



EVALUATION OF PSYCHIATRIC DISORDERS AMONG PATIENTS SUFFERING FROM MULTIPLE SCLEROSIS

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RUNNING TITLE	Depression, sleep disturbances and anxiety in multiple sclerosis
KEYWORDS	multiple sclerosis; sleep disturbances; sleep disorders; depression; anxiety
WORD COUNT	1725
CONFLICT OF INTERESTS	no conflicts of interest

ABSTRACT

Multiple sclerosis (MS) is a chronic demyelinating disease of the CNS. Movement disorders, but also mental dysfunction, affect the quality of life of patients with MS. The study group consisted of 39 patients with MS treated in the Department of Neurology, Medical University of Silesia. The control group consisted of 100 people from a healthy population. The research tools were: Hamilton Rating Scale for Depression (HAM-D) and Anxiety (HAM-A), Athens Insomnia Scale (AIS), Epworth Sleepiness Scale (ESS). Very severe depression occurred in 10.53% of patients with MS but only in 6.0% of people from healthy population. Women with MS were statistically more likely to suffer from depression than men ($p=0.019$). 20.51% of MS patients had insomnia, in healthy population 11.0%. There were no statistically significant differences between the genders and the occurrence of sleep disorders in MS patients. There were a strong positive correlation between scores of AIS with HAM-A ($p=0.0001$; $r=0.7$) and AIS with HAM-D ($p=0.0001$; $r=0.78$). Psychiatric disorders are more common among women suffering from MS. Patients with MS are more likely to suffer from severe forms of depression and insomnia.

BACKGROUND

Multiple sclerosis (MS) is a chronic inflammatory demyelinating disease of the central nervous system. Accurate etiopathogenesis is unknown and the disease is multifactorial. The disease is more common in women and begins between 20 and 40 years of age. The number of cases of multiple sclerosis exceeds 2,500,000 in the world, of which 630,000 cases are recorded in Europe. Poland is among countries with high prevalence of MS. The incidence of MS is 45-92 people per 100,000 inhabitants in Poland. Approximately 2,000 new cases are reported annually [1].

Demyelinating lesions are characterized by rapid progression and occur mainly in the white matter, in the brainstem, in the cerebellum, in the spinal cord and in the optic nerve. Multiple sclerosis is characterized by a large variety of symptoms. Symptoms can be divided into two categories: associated with demyelination and axonal loss (sensory disturbances, paresis, spasticity, sphincter dysfunctions) and probably related to the action of free radicals (fatigue, malaise, depression) [2].

The forms of multiple sclerosis include: relapsing-remitting, primary progressive, secondary progressive, progressive-recurrent [3]. Regardless of the recognized form, the effect of MS is disability and deterioration of the quality of life, which impedes independence, self-care and freedom of movement in all conditions. The occurrence of following relapses of the disease cause the reduction of social activity and self-fulfillment, leading to the occurrence of psychiatric disorders.

MATERIAL AND METHODS

Study included 139 patients, 39 people (69.1% women; mean age 35.3) with relapsing-remitting form of MS who were treated with disease modifying drugs in the Department of Neurology, Medical University of Silesia and who had no cognitive deficits. The control group consisted of 100 healthy people (66.0 % women; mean age 38.7). Study has been approved by our Institutional Ethics Committee and it conforms to the provisions of the Declaration of Helsinki in 1995. Patients gave informed consent and were informed that their anonymity should be preserved.

To quantify observed disturbances, we used 4 standardized questionnaires that were validated in Polish patients.

The research tools were:

- Hamilton Rating Scale for Depression (HAM-D),
- Hamilton Rating Scale for Anxiety (HAM-A),
- Athens Insomnia Scale (AIS),
- Epworth Sleepiness Scale (ESS).

Depression were evaluated by Hamilton Rating Scale for Depression (HAM-D). The scale consists of 17 items designed to assess the severity of a depression and is scored between 0 and 4 points. HAM-D scale measure the severity of depressive symptoms and as examples the interviewer rates the level of agitation clinically noted during the interview or how the mood is impacting on an

individual's work or leisure pursuits. Results from 0 to 7 means the norm, results from 8 to 12 means mild depression, results from 13 to 17 means moderate depression, results from 18 to 29 means severe depression and patients who get 30 or more points suffer from very severe depression.

Anxiety disorders were evaluated by Hamilton Rating Scale Anxiety (HAM-A). The scale consists of 14 items designed to assess the severity of a patient's anxiety. Each of the 14 items contains a number of symptoms, and each group of symptoms is rated on a scale of zero to four, with four being the most severe. A score of 17 or less indicates no anxiety severity. A score from 18 to 24 indicates mild anxiety severity, a score of 25 to 30 indicates a moderate anxiety severity and patients who get 31 or more points suffer from severe anxiety severity.

Nighttime sleep disturbances were assessed with the Athens Insomnia Scale (AIS) and excessive sleepiness during the day with the Epworth Sleepiness Scale (ESS) (Soldatos et al. 2000, Johns 2000). AIS allows to quantify the symptoms of nighttime insomnia and contains 8 formulations that the patient evaluates on a scale from 0 to 3. Scores up to 9, 10 and above 10 indicate normal state, borderline and insomnia, respectively. In the ESS, the patient determines the probability of falling asleep during the day (on a 0-3 points scale) in the 8 presented situations. Scores in the range 11-14, 15-18 and above 18 indicate mild, moderate and pathological drowsiness, respectively.

Differences between study and control groups were analyzed with the use of Statistica 10.0 software (StatSoft Polska, Poland). Normality of the data were verified with Shapiro-Wilk test. In the main statistical analysis paired t-test, Mann-Whitney U and McNemar tests were used, and a p value less than 0.05 was considered significant. The Spearman correlation was used.

RESULTS

The occurrence of depression in the study and control groups was compared. Severe depression occurred in 10.53% of patients with MS versus 6.0% of people from healthy population. In contrast, mild depression is more common in healthy people, in 18.0% in the control group and in 10.53% in those with MS (Figure 1). In study group, women with MS were statistically more likely to suffer from depression than men ($p=0.019$).

The occurrence of anxiety in the study and control groups was compared. In study group 7.89% of MS patients had severe anxiety disorders versus 5.0% in healthy population, but mild anxiety occurred more often in control group (13.0%) than in study group (5.26%) (Figure 2). Anxiety disorders in patients with MS most often occur in the form of: generalized anxiety disorder (18.6%), panic disorder (10.0%), obsessive-compulsive disorder (8.6%). There were no statistically significant differences between the genders and the occurrence of anxiety disorders in MS patients.

The occurrence of insomnia in the study and control groups was compared. In study group 20.51% of MS patients had insomnia, in healthy population 11.0%. There were no statistically significant differences

between the genders and the occurrence of sleep disorders in MS patients (Figure 3).

In study, the correlation between depression and anxiety was examined. There were a strong positive correlation between the occurrence of anxiety and depression ($p=0.0001$; $r=0.9$) (Figure 4).

The relation of the occurrence of sleep disorders and depression or anxiety disorders was investigated. There were a strong positive correlation between scores of intensification of sleep disorders and the severity of depression. The more severe the form of depression, the greater the severity of sleep disorders ($p=0.0001$; $r=0.78$) (Figure 5). There were a strong positive correlation between scores of intensification of sleep disorders and the severity of anxiety disorders. The more severe the form of anxiety, the greater the severity of sleep disorders ($p=0.0001$; $r=0.7$) (Figure 6).

DISCUSSION

The coexistence of psychiatric symptoms with multiple sclerosis was first observed in the 19th century. However, the first studies on the incidence of depression in MS were carried out only in the 1950s. Depression can occur in up to 50.0% of MS patients at least once during the course of the disease. Based on numerous studies, the annual risk of depressive disorders in patients with MS is around 20.0% [4]. Our research also confirms the frequent occurrence of depressive disorders in patients with MS. Due to the high prevalence of depression among young and healthy people, the hypothesis about the direct impact of the disease on the development of depressive disorders in patients with MS requires proof.

The diagnosis of depression in MS patients is difficult because depressive symptoms may overlap with typical symptoms of multiple sclerosis. By definition, a depressive state should last a minimum of 2 weeks.

Based on our results, mild depression is more often associated with healthy people, whereas patients with MS more often suffer from a very severe form of depressive disorders - 10.53%. The risk of committing suicide among MS patients is 7.5 times higher than in the general population [4]. Minden et al. report occurrence of severe depression in 54.0% of patients at least once from the diagnosis of MS, while at the time of the study, depression criteria were met by 14.0% of patients [5]. Due to the diversity of methodologies in scientific research, caution in the interpretation of results is suggested. Most studies are conducted among patients who attend major research centers. A group of well-functioning patients in society may be unrepresentative. In addition, a high level of fatigue in MS patients may suggest symptoms that are allegedly depressant, and consequently, the use of general population questionnaires may contribute to overstated results and the inclusion of antidepressant treatment. The best solution is to use questionnaires intended for the population of patients with chronic disease.

A high correlation between the occurrence of anxiety and depression suggests that anxiety disorders are common in patients with MS [4]. Anxiety is often overlooked as a

symptom and often difficult to distinguish from reactive tendencies.

In the literature, the frequency of reported anxiety disorders ranges from 14-41.0% and is associated with the occurrence of chronic pain [6,7]. Disability status has less impact on anxiety [8]. In turn, Beiske et al. observed more frequent anxiety and depression in patients at the beginning of the disease and in younger patients [7].

Anxiety disorders in patients with MS most often occur in the form of: generalized anxiety disorder (18.6%), panic disorder (10.0%), obsessive-compulsive disorder (8.6%) [9].

Sleep disturbances in multiple sclerosis have a multifactorial basis and may result from neurological symptoms (bladder dysfunction, nocturia, dysesthesia of the lower limbs) and from psychiatric symptoms (fatigue, mood disorders).

The most common sleep disorders concern: insomnia, restless legs syndrome, periodic limb movement disorders, sleep-related sleep disorders. Our study consisted in assessing insomnia in patients with MS and the control group. Brass et al. observed obstructive sleep apnea in 37.8% of patients, insomnia in 31.6%, restless legs syndrome in 36.8% in the screening of sleep disorders in patients with MS [10]. Doctors verified patients from the screening test, using 4.0%, 11.0%, 12.0% for the above mentioned sleep disorders.

Nociti et al. report that patients with MS with sleep disorders suffer from a more severe form of depression [11]. Garland et al. observed the twice higher risk of sleep disturbance in MS patients with anxiety disorders [12]. Our research confirms the observation of other authors. The more severe the form of depression and stronger anxiety, the greater the severity of sleep disorders.

CONCLUSION

Psychiatric disorders in multiple sclerosis coexist with each other and rarely occur in isolated form. Patients with MS have a greater risk of severe forms of mental disorders. Further research on psychiatric disorders in patients with multiple sclerosis is needed to understand pathogenesis, to optimize therapeutic strategies and improve quality of life.

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MEDtube Science Sep, 2018, Vol. VI (3), 37 – 41

ABBREVIATIONS

AIS – Athens Insomnia Scale
CNS – central nervous system
ESS – Epworth Sleepiness Scale
HAM-A – Hamilton Rating Scale for Anxiety
HAM-D – Hamilton Rating Scale for Depression
MS – multiple sclerosis

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- Fig. 5. Correlation occurrence of intensification sleep disorders and severity of depression in study group.
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FIG. 1. PROPORTIONS OF STUDY GROUP (N=38) AND CONTROL GROUP (N=100) REPORTING ANY SYMPTOMS OF DEPRESSION.

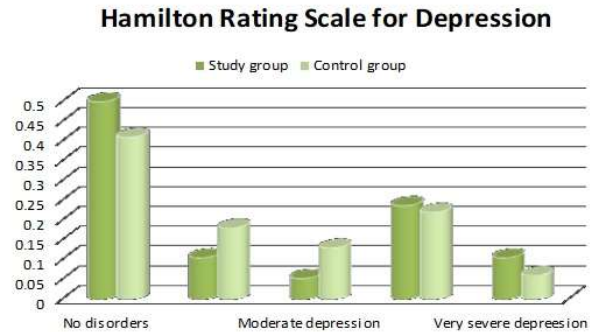


FIG. 2. PROPORTIONS OF STUDY GROUP (N=38) AND CONTROL GROUP (N=100) REPORTING ANY SYMPTOMS OF ANXIETY.

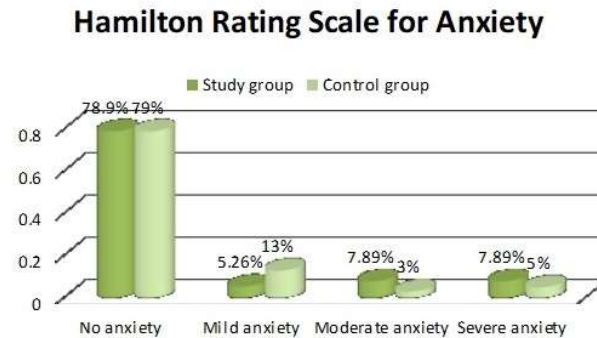


FIG. 3. PROPORTIONS OF STUDY GROUP (N=39) AND CONTROL GROUP (N=100) REPORTING ANY SYMPTOMS OF SLEEP DISORDERS.

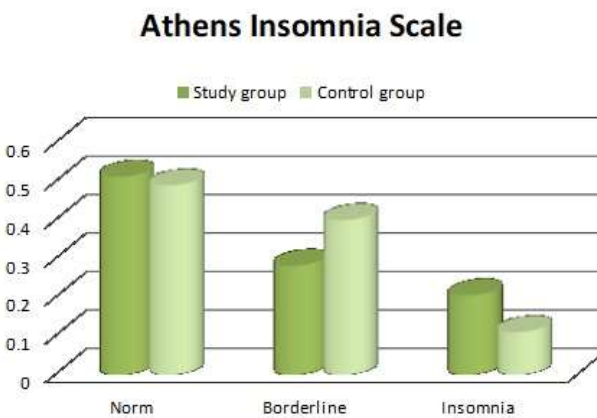


FIG. 4. CORRELATION OCCURRENCE OF SEVERITY OF ANXIETY AND DEPRESSION IN STUDY GROUP ($p=0.0001$; $r=0.9$) ($p>0.05$).

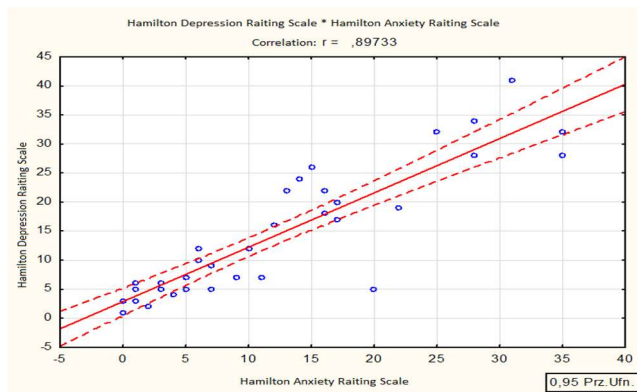


FIG. 5. CORRELATION OCCURRENCE OF INTENSIFICATION SLEEP DISORDERS AND SEVERITY OF DEPRESSION IN STUDY GROUP ($p=0.0001$, $r = 0.78$) ($p>0.05$).

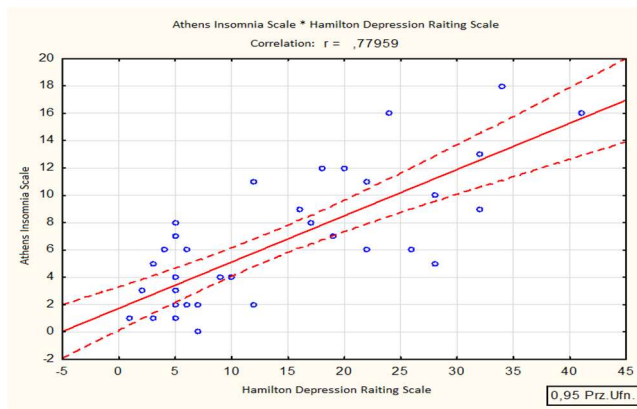
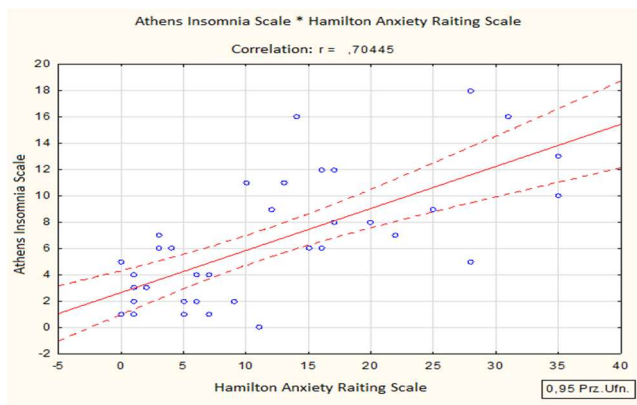


FIG. 6. CORRELATION OCCURRENCE OF INTENSIFICATION SLEEP DISORDERS AND SEVERITY OF ANXIETY DISORDER IN STUDY GROUP ($p=0.0001$; $r=0.7$) ($p>0.05$).





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