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Nursing Care of Patients with Myasthenia Gravis — Case Report

Opieka pielęgniarska nad pacjentem z miastenią — opis przypadku

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Abstract

Introduction. Myasthenia gravis is an autoimmune disease caused by disruption in normal neuromuscular transmission due to the reduction in the number of the acetylcholine receptors. Patients with myasthenia gravis require an individual and comprehensive nursing care to meet the needs of both biological and social nature. Properly undertaken nursing interventions improve the quality of life of patients and allow them to function independently in a daily life. An important issue is cooperation not only with the very patient, but also with their family.
Case Report. A case of 57-year-old patient with myasthenia gravis, the dominant muscle weakness in both lower and upper limbs. The weakening of facial muscles and tongue, dysphagia and problems with food intake led to malnutrition and poor health condition. The onset of disease was at the age of 26, on the first day after giving birth.
Discussion. Care for patients with myasthenia gravis must be comprehensive, and nursing-therapeutic care should meet individual patient's needs in accordance with applicable guidelines.
Conclusions. The case of the patient with myasthenia gravis allowed to identify the difficulties she struggled with. The main activities of nursing care provided the patient with the feeling of safety, better psychomotor activity and assistance in self-care activities. The knowledge about disease and its complications helped to improve daily functioning and coping with difficult situations. All measures taken in this regard proved to be effective, as they reduced anxiety and weakened the sense of isolation and loneliness. **(JNNN 2017;6(2):88–97)**
Key Words: myasthenia gravis, nursing care, nursing problems

Streszczenie

Wstęp. Miastenia jest schorzeniem o podłożu autoimmunologicznym, spowodowanym zaburzeniami przewodnictwa nerwowo-mięśniowego, wskutek zmniejszenia ilości receptorów acetylocholinowych. Pacjenci z miastenią wymagają indywidualnej oraz kompleksowej opieki pielęgniarskiej w celu zaspokojenia ich potrzeb zarówno biologicznych jak i społecznych. Właściwie podjęte interwencje pielęgniarskie poprawiają jakość życia pacjentów oraz umożliwiają im sprawne funkcjonowanie. Istotnym wydaje się współpraca nie tylko z samych chorym, ale również z jego rodziną.
Opis przypadku. Przedstawiono przypadek 57-letniej pacjentki z miastenią, z dominującą nużliwością mięśni, zarówno kończyn dolnych jak i górnych. Osłabienie mięśni twarzy i języka oraz zaburzenia połykania i kłopoty z przyjmowaniem pokarmów doprowadziły do niedożywienia i osłabienia organizmu pacjentki. Pierwsze objawy choroby pojawiły się u pacjentki w wieku 26 lat, w pierwszej dobie po urodzeniu dziecka.
Dyskusja. Opieka nad pacjentem z miastenią musi być kompleksowa, a podejmowane czynności opiekuńczo-terapeutyczne należy dostosować do indywidualnych potrzeb pacjenta zgodnie z obowiązującymi zaleceniami.
Wnioski. Przypadek chorej z miastenią pozwolił wskazać na trudności, z jakimi zmagała się pacjentka. Główne działania pielęgnacyjne zapewniły chorej bezpieczeństwo, usprawnienie psychoruchowe oraz pomoc w czynnościach samoopiekuńczych. Zdobyta wiedza na temat choroby i powikłań z nią związanych przyczyniła się do poprawy codziennego funkcjonowania i radzenia sobie w trudnych sytuacjach. Wszystkie podjęte działania w tym zakresie odniosły zamierzony skutek, gdyż obniżyły stany lękowe, osłabiły poczucie izolacji i osamotnienia. **(PNN 2017;6(2):88–97)**
Słowa kluczowe: miastenia, opieka pielęgniarska, problemy pielęgnacyjne

Introduction

Myasthenia gravis (myasthenia gravis — MG), as defined by the D.B. Drachman "is a neuromuscular disorder characterized by weakness and fatigability of muscles" [1]. This defect is caused by a decrease in the number of available acetylcholine receptors (acetylcholine — ACHR) on the junction between the nerve and muscle, caused by an autoimmune attack by means of antibodies.

In addition to muscle weakness, frequent concomitant clinical symptoms of the disease are droopy eyelids (ptosis) — unilateral, bilateral, alternate (in 50–90% of patients), blurred vision and even diplopia (15% of patients), drooping jaw, weakening voice and slurred speech. About two-thirds of patients have dysphagia and dysarthria. Proximal limb and neck weakness is reported by 20–30% of patients visiting a doctor. A head drop is also a frequently reported symptom. Other symptoms include respiratory insufficiency related to weakness of diaphragm and respiratory muscles [2]. Additionally, 65% of patients with muscle weakness have thymic hyperplasia and 15% of patients are diagnosed with thymoma [3].

The weakening of facial muscles causes abnormal facial expression, a snarling smile the so-called Gioconda's syndrome. Fatigued masseter muscles lead to the hanging jaw and head drop, bulbar muscle weakness is associated with impaired speech, chewing and swallowing, and affected muscles of upper limbs lead to difficulty in combing and brushing, while in the case of the lower limbs appears a need for a rest when walking, going down the stairs and there are incidents of falls while running [4]. When symptoms exacerbate they may cause myasthenic crisis. Myasthenia gravis may have other concurrent autoimmune diseases such as hyperthyroidism, diabetes mellitus, psoriasis, multiple sclerosis and rheumatoid arthritis [4].

The epidemiological studies show that myasthenia gravis is a disease affecting 10–15 per 100 000 people. In Poland, approximately 5.000 people suffer from this disease but every year 200 new patients are diagnosed. Myasthenia gravis can affect people of any age, however it most commonly occurs in women aged 20–30 and in men aged 50–60. There are quite frequent cases of familial predispositions to develop myasthenia, however it is not a hereditary disease [5].

Myasthenia gravis may have different courses. In 8–10% of cases spontaneous remissions may appear during symptomatic treatment, other patients require continuous treatment, and if symptoms worsen, surgical thymectomy is performed (removal of the thymus). Given the clinical picture of the disease and its course, we can distinguish two types of myasthenia gravis:

— Type 1 — ocular (ptosis, diplopia, squint),
— Type 2 — general form of myasthenia,
  • Subtype 2A — mild form (mild ocular, bulbar and limb muscle weakness without respiratory disorders, symptomatic treatment: acetylcholinesterase inhibitors;
  • Subtype 2B — subacute form, early manifestations (refer to bulbar, eye and limb muscles) are more acute, and after a few months of treatment, patients no longer respond to symptomatic medications;
  • Subtype 3 — acute form — sudden bout of severe generalized myasthenia gravis with severe bulbar symptoms and respiratory disorders or sudden worsening of symptoms from 2A and 2B subgroups with respiratory disorders [6].

The main medications used in the treatment of myasthenia gravis are cholinergic medications, slowing decomposition of acetylcholine and facilitating the transfer of information from nerve to muscle. These include:

— Edrophonium (Tensilon),
— Pirydostygmina (Mestinon),
— Ambenonium (Mytelasa) [4].

Treatment includes:

— thymectomy (when suspecting thymoma),
— corticosteroids,
— Immunosuppressive agents (azathioprine, cyclophosphamide and other).

Myasthenia can also be treated by applying various types of non-specific immunotherapies, and in the future, according to A. Kamińska and H. Kwieciński, through selective and specific immunotherapies. Severe cases of myasthenia and myasthenic crisis are treated with plasmapheresis (patient condition improves by removing antibodies) and intravenously administered immunoglobulin (Intravenous immunoglobulines — IVIG). Their effectiveness is comparable to the effectiveness of plasmapheresis (PE). Both methods generate similar costs, but the advantage of the first one is that it can be performed in any hospital without hospitalization in specialized departments [7].

The aim of the study is to draw attention to the problem of nursing care of patients with myasthenia gravis in a hospital, to present the most important problems and to propose measures to eliminate or minimize them.

Case Report

BZ- is a 57- year-old woman was referred to the Department of Neurology for the diagnosis of bulbar syndrome of significant intensity.

The first symptoms appeared at the age of 26, the first day after giving birth, in the form of speech impairment, mastication and swallowing difficulty and double vision. Pregnancy period was full term without complications, the son was born in a natural way, without any signs of transient neonatal myasthenia gravis.

Bulbar and ocular symptoms contributed to a diagnosis of hypothyroidism and myasthenic syndrome in its course. Ambenonium was administered to the patient but without clinical improvement. The patient was treated endocrinologically, however, dysphagia and mild speech impairment persisted. Double vision occurred occasionally. There was no relationship between the severity of symptoms and physical activity exercise or rest.

At the age of 29, she was once again hospitalized with suspected myasthenia gravis. Neurological examination revealed limitation of eye movement, bulbar palsy. A test of intravenously administered edrophonium chloride was negative, administration of the drug caused muscle contractions described as fasciculations. A creatine kinase level was normal. EMG did not indicate pathology. Muscle biopsies were performed — however, the results were good. There was a constant bulbar muscle weakness, and slightly decreased eye muscle weakness.

At the age of 36 she was hospitalized again due to bulbar palsy, neck muscle weakness. The EMG report arouse suspicion of amyotrophic lateral sclerosis. At the same time the patient started to report shortness of breath after minimal physical effort.

At the age of 53 in the course of pneumonia there appeared a respiratory failure. She was also diagnosed with hypothyroidism and myocardial ischemia. During hospitalization, she required respiratotherapy, the patient received dexaven and intravenous human immunoglobulin with improvement. Corticotherapy was continued with prednisone in a dose of 5–10 mg/day. AChRAb concentration was tested and the result was negative and amounted to 0.112 nmol/l.

At present, the patient is hospitalized at the Clinic of Neurology presented with: small symmetrical ptosis, permanent muscle weakness of the face and tongue, speech disorders (nasal speech) and difficulty in swallowing, lack of mandibular and gag reflexes, without features of apokamnosis, weak neck muscles.

Basic biochemical test results were without deviation. She was treated with thyroxine for hypothyroidism. EMG revealed discrete myopathic features. Facial nervefatigue test was negative. Facial muscles were clearly weakened. There was no confirmation of AChRAb. A positive result of antibodies to MuSK — 2.3 nmol/L (n<0.05 nmol/l) allowed to diagnose MuSK positive myasthenia (MuSK-MG). Treatment with steroids is continued, the patient receives intravenous immunoglobulin infusions with improvement. The patient BZ presents an unusual clinical picture for a typical model of MG, since there is no neuromuscular transmission disruption during severe muscle weakness.

Analysis of the patient BZ allowed to make the following nursing diagnoses and determine actions to improve her health and the quality of life.

Diagnosis: Limited Independence in Ambulation and Self-Care Activities Resulting from Muscle Fatigability

Aim: Improvement of physical condition, more independence in daily activities.

Nursing activities [8]:

- — assessment of degree of patient functional impairment and the variability of symptoms in a circadian rhythm,
- — assess the need for assistance in:
  - • ambulation (getting up, walking),
  - • self-service activities (self-care, bathing, changing a bed, etc.);
- — perform fatiguing activities in moments of physical well-being,
- — provide optimal conditions to perform self-care activities connected with bathing:
  - • make sure that water temperature is proper,
  - • provide privacy during bathing and using the toilet,
  - • prepare toiletries in an easily accessible place,
  - • ensure the safety (non-slip mats, shower handles),
  - • plan a bath early in the morning or in the evening before going to bed (to adapt to the physical possibilities of the patient,
  - • ensure enough time for bathing,
  - • assistance in self-care activities;
- — training on techniques of safe movement and greater independence in daily activities,
- — provide occupational therapy.

Nursing activities assessment:

- — ambulation was improved,
- — more independence in self-care activities e.g. bathing.

Justification for taken actions:

Limited mobility (impaired ability to climb stairs, walk on uneven surfaces, move around on foot) was associated with impaired neuromuscular disorders occurring in myasthenia gravis. Nursing interventions included gradual work on patient's mobility, demonstrating optimal independence and security of walking. Slow gait resulted from a fear of falling, visual disturbances, contractures that prevent bending of the knee and foot pain. In order to activate the patient physically the special exercise therapy was applied to improve physical functioning. In case of exercise intolerance the patient walking was tested alternating

periods of walking with 5 minute periods of rest when shortness of breath, nausea, dizziness or fainting appeared. Training to maintain balance, reinforce the endurance was adapted to the individual abilities of the patient.

Diagnosis: Exercise Intolerance Caused by Fatigue and Weakness

Aim: Improve exercise tolerance.
Nursing activities [9]:
- — assessment of patient's physical capacity and her response to exercise (measured vital parameters at rest and after exercise: pulse (tension, rate, rhythm), blood pressure, frequency and nature of breath),
- — implementation of individual program of activity with grading exercise (set of exercises chosen by the doctor and physiotherapist),
- — teaching the patient how to manage acceptable physical activity in the hospital and at home,
- — ensure conditions for good rest and sleep during the day (especially shortness of breath does not allow for restorative sleep),
- — reduce anxiety and emotional tension of the patient (spend time with the patient, share positive messages, enable contacts with a family),
- — light diet meeting the patient's preferences,
- — during exacerbated shortness of breath — oxygen therapy,
- — monitoring the response to administered drugs (to detect complications and side effects).

Nursing activities assessment:
- — patient feels less fatigue,
- — no shortness of breath,
- — no anxiety,
- — cooperation with a therapeutic team.

Justification for taken actions:

Due to the exercise intolerance caused by fatigue and weakening of the body the nursing interventions were focused on motivating the patient to cooperate with a doctor and a physiotherapist on the basis of an individually prepared activity plan. The health education stresses the importance of sleep for the regeneration of the body and a healthy diet for better well-being and better mood.

Diagnosis: Difficulties with Food Intake Due to Dysphagia Caused by Muscle Weakness of Tongue, Throat and Larynx

Aim: Preventing the passage of food into the respiratory tract, facilitate food intake.
Nursing activities [9,10]:
- — perform respiratory and neuromuscular assessment of swallowing prior to the food intake (eating without control can lead to choking and gagging and, as a result to respiratory failure):
  - • prepare the equipment to suck secretions,
  - • position the patient upright with her head slightly forward,
  - • offer the patient small amounts of water (a teaspoon — from 50 to 100 ml),
  - • observation of the patient (the problem of coughing, choking),
  - • perform activities in the presence of a doctor,
  - • adapt the way of eating to the degree of difficulty in swallowing (orally, by gavage, parenteral nutrition or by nutritional fistula);
- — offer the patient fragmented foods, with a soft texture, avoiding foods difficult to chew (e.g. corn, pasta), or viscous such as butter and white bread,
- — avoid carbonated beverages causing flatulence, impairing breathing, add thickening agents to liquids to facilitate swallowing,
- — in case of choking force the patient to cough, perform chest percussion and suction of airways,
- — serve meals several times a day (even 6–7 times in small quantities),
- — eating slowly and calmly, without pressure,
- — remind about oral hygiene after every meal,
- — reduce fear of potential gagging,
- — leaving the patient in an upright position for one hour after a meal (in case of sneezing or coughing, food must be removed from mouth),
- — prepare the patient to do exercises reducing dysphagia, such as touching the palate with the tongue, stimulate palato-lingual bow with a cold mirror,
- — involving the family in the procedure and clarification of details on eating and swallowing.

Nursing activities assessment:
- — patient eats slowly, no choking,
- — no complications.

Justification for taken actions:

Dysphagia resulting from neuromuscular disorders, can be life threatening. As a result, it can lead to weight loss, dehydration, entering the food content to the airways, which may lead to pneumonia or cause acute respiratory failure. To prevent such situations, care was taken to facilitate food intake and mitigate fear of aspiration.

Diagnosis: Impaired Verbal Communication Due to Respiratory Failure and Facial Muscle Fatigability (Nasal Speech)

Aim: Improve communication with the patient's environment, reducing difficulty in speaking.

Nursing activities [11]:
- — asking the patient such questions which can be answered briefly,
- — listening carefully with maintaining eye contact,
- — teach the patient the proper manner of speaking (take a deep breath and take breaks after single words),
- — staying close to the patient while talking,
- — showing patience, understanding and sensitivity, eliminating stress,
- — select non-verbal communication (drawings, templates, gestures, facial expressions) in case of serious difficulty in speaking,
- — teach the family and the immediate environment of the patient about effective ways of communication.

Nursing activities assessment:
- — patient communicates verbally with a therapeutic team and with her family,
- — patient speaks slowly,
- — balanced mood.

Justification for taken actions:

Measures taken were supposed to improve verbal communication (slurred, nasal, quiet speech). Problems resulted from the limited vital capacity of lungs, caused by insufficient tidal volume, fatigability and stiffness of articulatory muscles. The communication methods applied in the therapy helped the patient to overcome difficulty in speaking, but also improved the process of communicating with the immediate environment.

Diagnosis: Nutritional Deficiencies and Weight Loss Due to Difficulties in Biting, Chewing and Swallowing Food

Aim: Supplement nutritional deficiencies, maintain a stable body weight and rehydration.

Nursing activities [12,13]:
- — assessment of the patient's ability to eat meals (nausea, vomiting, abdominal pain, diarrhea),
- — assessment of the nutritional status of the patient (control weight and other indicators, to determine the individual calorie requirements, keeping record of daily food intake),
- — choosing the right method of eating adapted to the degree of dysphagia, e.g. by gavage to limit the risk of aspiration pneumonia,
- — providing the necessary nutrients required for proper muscle work — proteins, fats, carbohydrates, vitamins and minerals,
- — offering the patient high amounts of protein that is found in milk and dairy products, poultry meat, beef and veal, eggs and fish also containing omega — 3,
- — provide products containing calcium, necessary for proper muscle work i.e. milk and dairy products and cheese,
- — offer the patient quality mineral water — rich in calcium and magnesium,
- — establish rules during meals to avoid the risk of aspiration (keep an upright position during eating, mealtimes should be suited to the periods of optimal strength, ensure rest in between bites),
- — meal should be prepared in the form of small, soft bites always with liquids in order to moisten the food,
- — avoid salted foods and processed foods containing large amounts of salt,
- — provide potassium in the diet by eating vegetables and fruits containing potassium: tomatoes, oranges, bananas, broccoli, poultry,
- — propose medical nutrition products containing large amounts of protein, energy and nutrients e.g. Nutridrink. Liquid form of these products makes them easy to consume,
- — offer blended foods and fluids for no longer than 3–4 weeks,
- — in the case of intubation, gavage feeding must be applied, in accordance with the principles of this type of feeding,
- — teach the patient and his family the proper diet and frequency of meals.

Nursing activities assessment:
- — patient eats by herself,
- — patient follows dietary recommendations.

Justification for taken actions:

Symptoms of malnutrition which appeared in the patient with myasthenia required conducting records on the number of meals, watching the weight. Due to difficulties in biting, chewing and swallowing the served food was chopped, minced or blended for easy digestion. Health education of the patients included issues concerning the application of an appropriate, balanced diet to ensure proper nutrition.

Diagnosis: Functioning Impairment Due to Vision Disorders and Ptosis

Aim: Reduce the risk of falling and limitations in functioning.

Nursing activities [9,14]:
- — vision improvement by passive raising of eyelids,
- — in the case of double vision covering eyes alternatingly,
- — use a special adhesive lifting eyelids,
- — eye observation for inflammation,
- — dropping eyes (if necessary) with artificial tears,

— instruct the patient to protect the eyes from potential injury,
— recommend wearing sunglasses,
— remove objects and equipment from the immediate environment which are likely to cause a trip or fall,
— assistance with ambulation.

Nursing activities assessment:
— patient moves slowly but independently,
— she is careful when walking to avoid tripping,
— follows recommendations.

Justification for taken actions:

A common symptom of myasthenia gravis is ptosis and its consequence — blurred vision. Double vision may also occur. Simple mechanical means were introduced in order to reduce falls, eliminate ambulation difficulties and improve efficiency in daily functioning.

Diagnosis: Anxiety Caused by Severe Dyspnea

Aim: Ensure the patient a sense of security.

Nursing activities [15,16]:
— accompanying the patient,
— monitoring of vital signs (breathing, blood pressure, heart rate, state of consciousness),
— preparation of a respirator,
— assurance of the rightness and relevance of taken therapeutic actions,
— administration of medications as prescribed.

Nursing activities assessment:
— reduced anxiety level of the patient.

Justification for taken actions:

Difficulty in breathing, shortness of breath, inability to perform a deep breath caused patient's anxiety and required nursing intervention. Checking breathing, heart rate, blood pressure, state of consciousness, arterial blood gases, limitation of physical activity, preparing the respirator and keep it ready to take ventilation — these are basic actions that will reduce the level of anxiety due to shortness of breath in the patient.

Diagnosis: Fear Before Returning to Daily Functioning at Home

Aim: Reduce the patient's stress levels, ensure the patient controls symptoms by herself.

Nursing activities [9]:
— inform the patient and her family about the disease and its treatment possibilities,
— teach the patient how to control undesirable symptoms such as aspiration, respiratory failure or difficulty in speaking,
— emphasize the factors causing exacerbation of symptoms to the patient and her family: bacterial and viral infections, fever, stress, increased physical activity and recommend to avoid them,
— encourage a healthy lifestyle (regular meals, moderate exercise, rest),
— focus physical activity on maximizing the vital capacity of the lungs, cardiovascular system and the efficiency of the motor system (walks, outdoor activities),
— teach the patient and her family how to recognize the symptoms of myasthenic or cholinergic crisis,
— teach the patient and her family to administer correct doses of medications (as prescribed),
— encourage the patient to sustain interest, social contacts, perform household chores (reasonable effort).

Nursing activities assessment:
— reduced anxiety,
— improved well-being.

Justification for taken actions:

Anxiety associated with functioning in outpatient settings is a common problem in patients. Fears and concerns were eliminated by educating the patient and their families about the disease and its course. The important aspect was also the education in the field of physical activity and regularity in the performance of physical exercises. The patient was recommended to fill out "myasthenic card", which would include information about currently taken medications and their dosage, as well as the ones, which the patient cannot take.

Diagnosis: The Feeling of Isolation and Loneliness Caused by the Disease

Aim: Reduce the feeling of isolation and loneliness.

Nursing activities [14]:
— help in coping with the disease: motivating the patient to take up physical, mental and self-care activity,
— participation in rehabilitation (medical, psychological, and social): exercises to improve fitness, performing relaxing activities according to patient preferences, maintaining social contacts and positive relationship with the environment, vocational rehabilitation, participation in cultural life,
— social support (informational, emotional, material),
— provide psychological counselling,
— encourage to join a support group,
— teach the patient the stress management techniques,
— motivate the patient to do daily activities (self-care, meal preparation, etc.),
— show understanding and patience.

Nursing activities assessment:

— patient attempted to start new relationships,
— patient got interested in joining a support group,
— reduced feeling of isolation and loneliness.

Justification for taken actions:

Lower quality of life, in the case described, was not only due to the decrease in physical fitness, but also due to the severity of psychological factors (anxiety, fear, loneliness and isolation) in a patient. Nursing interventions aimed at reducing the level of anxiety, improving mood and well-being of the patient. They motivated the patient to take up physical and psychosocial activity and look for support groups to expand social contacts and leave isolation.

Discussion

The source literature [4,5,9,12,16,17] demonstrates the existence of many problems in the care of patients with myasthenia gravis, related to i.a. with muscle weakness, drooping eyelids, double vision, impaired gait, contractures of knee joints and neck muscles, speech disorders, difficult swallowing, airway obstruction. Muscle fatigue can present various intensity levels. Patients often need just a short rest and symptoms disappear, however in many cases professional treatment is necessary.

Disease symptoms are accompanied by:

— limited independence in ambulation and self-care activities caused by muscle weakness and reduced body tolerance to exercise,
— risk of collapse due to impaired vision resulting from muscle weakness and ptosis,
— aspiration while eating, due to dysphagia (tongue, pharynx and larynx muscle weakness),
— weight loss caused by abnormalities in biting, chewing and swallowing,
— impaired verbal communication associated with respiratory failure (inability to speak long sentences, but also dysarthria) in connection with the fatigability of articulatory muscles (nasal speech, slurred),
— respiratory failure due to respiratory muscle weakness,
— anxiety, fear of intensifying symptoms (especially in patients with newly diagnosed disease) [9].

All presented characteristic symptoms of the disease have been diagnosed in the studied case of a 57- year old female patient BZ, suffering from myasthenia gravis for many years. Nursing care activities were developed in accordance with the instructions and suited to the individual needs of the patient. Major problems were connected with muscle weakness in both lower and upper limbs occurring in varying intensity, there were problems with ambulation, walking and performing daily activities as well as physical activity intolerance. Bulbar muscles were also fatigued, hence the speech became slurred and nasal and swallowing disorders and problems with food intake appeared. Problems with food intake led to malnutrition and poor health condition. Additional difficulty was the drooping eyelids, causing vision problems which could result in tripping and falling.

Myasthenia gravis led to limited independence in movement and self-care activities. Taken nursing actions improved ability of ambulating, walking on uneven surfaces, climbing stairs. Applied physical exercises included in occupational therapy improved the overall efficiency of the patient physical condition and a training of balance provided more stable gait.

In the studied case, the patient had exercise intolerance due to fatigue and weakness of the body, but implementation of the individual plan of physical activity improved the physical condition of the patient, the mood and well-being.

Bulbar muscle weakness accompanied BZ patient since an early stage of the disease, causing dysphagia, and to a lesser extent the speech disorders. Nursing treatments taken due to problems with biting, chewing and swallowing were associated with checking the possibility of swallowing before meals, and taking the appropriate position, preparing food of soft consistency and in small amounts. The above activities allowed a patient for independence during meals without the risk of aspiration.

Impaired verbal communication occurred in the patient (BZ) due to facial muscle weakness, causing slurred, nasal voice. Careful listening, keeping eye contact, being close to the patient during conversations, asking short questions allowed to maintain verbal contact.

As observed in the studies, patients with myasthenia gravis present a slower pace of auditory-verbal learning, similarly such patients obtained worse results in terms of direct memory compared to the healthy group. Patients also manifested reduced phonological fluency in comparison to healthy people. The studies showed no significant correlation between significance of fatigue for the cognitive processes in patients with MG. According to the study's authors, further research should focus on influence of fatigue and sleep apnea on cognitive functioning in myasthenia gravis [18].

According to the source literature, difficulty in swallowing (dysphagia) belongs to the basic problems in proper nutrition of the patient with myasthenia gravis. They arise from the weakness of masseter muscles and the tongue muscles, what leads to difficulties in biting and chewing, mainly at the end of the meal. Swallowing is also more difficult, there may appear nasal regurgitation (caused by palate muscle weakness). Aspiration, postprandial cough, food getting into respiratory tract

are typical symptoms, especially in the elderly (affecting at least 35% of patients) [13,16,17].

In the studied case there appeared also nutritional deficiencies, weight loss due to difficulties in biting, chewing and swallowing. In this study we controlled food intake, body weight, sought to improve the appetite. Taken actions resulted in improved nutritional status of the patient. Educational activities implemented in the process such as giving advice and tips on proper and healthy diet brought expected results.

The most serious consequence of dysphagia is aspiration pneumonia. Patients with positive screening test result should not be fed orally. To avoid the complications of dysphagia namely aspiration pneumonia, malnutrition and dehydration a patient should be treated therapeutically immediately after admission to the hospital [12].

Nursing activities should include both oral hygiene, antireflux procedures in oral and enteral nutrition, safe nutrition and preventing malnutrition and dehydration, as well as education of the patient and the family. Efficient flow of information about the limitations, procedures and therapeutic recommendations allows to reduce disturbances resulting from difficulty in swallowing and nutrition in patients with myasthenia gravis [12,16].

Drooping eyelids (ptosis) — is a common symptom of neurological diseases, including myasthenia gravis (appears in approx. 40% of patients and in the further course 85% of patients). First, it affects one eye, then both. According to A. Machowski-Majchrzak, K. Pierzchała, K. Kumor et al., "Drooping eyelids in myasthenia gravis are accompanied by compensatory contraction of the frontalis muscle and head tilt, if the muscles are not affected" [14]. A head drop, involving the inability to keep the head in an upright position due to the weakness of muscles of the extensor, is rare in the course of myasthenia gravis. However, if this symptom appears it can have a rapid course. It also happens that it is the only symptom [19].

Ptosis occurred in the studied case at an early stage of the disease, with occasional occurrence of diplopia. In the course of disease, ocular symptoms reduced periodically, whereas at advanced stage it lapsed to symmetrical ptosis. Nursing activities were associated with the use of simple mechanical means of improving vision, as well as instruction on protecting eyes from injuries and safe walking to avoid trips and falls. A dropped head in this case did not occur.

Frequently, patients with myasthenia gravis complain about difficulty in breathing, dyspnea on exertion and at rest, sudden night attacks of short breath. These symptoms aggravate infections and inflammation of the bronchi and lungs. Their cause is the weakness of the respiratory muscles. Lower values of peak expiratory flow prove the reduced strength of respiratory muscles (PEF) [25].

In the studied case, BZ the patient at advanced stage of disease with concomitant breathing difficulties was afraid of her own safety. Nursing interventions included control of breath, heart rate, blood pressure, state of consciousness, arterial blood gases. A respirator was ready to use in case she needed ventilation. Monitoring safe breathing helped to reduce the level of anxiety due to dyspnoea.

Studies carried out in patients with myasthenia gravis confirmed the presence of muscle weakness and fatigue of the lower limbs and trunk muscles in 69% of patients with type I diseases (ocular myasthenia gravis), and in 89% of type II (generalized myasthenia gravis). In both types of disease, fatigue of upper limbs correlated with a reduced value of the PEF spirometry [20].

Myasthenia gravis reduces not only physical, but also leads to emotional, social and cognitive disorders. This is confirmed by research on the quality of life in patients with myasthenia gravis, conducted among 32 patients aged 30–73 years who were treated in the Department of Neurology for Adults at Academic Clinical Centre in Gdansk [21]. It was also shown that overestimates the importance of depression in myasthenia gravis is overestimated, and acceptance of the disease in patients with myasthenia gravis does not differ from the level of acceptance in dialyzed patients, diabetics and patients with multiple sclerosis. It is unquestionable that patients with myasthenia gravis must be provided with social support and information focusing on practical ways to cope with the symptoms of the disease. Conclusions section of the above-quoted work highlights the importance of the quality of life in patients with myasthenia gravis, connecting it strictly with everyday physical and mental functioning. It was also found that accepting the disease reduces anxiety, improves mood and enhances functional condition. Joining a support group provides access to information and improves the emotional state of the patient [21].

In the studied case, the patient signaled similar emotional problems, first of all, there were fears and concerns before returning to normal functioning at home after hospitalizations and fear of risk of myasthenic crisis or total respiratory failure. Educational activities were associated with enriching the knowledge of the patient about the disease and potential complications, how to handle self-care activities.

The patient received support in taking systematic physical, mental and social activities. The need for social support, both informational, but also emotional by identifying opportunities for contacts with non-professional groups and support groups. The patient was also contacted with a psychologist and psychotherapist who could give the patient necessary advice and practical tips on relaxation exercises and how to establish a positive relationship with the environment.

Patients with myasthenia gravis require an individual and comprehensive nursing care to meet their biological and psychosocial needs [22] what was confirmed in this study. Nursing interventions are supposed to improve the quality of life of patients and allow them to functioning without problems. Good cooperation with the patient but also her family was also very important and it caused that the measures taken had greater impact.

Conclusions

A studied case of the patient with myasthenia gravis allowed to indicate the difficulties faced by the patient requiring nursing care, and they resulted from the typical symptoms of the disease occurring in the majority of patients, i.e. muscle weakness, difficulty in swallowing, speaking and breathing, ptosis and fears before the onset of myasthenic crisis, the depressed mood and feelings of isolation and loneliness.

It determined the specific character of nursing activities which included: alleviation of symptoms of muscle fatigability, mastery of shortness of breath and respiratory failure, maintaining airway patency, preventing the weight loss and body fatigue, facilitating contacts with relatives and therapeutic team, overcoming fears and anxieties, teaching the patient and her family how to cope with difficulties.

The main nursing activities provided the feeling of safety, assistance in self-care activities and improved psychomotor movement of the patient and the gained knowledge about the disease and its complications associated helped to improve the daily functioning and coping with difficult situations.

Myasthenia gravis, as well as other diseases, e.g. multiple sclerosis psoriasis, rheumatoid arthritis, affect the psychosocial state of a patient. Lower physical fitness decreases the quality of life, and fears and anxieties deepen the intensity of stress in daily life. The chronic nature of the disease, complications evoke negative emotions, which are not helpful in the therapeutic process. Accepting the disease, finding a support group, which is a major source of information about the disease, but also the ways and strategies for dealing with it can have a positive impact on the improvement of the social and emotional condition. All measures taken in this regard brought desired effect as they reduced anxiety, weakened the sense of isolation and loneliness.

Implications for Nursing Practice

Nursing care of patients with MG based on the nursing process presented in this paper can help neuroscience nurses to provide optimal care to a patient and his caregivers. This case study describes how to make appropriate assessment and intervention for patients with MG in order to deal with this progressive chronic disease more effectively.

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