KAROLINA SOWA¹, JOANNA GLISTA¹, TERESA POP¹, NATALIA GDAŃSKA¹,
MARZENA ADAMCZYK¹, WOJCIECH RUSEK^{1,2}, JOLANTA ADAMEK²

Wpływ czynników społecznych i demograficznych na stan kliniczny i stopień nasilenia zespołu przewlekłego zmęczenia u chorych na stwardnienie rozsiane

Influence of social and demographic factors on clinical status and severity of chronic fatigue syndrome in patients with multiple sclerosis

Streszczenie

Wstęp. Zespół przewlekłego zmęczenia charakteryzuje się apatią, obojętnością, wyczerpaniem, zniechęceniem i brakiem energii, a wymienione objawy nie są wynikiem intensywnej pracy fizycznej lub umysłowej. Często występuje u chorych ze stwardnieniem rozsianym (SM).

Cel. Celem pracy była ocena wpływu czynników społecznych i demograficznych na stan kliniczny i poziom zespołu przewlekłego zmęczenia u chorych z SM.

Materiał i metody. Grupę badaną stanowiło 33 pacjentów z rozpoznaniem SM, leczonych w Oddziale Rehabilitacji i w Oddziale Neurologii z Pododdziałem Leczenia Udaru Mózgu w okresie od 20 listopada 2010 r. do 27 kwietnia 2011r. Do badań wykorzystano ankietę zawierającą dane społeczne i demograficzne oraz Skalę Barthel, Skalę Becka, Skalę Kurtzke'go i Skalę Ciężkości Zmęczenia. Wyniki zostały opracowane statystycznie za pomocą statystyk opisowych i współczynnika korelacji rang Spearmana.

Wyniki. Stwierdzono istotne statystycznie korelacje między stanem funkcjonalnym ocenionym w skali Barthel a wiekiem badanych, czasem trwania choroby oraz wynikiem w Skali Kurtzke'go. Nie uzyskano żadnych istotnych statystycznie zależności między Skalą Becka a analizowanymi czynnikami. Natomiast uzyskano istotnie statystyczną korelację pomiędzy wynikami uzyskanymi w Skali Ciężkości Stopnia Zmęczenia a stanem rodzinnym w badanej grupie. Stwierdzono również słabą korelację między wynikami w Skali Barthel i w skali depresji Becka a wynikami w Skali Ciężkości Zmęczenia.

Wnioski. Wykazano istotnie statystyczną korelację pomiędzy wynikami w Skali Ciężkości Stopnia Zmęczenia a stanem rodzinnym, występującą depresją oraz możliwościami funkcjonalnymi w zakresie wykonywania czynności życia codziennego. Nie wykazano istotnie statystycznej korelacji między czynnikami takimi jak płeć, miejsce zamieszkania, wykształcenie, wiara, czas trwania choroby a występowaniem zespołu przewlekłego zmęczenia u chorych na SM.

Abstract

Introduction. Chronic fatigue syndrome (CFS) is characterized by apathy, indifference, exhaustion, and lack of energy, and these symptoms are not the result of intense physical or mental work. Chronic fatigue syndrome often accompanies patients with multiple sclerosis (MS).

Aim. The aim of this study was to assess the impact of social and demographic factors on clinical status and level of chronic fatigue syndrome in patients with MS.

Material and methods. The study group comprised 33 MS patients who were treated at the Department of Rehabilitation and Department of Neurology with the Stroke Treatment Unit from November 20, 2010 to 27 April 2011. The research applied a questionnaire containing social and demographic data and the Barthel Scale, Beck's Depression Inventory (BDI), the Kurtzke Scale and the Fatigue Severity Scale. The results were analyzed statistically using descriptive statistics and Spearman's rank correlation coefficient.

Results. Statistically significant correlations were confirmed between functional status assessed in the Barthel scale and subjects' age, disease duration, and the results in the Kurtzke Scale. No statistically significant relationship between the BDI and the analyzed factors was obtained.

Significant statistical correlation was obtained between the scores obtained in the Fatigue Severity Scale and family status in the study group. There was also found a weak correlation between the results in the Barthel Scale and Beck Depression Inventory and scores in the Fatigue Severity Scale.

Conclusions. A significant statistical correlation was confirmed between the results on Fatigue Severity Scale and family status, occurring depression and functional capacity in carrying out activities of daily living. There was no statistically significant correlation between such factors as gender, place of residence, education, faith, disease duration and prevalence of chronic fatigue syndrome in patients with MS.

Słowa kluczowe: stwardnienie rozsiane, Zespół Przewlekłego Zmęczenia, Skala Bartel, Skala Becka, Skala Kurtzke'go.

Keywords: multiple sclerosis, Chronic Fatigue Syndrome, Barthel Scale, BDI, Kurtzke Scale.

¹ Institute of Physiotherapy, University of Rzeszów

² Laboratory of Physiotherapy, Provincial Hospital No.2 in Rzeszów

INTRODUCTION

Multiple sclerosis (MS) is the most common disease of the nervous system. It is characterized by symptoms that are determined by many factors: both the clinical, social and demographic factors. The symptoms include fatigue. Fatigue is a physiological phenomenon that occurs after intense physical or intellectual effort. Fatigue protects the body against excessive effort [1]. Fatigue, which is not due to physical or mental effort, is recognized by the World Health Organization as a new disease called Chronic Fatigue Syndrome (CFS). It occurs frequently in patients with chronic diseases. In MS patients CFS is characterized by a lack of energy to perform activities of daily living. The syndrome is not related to muscle weakness [2,3].

Chronic fatigue syndrome (CFS) affects approximately 50-60% of patients with chronic diseases and is the reason for patients' inability to work [1]. The characteristic symptoms of CFS are apathy, indifference, discouragement, lack of energy and exhaustion. For diagnosing the CFS, other causes that can cause fatigue should be excluded, among others, side effects of drugs, metabolic diseases, or infection [1]. In MS patients CFS may be either generalized or local. In case of systemic changes, the symptoms affect the whole body, and for local changes there may be signs of blurred vision or tired legs. The diagnosis of CFS is based on the clinical picture and there is no as yet a specific and effective treatment. Some types of exercise, selected forms of psychotherapy and social support are recommended to patients. The obtained results are described as little, or only partially effective. To assess the degree of fatigue in MS patients and the effectiveness of the therapy, the Fatigue Severity Scale is most commonly used [4,5].

AIM

The aim of the study was to assess the impact of social and demographic factors on clinical status and severity of chronic fatigue syndrome in patients with multiple sclerosis.

MATERIAL AND METHODS

The study group comprised 33 MS patients who were treated at the Department of Rehabilitation and Department of Neurology with the Stroke Treatment Unit from November 20, 2010 to 27 April 2011. All patients gave their informed consent to participate in the study.

In the research a questionnaire was used which included questions characterizing the study group. Also there were used ratings widely applied in the MS, such as Barthel Scale, Beck's Depression Inventory, the Kurtzke Scale and Fatigue Severity Scale.

Functional assessment of patients was made using the Barthel Scale. In the scale, there are activities of daily living such as: eating, maintaining personal hygiene, moving, etc. Patients could score a maximum of 100 points. Depending on the number of points scored, the patient was assigned to one of three groups, which determined the patient's condition as very serious, medium severe or light.

Beck's Depression Inventory is a scale used to screen for the diagnosis of depressive symptoms in patients. The scale consists of 21 statements rated according to the intensity of symptoms, from 0 to 3. In each of the statements the examined subjects selected one response, which in their opinion, in the best way described their condition. The scores allowed qualifying a patient for one of four groups. The ranges of scores in the groups are: 0-9 – no depression, 10-19 – minor depression, and 20-25 is average depression and over 26 – a severe depression.

To assess the severity of the disease and the condition of the patient the Kurtzke Scale was used. In this scale, we can distinguish 10 degrees of body disability. Degree 0 indicates normal neurological status; the values which fall within a range from 1 to 8 represent varying degrees of severity of disability, and the value 9 is the total disability of the body, and 10 means the patient's death [6].

In the study group the Fatigue Severity Scale (FSS) was also used. It contains 9 questions on the occurrence of tiredness/fatigue, reduced motivation for treatment, lack of motivation to exercise, self-evaluation of fatigue/weariness as the most common symptom of the disease. Each statement was evaluated by the examined on a scale from 1 to 7, when 1 is „strongly disagree” and 7 – „strongly agree”.

In interpretation of the results when the average score of nine questions was 2.8, the patient is considered healthy, if the average score of nine questions is 4.5, the patient has a depressive syndrome (condition preceding CFS), and if the average score of nine questions is 6.5 or more, the patient has CFS [4,7].

The study involved 33 patients diagnosed with MS. In the study group there were 23 women, representing 69.7% of respondents and 10 men, representing 30.3% of respondents. Among the respondents, 26 people (78.79%) lived in the city, and 7 patients (21.21%) lived in the rural areas.

Among the respondents, one person (3.03%) had primary education, 2 persons (6.06%) had vocational training, 13 people (39.39%) had secondary education, and 17 patients (51.52%) had a university education.

In the research group, 18 people (54.55%) were single, 5 people (5.15%) were living with another person, 7 people (21.21%) lived in three-person family, and 3 people (9.09%) lived in a 4-person family.

The subjects were asked whether they were believers. By posing such a question to the examined, the researchers expected to obtain significant results. It was considered that the belief in God helps believers to overcome life's problems. It „inspires” and is reassuring when we lose hope. Most of the 29 patients (87.88%) declared themselves as believers, while the remaining four persons (12.12%) responded that they were unbelievers.

RESULTS

There were determined selected numerical characteristics of the examined demographic and clinical factors (age, disease duration, Fatigue Severity Scale, BDI, Barthel Scale, Kurtzke Scale (Table 1).

The functional status assessed with the Barthel Scale in 24 patients was defined as a light condition (from 85

to 100 points), in 9 patients was defined as the medium severe condition (from 85 to 20 points) (Table 2).

Among the respondents, 13 patients (39.39%) are people with minor depression assessed with the BDI, 7 patients (21.21%) are people with average depression, and 4 patients (12.14%) are people with severe depression (Table 3).

In the study group 21 people (63.63%) had second degree CFS – the depressive syndrome, 12 patients (36.37%) did not manifest CFS. This is a bad result, because respondents with depressive syndrome are predisposed to CFS in the later stage of disease (Table 4).

It was examined whether the results of the Barthel Scale, BDI and the Fatigue Severity Scale were correlated with age, gender, place of residence, education, disease duration, family status, faith, and the Kurtzke scale.

Statistically significant correlations were obtained at an average level between the result of the Barthel scale and age, disease duration and condition of the patient (Kurtzke scale) (Table 5, Figure 1, 2, 3).

TABLE 1. Descriptive characteristics of the examined factors and scores of the scales

Feature	$\bar{x}$	Med	Min	Max	s
Age	40.03	39	20	62	12.18
Disease duration	12.21	10	1.5	33	8.72
Indicator of disease activity	0.47	0.29	0.13	2.5	0.5
Fatigue Severity Scale	41.24	45	10	58	12.89
Beck Depression Scale	16.48	17	0	41	10.27
Barthel Scale	87.42	95	50	100	15.16
Kurtzke Scale	3.56	3	1	7	1.94

TABLE 2. The Barthel Scale.

Barthel Scale	Number	Per cent (%)
0-20 very severe condition	0	0
20-85 medium severe condition	9	27.26
85-100 light condition	24	72.73

TABLE 3. Beck Depression Inventory scores.

BDI	Number	Per cent (%)
No depression	9	27.26
Minor depression	13	39.39
Average depression	7	21.21
Severe depression	4	12.14

TABLE 4. Fatigue Severity Syndrome Scale (FSS).

Fatigue Severity Syndrome Scale (FSS)	Number	Per cent (%)
Healthy subject	12	36.37
Depression syndrome	21	63.63
Fatigue Severity Syndrome	0	0

TABLE 5. Spearman's rank correlation coefficient of the Barthel Scale with the studied factors.

Barthel Scale versus:	Coefficient R	p
Age	-0.482211	0.004486
Gender	-0.025068	0.889867
Place of residence	-0.189209	0.291618
Education	0.026045	0.885603
Disease duration	-0.396045	0.022514
Family status	0.023689	0.895891
Faith	0.080681	0.655355
Kurtzke Scale	-0.578006	0.000427

FIGURE 1. A scatter plot of the results in the Barthel Scale against age.

FIGURE 2. A scatter plot of the results in the Barthel Scale against duration of disease.

FIGURE 3. A scatter plot of the results of the Barthel Scale against results obtained in Kurtzke scale.

There is no correlation between the degree of depression of patients (BDI), and the examined factors.

It was examined whether the scores of Fatigue Severity Scale were correlated with age, gender, place of residence, education, disease duration, family status, faith, and the Kurtzke scale. Statistically significant correlation was obtained between the score obtained in the Fatigue Severity Scale and family status (Table 6). It is a good result in favor of the large role of family support to the patient, its presence in the life of a patient with chronic disease.

TABLE 6. Spearman rank correlation coefficient of Fatigue Severity Scale with the examined factors.

Fatigue Severity Scale versus:	Coefficient R	p
Age	0.126319	0.483626
Gender	-0.076244	0.673234
Residence	0.288298	0.103727
Education	-0.205278	0.251787
Disease duration	0.035903	0.842764
Family status	-0.321214	0.090611
Faith	0.24399	0.171186
Kurtzke Scale	0.291043	0.100333

Additionally it was examined whether the evaluation of the fatigue (Fatigue Severity Scale) was affected by the functional status (Barthel Scale) and the presence or absence of depression (BDI) (Table 7). The correlation was examined with Spearman rank coefficient.

TABLE 7. Spearman rank correlation coefficient between the individual scales.

Features	Coefficient R	p
Barthel scale and BDI	0.012283	0.945912
Barthel scale and Fatigue Severity Scale	-0.328402	0.062053
BDI and Fatigue Severity Scale	0.361209	0.070119

A statistically significant correlation was obtained between the scores of the Fatigue Severity Scale and the scores in the Barthel Scale and in the BDI. No significant correlation was obtained between the scores in the Barthel functional scale and the degree of depression being evaluated in the BDI (Table 7, Figure 4, 5).

FIGURE 4. A scatter plot of the scores obtained in Fatigue Severity Scale against Barthel Scale.

DISCUSSION

Multiple sclerosis is the most common disease of the central nervous system. In Poland there are about 3 or more cases per 100 000 per year [4,7]. The disease causes many symptoms and syndromes of varying severity. Most often they are movement disorders, sensory disturbances, blurred vision, pain syndromes, cognitive impairment and mood disorders. A common symptom is chronic fatigue. Multiple sclerosis is one of the most common causes of disability in young people, although many patients may experience a benign course [8,9].

There are many factors that can affect the intensity of clinical symptoms or increased fatigue. The causes and severity of chronic fatigue syndrome listed by Dworżańska include: anxiety, depression, pain, increased muscle tone, increased temperature, medications, or severity of disease and lifestyle [1]. Santon's studies have shown a correlation between the prevalence of chronic fatigue syndrome and the difficulties in falling asleep, snoring and the incidence of nocturia in subjects [10].

In our study, chronic fatigue syndrome was more prevalent in people living alone, in people with depression and patients with functional status limiting the ability to perform activities of daily living (Barthel Scale). It was also found that the low scores on the Barthel Scale were influenced by respondents' age, duration of disease and the patient's condition assessed in the Kurtzke scale which indirectly influenced the incidence and severity of chronic fatigue syndrome in the group. In the studies of Miller there was no correlation between fatigue and age or gender of patients with MS [4].

Losy and Dworżańska indicate that this syndrome is more frequent and more severe in those with the primary and secondary progressive form compared to those with relapsing-remitting form [1,11].

Chronic Fatigue Syndrome is often not a diagnosed symptom and a significant problem for patients with MS [1,5]. Symptoms indicating fatigue syndrome should not be ignored and treated as important symptoms of the disease and specialized support should be provided [12].

FIGURE 5. A scatter plot of the scores obtained in the Fatigue Severity Scale versus BDI scores.

CONCLUSIONS

1. A significant statistical correlation was noted between the scores in the Fatigue Severity Scale and family status, occurring depression and functional capacity in carrying out activities of daily living.
2. There was no statistically significant correlation between factors such as gender, residence, education, faith, disease duration and prevalence of chronic fatigue syndrome in patients with MS.
3. When determining a treatment plan and rehabilitation, the symptoms of Chronic Fatigue Syndrome should be considered.

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Informacje o autorach

Lic. KAROLINA SOWA – studentka, Uniwersytet Rzeszowski; mgr JOANNA GLISTA – Instytut Fizjoterapii, Uniwersytet Rzeszowski; dr n. o kult. fiz. TERESA POP – Instytut Fizjoterapii, Uniwersytet Rzeszowski; lic. NATALIA GDAŃSKA – studentka; MARZENA ADAMCZYK – studentka, Uniwersytetu Rzeszowskiego; dr n. o kult. fiz. WOJCIECH RUSEK – Instytut Fizjoterapii, Uniwersytet Rzeszowski, Pracownia Fizjoterapii, Szpital Wojewódzki nr 2 w Rzeszowie; mgr JOLANTA ADAMEK – Centrum Medyczne w Łańcucie.

Adres do korespondencji

Teresa Pop
ul. Warszawska 26a, 35-205 Rzeszów
tel. 608 300 526
E-mail: popter@interia.pl