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Depression and its Severity among Patients with Multiple Sclerosis

Obecność oraz nasilenie depresji wśród chorych ze stwardnieniem rozsianym

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Abstract

Introduction. As a psychopathological disorder, depression affects a lot of people with chronic neurological diseases and poor prognosis. It touches approximately 40–50% of patients with multiple sclerosis (SM). Depression may be a consequence of patients' poor mobility caused by MS, the location of inflammation or side effects of phase 1 pharmacotherapy and immunomodulatory treatment. As experience shows, co-occurrence of MS with depression impairs rehabilitation, patients' quality of life and their physical fitness.
Aim. The aim of this study was to assess the presence of depression and its intensity as well as to analyse its relationship to patients' everyday functioning and such sociodemographic factors as age and sex.
Material and Methods. 38 people with multiple sclerosis who were patients of Neurology Clinic in Cracow (both of the hospital ward and the hospital out-patient clinic) took part in a survey. It was carried out using diagnostic poll method and the analysis of documentation. Patients were asked to complete data collection tools such as Beck's Scale, Katz Scale and sociodemographic inventory. Patients' medical history and individual medical order sheets were also analysed. Then statistical calculations were performed.
Results. Depression symptoms vary in intensity. According to Beck's scale results, 23.7% of patients were affected by minimal depression. Another 23.7% of respondents reported mild depression. Moderate and severe depression was observed in two equal groups — 7.9% of patients. Beck's Scale and Katz Scale results correlation proved to be statistically insignificant (p=0.08). Age and sex were not related to the emotional state of the patients. However, detailed analysis of the data showed that young people (20–29 years old) do not suffer from depression symptoms.
Conclusions. Although multiple sclerosis patients may suffer from depression, its intensity varies. Young people do not feel negative emotions because they are not ill for a long time. **(JNNN 2014;3(4):169–174)**
Key Words: multiple sclerosis, depression, functional efficiency

Streszczenie

Wstęp. Depresja jako pełny zespół psychopatologiczny towarzyszy wielu chorobom neurologicznym o przewlekłym przebiegu i niepomyślnym rokowaniu. W stwardnieniu rozsianym (SM) dotyczy ok. 40–50% chorych. Jej obecność może wynikać z konsekwencji ruchowych SM, lokalizacji zmian zapalnych, czy wreszcie z działania ubocznego stosowanej farmakoterapii ostrego rzutu i leczenia immunomodulującego przebieg choroby. Doświadczenia pokazują, że współwystępowanie SM i depresji prowadzi w efekcie do trudności w zakresie współpracy chorego w procesie rehabilitacji, pogorszenia subiektywnej jakości życia i ogólnej sprawności fizycznej.
Cel. Celem przeprowadzonych badań była ocena obecności i nasilenia zjawiska depresji oraz jej związku ze stanem funkcjonalnym chorych i takimi wskaźnikami socjodemograficznymi, jak: wiek i płeć.
Materiał i metody. Grupę badaną stanowiło 38 pacjentów Kliniki Neurologii w Krakowie, którzy z powodu diagnozy stwardnienia rozsianego byli pacjentami oddziału bądź poradni przyklinicznej tej placówki. W pracy wykorzystano metodę sondażu diagnostycznego i analizy dokumentacji. Uczestnicy badań zostali poproszeni o kompletowanie takich narzędzi badawczych, jak: Skala Becka, Skala Katza, inwentarz danych socjodemograficznych. Analiza obejmowała ich historie choroby oraz indywidualne karty zleceń lekarskich. Otrzymane wyniki poddano obliczeniom statystycznym.

Wyniki. Nasilenie objawów depresji w ankietowanej grupie było zróżnicowane. Wyniki Skali Depresji Becka wskazują na obecność depresji lekkiej u 23,7% respondentów. Stan emocjonalny kolejnych 23,7% chorych należy sklasyfikować jako depresja średnia. Samoocena dwóch identycznych liczbowo grup (7,9%) sugeruje występowanie depresji głębokiej i bardzo głębokiej. Korelacja wyników skali Becka i Katza nie była istotna statystycznie (p=0,08). Wiek i płeć badanych nie wiązał się istotnie z prezentowanym stanem emocjonalnym, choć szczegółowa analiza obecności depresji w wyróżnionych grupach wiekowych dowodzi, że osoby młode, tj. będące w wieku 20–29 lat nie odczuwają jej objawów.

Wnioski. W przebiegu stwardnienia rozsianego spotykane jest zjawisko depresji, choć różne bywa jej nasilenie. Osoby młodsze, a w związku z tym krócej chorujące nie odczuwają negatywnych emocji związanych z obecnością obniżonego nastroju. **(PNN 2014;3(4):169–174)**

Słowa kluczowe: stwardnienie rozsiane, depresja, sprawność funkcjonalna

Introduction

Depression — though consisting mainly in emotional disorders, does not accompany psychiatric patients exclusively. According to Pużyński, it often coexists with somatic diseases and as a symptom or a complete psychopathological syndrome with such disorders it occurs with a frequency of several percent [1].

In many cases, it is an element of the clinical picture of neurological diseases, such as Parkinson's disease, Huntington's chorea, epilepsy, multiple sclerosis. It can also be a consequence of cranio-cerebral injuries or ischemic stroke. Jarcz informs that in one of the periods of multiple sclerosis, depression may affect as m as 40–50% of patients [2]. It is estimated that the annual prevalence of full-symptomatic depressive syndrome in MS reaches 20%. It more often occurs in the case of progressive functional disability progression and in patients with the relapsing form [3]. The etiopathogenesis of the phenomenon of depression in this group of patients is not fully understood. It is believed that its substrate may be multi-factorial, referring inter alia to biological and psycho-social determinants. The severity of disability or the length of duration of the exacerbation period of the disease are considered as factors potentially favoring the occurrence of depressive responses. It may seem quite interesting that sometimes depression can precede the occurrence of focal MS symptoms or occur at a time when there has been no significant impairment in patients' functioning. It has not been completely confirmed that there is a relationship between the location of demyelinating lesions on MRI image, and the presence of depression although there are reports which say that their right-hand location in the frontal and temporal lobes favours its occurrence [2]. It is also assumed that depression in MS may be due to the pharmacological treatment applied in the treatment of relapse (steroids) as well as in treatment modulating its course (interferon). It has been proved that both effective and safe in the treatment of depression associated with MS are tricyclic antidepressants serotonin reuptake inhibitors, and finally RIMA inhibitors [2–4], which show apart from the basic impact also the immune-modulating one, so important in the course of autoimmune diseases, which include MS [4].

The research carried out aimed at the evaluation of:
- the presence and severity of depression in patients with multiple sclerosis,
- the relationship of socio-demographic variables, ie. age, gender, and the severity of depression,
- influence of depression on patient's functional condition.

Material and Methods

The group of respondents consisted of 38 patients of Neurology Department in Kraków, diagnosed with multiple sclerosis who remained the patients of the stationary clinic or a department of that institution.

The following criteria of inclusion in the study have been adopted:

1. Conscious consent to participate in the research.
2. At least a two-year duration of the disease.
3. At least two relapses of the disease.

In the research there was applied, among others, the diagnostic survey method and by means of the survey technique, the participants of the research were asked to complete such research tools as the Beck Depression or the Katz Scales. In order to achieve the objective of the research, our own socio-demographic inventory was used. For the purpose of obtaining the data on the course of the disease, the document analysis method was applied, and in this case the medical history and personal medical card orders were subject to verification.

The obtained data were subject to statistical analysis. Apart from descriptive statistic analyses (mid, min, max), r-Pearson's coefficient (r), chi-square test of independence were applied. In the calculations carried out, the level of significance (p) $p<0.05$ was adopted.

Results

The group of respondents consisted mainly of women (73.7%, 28 patients), and the average age in the group was 36 years. Most of the respondents were between 20 and 29 years of age (34.2%, ie. 13 patients), and only 5 patients (13.2%) were over 50 years of age. Nearly 37%, ie. 14 respondents had higher education. Nearly 70% of the group lived in a city. As many as 52.3%, ie. 20 patients were economically inactive. The vast majority were married (68.4%, ie. 28 patients). Most respondents, 24 patients (63.2%) lived with their families, and only 2 of them (2.3%) lived alone. In the self-assessment 20 respondents (52.6%) defined their socio-economic situation as average, and only one person (2.6%) replied that it was bad.

The duration of the disease in more than a half of the cases, referring to 21 respondents (55.3%) did not exceed 5 years. Six respondents (15.8%) had suffered from the disease for more than 10 years. With the majority of the respondents — 23 patients (60.5%), in the course of the disease there appeared no more than three of its projections. As many as 73.7% of all respondents (28 persons) were hospitalized because of the disease no more than three times. In the course of exacerbation of clinical symptoms the majority of patients 73.7% (28 respondents) were taking Methylprednisolone. In the case of as many as 25 patients (65.8%) a treatment preventing development of the disease progression was not applied, and 9 patients (23.7%) received immune-modulatory treatment. In 60.5%, a varied symptomatic treatment was continued.

Table 1. Self-assessment of depression in the surveyed group (according to the Beck's Scale)

Occurrence of depression	Numbers (N)	Percentage (%)
No symptoms	14	36.8
Symptoms occurring	24	64.2
light depression	9	23.7
medium depression	9	23.7
deep depression	3	7.9
very deep depression	3	7.9
Total	38	100

The analysis of the results of the Beck Depression Inventory Questionnaire

The Beck Depression Scale (apart from the Zung Depression Scale) is the most commonly applied self-assessment scale of emotional condition. According to the recommendations, its total score received (obtained by adding by the respondent the score value to each statement) was assigned to one of four figure ranges classifying the severity of current depressive symptoms. The results obtained this way are included in Table 1.

The data included in table 1 inform that slightly more than one third of the respondents do not manifest the presence of depressive symptoms (36.8%, ie. 14 patients). Two more groups equal in number (consisting of nine patients) obtained a score classifying their emotional condition as light or medium depression. Similarly, — the results of two groups identical in number (each consisting of 3 patients, ie. 7.9%) can be interpreted as those giving evidence of a deep and very deep depression.

In the next stage of the analysis the results obtained in the Beck Depression Scale were compared in both the female and male group, which is illustrated in Table 2.

Those values confirm that the majority of women do not suffer from depression (42.9%, ie. 12). The results of self-assessment made by 6 female respondents (21.4%) indicate the presence of medium depression, and in the case of 5 patients (17.9%) the presence of light form of depression. In a less numerous group of men a light form of depression can be observed in 4 respondents (40%), and medium depression in the case of 3 (30%) patients. In order to verify the assumption of gender influence on the severity of the depression, the chi-square test was carried out. The p=0.41 value proves that in the analysed case there is no statistically significant relationship between the gender of the respondents and their self-assessment of depressive symptoms severity.

A similar procedure was applied in order to determine whether the age of the patient can decide on the presence and severity of depression (Table 3).

Table 2. The level of depression severity in the group surveyed according to gender

Gender	Depression severity symptoms											
	no depression		light depression		medium depression		deep depression		very deep depression		total	
	N	%	N	%	N	%	N	%	N	%	N	%
Women	12	42.9	5	17.9	6	21.4	2	7.4	3	10.7	28	100
Men	2	20	4	40	3	30	1	10	0	0	10	100

chi-square=3.95; p=0.41

Table 3. Self-assessment of depression severity in each age group of the patients surveyed

Respondents' age (years)	The level of severity depression symptoms									
	no depression		light depression		medium depression		deep depression		very deep depression	
	N	%	N	%	N	%	N	%	N	%
20–29	7	53.8	3	23.1	2	15.4	1	7.7	0	0
30–39	3	27.3	3	27.3	1	9.1	2	18.2	2	18.2
40–49	2	22.2	3	33.3	3	33.3	0	0	1	11.1
<50	2	40	0	0	3	60	0	0	0	0

chi-square=13.53; p=0.33

Table 4. The results of efficiency self-assessment in terms of everyday functioning of the respondents according to the Katz Scale

Ability to function independently	Number (N)	Percentage (%)
Patients without disabilities (5–6 points on the Katz Scale)	32	84.2
Moderately disabled patients (3–4 points on the Katz Scale)	2	5.3
Disabled patients (0–2 points on the Katz Scale)	4	10.5
Total	38	100

Table 5. Self-asessment of mood among respondents categorised according to their independence

Ability to function independently	Level of depression symptoms severity									
	no depression		light depression		medium depression		deep depression		very deep depression	
	N	%	N	%	N	%	N	%	N	%
Patients without disabilities	11	34.4	9	28.1	7	21.9	3	9.4	2	6.25
Moderately disabled patients	1	50	0	0	1	50	0	0	0	0
Considerably disabled patients	2	50	0	0	1	25	0	0	1	25

r=-0.28; p=0.08

The results obtained prove that younger patients, aged 20–29 years do not suffer from depressive symptoms (53.8%). Three patients at the age ranging from 30 to 39 (27.3%) and from 40 to 49 years (33.3%) suffer from light depression. The score indicating a deep or very deep depression was obtained by respondents, whose age ranged between 30 and 39 years of age. In order to verify the assumption of age influence on the severity of the depression, the chi-square test was carried out again. The p=0.33 value proves that in the analysed case there is no statistically significant relationship between the age of the respondents and their self-assessment of depressive symptoms.

In the next stage of research the degree of respondents' disability was assessed by means of the Katz Scale (Table 4).

In the light of the data included in table 4, as many as 84.2%, ie. 32 respondents is efficient in terms of their everyday functioning and merely 4 patients (10.5%) are incapacipated. The data included in table 5 inform that with people efficient in their everyday functioning, 28.9% (9 respondents) suffer from medium depression and 21.9% (7 respondents) from light depression. What is worth noticing, is the fact that a half of the respondents (2 patients), who compliant with the interpretation of the Katz Scale were classified as considerably disabled, do not suffer from depressive symptoms. Next, applying the r-Pearson correlation coefficient the assumption that the degree of disability is related to the emotional state of respondents was verified. The value of the coefficient of the correlation studied (r=-0.28) is not statistically significant because p=0.08.

Discussion

The rich literature on the multiple sclerosis provides a variety of information concerning: epidemiology, etiology, clinical picture, treatment methods or rehabilitation. Less numerous are the reports with a focus on the subjective aspects of MS, particularly those related to the emotional state of patients. More often we come

across studies on the quality of life, which has recently become a subject of research, particularly in those disease entities the course of which is chronic and the prognosis uncertain.

The severity of depression in the early stages of MS is most commonly mild, just like in the periods of remission. It is believed that the experiencing depression is associated primarily with SM consequences such as the condition of incomplete efficiency as well as the course of the disease itself. In addition, the primary function of the brain predisposes to a more frequent occurrence of depression than the original changes in the spinal cord or in the cerebellum. The development of depression may accelerate another occurrence of the disease and is also associated with an increased risk of suicide [3–5]. Dudek and Siwek say about the adverse consequences of the co-occurrence of depression and chronic somatic diseases, including the tendency to remain in the position of a patient, rehabilitation difficulties or deterioration of physical fitness in general [5].

The research on the prevalence of depression was carried out in a group of patients diagnosed with multiple sclerosis, who were subject to treatment in the Department of Neurology in Cracow. The respondents were asked to complete the Beck Depression and the Katz Scale as well as the socio-demographic inventory. The data regarding the course of the disease were obtained by the use of medical records, including the history of the disease and the individual card of instructions, and the results obtained were subject to the statistical analysis.

The studies carried out confirm that among those patients treated for multiple sclerosis there occurs the phenomenon of depression although its intensity and frequency of occurrence may differ. The result of the Beck Scale regarding nearly 1/4 of the group (23.7%) indicates the presence of light depression and in the case of the same number of patients (23.7%) it indicates the occurrence of medium depression. The self-assessment made by two smaller groups (7.9%) proved the existence of deep and very deep depression. Bilińska and Sitek when examining healthy individuals as well as patients with a diagnosis of myasthenia gravis, observed a significantly more frequent phenomenon of depression among the patients than in the control group. The authors suggest, however that depression in myasthenia gravis may be overestimated if the clinical picture of the disease is not taken into account, since some of its symptoms are identical to symptoms of depression and therefore, the somatic symptoms of the disease must be separated from the emotional ones [6]. A similar methodological problem is encountered in the course of Parkinson's disease. Inhibition, the feeling of constant fatigue, weakening of speech, reversal of circadian rhythm or weight loss constitute motor and non-motor clinical symptoms of the disease rather than a manifestation of depression, as it might have been expected [7]. In the case of multiple sclerosis, we can talk about a similar situation, giving even the example of chronic fatigue, which can be interpreted as a manifestation of lowered mood or psychomotor slowing down associated with it, and in fact this is the result of the ongoing inflammation process.

Depression, which co-exists or is a kind of a 'descent' of the main disease is also encountered in the case of patients diagnosed with schizophrenia. Research indicates that depression after the seizure of acute psychotic period concerned as many as 78.2% of the respondents. In the self-assessment of 50.4% of respondents it was mild, and the results obtained by 27.8% classified it as moderately severe. Although schizophrenia is not a physical illness, its consequences, and in particular deficits in the sphere of emotional, cognitive and social functioning can lead to and deepen the state of psychological and social disability, as well as contribute to the occurrence of the depression phenomenon in this group of patients. Similarly, as in the case of MS, pharmacotherapy of schizophrenia, including side effects of antipsychotic drugs may result in such mood disorders [8].

The presence of depression in MS results from various reasons including biologically and psychosocially based conditions. This study has aimed not only at assessing the prevalence of depression in the group of respondents but also at identifying those factors which are associated with it. One of them being the functional status assessed by means of the Katz Scale. The study carried out indicates that the functional status of as many as 32 patients (84.2%) is good, which means that they are independent in terms of daily activities. Additionally, it does not significantly correspond to the severity of depression ($p=0.08$). This most probably results from the relatively short duration of the disease (in the case of 21 patients that period did not exceed 5 years), the limited number of its projections (in 73.7% of patients, not more than three cases) and in consequence patient's motor functioning deficit insignificant at this stage of the disease. Sobów claims that in the case of the patients who have had a stroke, the level of efficiency in basic scope of daily activities or physical disability are important risk factors for post-stroke depression, and the presence of depression itself is considered to be the most significant predictor worsening the quality of patients' lives [9].

The value of chi-square test for the following variables: age and severity of depression, turned out to be statistically insignificant ($p=0.33$). Despite that, a detailed analysis of the self-assessment of depression severity among respondents revealed that the youngest patients, ie. whose age ranged between 20 and 29 years of age did not feel the symptoms which usually accompany depression (53.8%). The score reflecting a deep and very deep depression was obtained by two minor groups (18.2%) whose age ranged between 30–39 years.

Patients aged 40–49 years suffered from light (33.3%) and medium depression (33.3%). Also, the value of the test (chi-square=3.95) calculated for the variables: self-assessment of depression and gender is not statistically significant (p=0.41). Analyzing the distribution of the results of the Beck Scale according to gender, one can see that in the group of women as many as 42.9% of them do not feel depression, and according to the self-assessment made by another 21.4% depression is medium and in the case of further 17.9% it is light. The group of men was far less numerous (10 patients, ie. 26.3% of the total number), and among them 40% had mild depression, 30% — medium, and only one person (10%) deep. It is quite difficult to refer to the last results due to their insufficient sample type of the group, both in each age group and as well as in those categorized according to gender. Bibliographic premises suggest that depression in general more commonly occurs in women, and the female gender is one of the unmodified risk factors. Wichowicz, when discussing the issue of mental disorders in the Parkinson's disease, indicates that age in this case is important for the phenomenon of depression, more often experienced by those who are in the early or late stages of the disease [7]. Therefore, it should be assumed that in this case the diagnosis of chronic neurological disease initially triggers negative emotions, such as sadness, fear, anger, which combined with the negative thinking regarding self-esteem and uncertain future, become the basis for the diagnosis of depression. After a period of patients' adaptation to the situation defined by their health condition in the course of the disease progression and perpetuation of motor and cognitive deficits, depression reoccurs.

Conclusions

In the course of multiple sclerosis, the phenomenon of depression occurs although its severity may sometimes differ. Younger patients, who obviously have been suffering from the disease for a shorter period of time do not feel negative emotions associated with the presence of depressed mood.

Implications for Nursing Practice

Multiple sclerosis due to the course of the disease, its consequences, as well as to the therapy applied, requires from the patient active cooperation in the field of multi-disciplinary proceedings. The presence of depression regarded as one of the MS predictors will affect the quality of such co-operation, and thus the long-term effects of treatment. Due to the mood disorders visible in the clinical image of MS as well as to the parallel lack of specific measurement tool for the phenomena of depression, the nurse, by means of a guided observation and an interview with the patient's caregivers, should identify the emotional problems occurring in the patient and facilitate professional assistance in this respect.

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