excessively and balancing with hands at every step; practising long steps; when turning or turning back – going along a circular line; wearing low-heel, firmly fitted shoes;
o in the case of freezing of gait, the patient should stop further attempts to walk and press his/her heels to the ground, stand straight with head upright, look straight ahead, select a particular point and walk towards it; if someone accompanies the patient, he/she should follow, holding the patient’s arms or elbows;
o in the case of pain: using massages, warm baths, applying warm pillows to aching spots, using cold or hot compresses, anti-inflammatory ointments; avoiding overstraining and exceeding one’s capabilities; doing daily exercises; in the case of cold hands and feet – wearing warm gloves and socks;
o providing the patient with thick-writing pen, using soft-writing markers; stopping writing from time to time, raising the arm, straightening the elbow and moving one's fingers; using a computer; sending longer statements in the form of a recording;
o encouraging the patient to practice speaking;
o informing the patient and the family about the necessity to commence comprehensive rehabilitation as soon as possible; it should include kinesitherapy classes, logopaedic classes, music therapy, hippotherapy, meetings with a psychologist, occupational therapy;

● Education concerning diet [5,9]:
o obtaining diet history and establishing the patient’s diet, informing him/her that an easily-digestible, protein-reduced, cellulose-rich diet is recommended, with appropriate quantity of liquids (6-8 glasses per day) and the amount of calcium that ensures appropriate bone structure (1000-1500 mg/day);
o providing rubber pads, deep plates, customised cutlery with thickened grips; preparing meals that do not require cutting;
o explaining the reason for the difficulties with swallowing and informing that the patient should eat small portions, in small mouthfuls, chew slowly and thoroughly, swallow carefully; adapting meals to the patient’s capabilities; not urging the patient while he/she is eating; providing preheated plates provided; informing the patient that he/she should swallow excess saliva before taking another mouthful and drink often after swallowing the bites;
o making the patient aware of the necessity of self-monitoring and recording in the diet
notebook the food that delays or improves drug action;

- Education concerning drug therapy:
  o informing that L-DOPA should be taken at an half-hour interval before main meals or after a small snack if nausea prevents taking the drug fasted;
  o the control of the regularity of drug taking and the knowledge of adverse events and side effects;
  o informing about the consequences of abrupt drug withdrawal: rapidly increasing disturbances of consciousness, high body temperature, tachycardia, blood pressure fluctuation, hypokinesia, and even death;
  o informing the patient about side effects (nausea, vomiting) and to avoid drugs that suppress dopamine action and strengthen the symptoms of the disease: neuroleptics (haloperidol, sulpiride) and calcium channel blockers (cinnarizine, flunarizine), metoclopramide;

- Education concerning mental support [9]:
  o encouraging the family to perform as many activities with the patient as possible;
  o encouraging the patient to participate actively in family and social life;
  o not urging the patient while he/she is performing an activity;
  o encouraging the family to prepare the patients in advance before going out on appointed time, to take care of their own health as well, to maintain contacts with friends, to participate in self-help groups and associations of people affected by Parkinson’s disease;
  o maintaining mental balance of the patient, sympathy and taking notice of the patient’s emotional states.

III. REFERENCES