Eating Attitude in Multiple Sclerosis

Multipl Sklerozda Yeme Tutumu

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Özet

Amaç: Bu çalışmada Multipl skleroz (MS) hastalarında yeme tutumlarının incelenmesi amaçlanmıştır.

Gereç ve Yöntemler: Bu çalışmaya 2017 McDonald kriterlerine göre MS tanısı olan 64 olgu yanı sıra yaş, cinsiyet ve eğitim düzeyi açısından benzer özellikli 64 sağlıklı gönüllü alındı. Tüm katılımcılara ayrıntılı nörolojik muayene yapılmış olup, yeme tutumu testi, Beck anksiyete ölçeği ve Beck depresyon ölçeği uygulanmıştır.

Bulgular: Gruplar arasında Yeme Tutum Testi karşılaştırıldığında MS olanlarda YTT≥30 üzerindeki kişi sayısı 24 (%37.5) olduğu, kontrol grubunda bu sayı 14 (%21.8) olup, MS grubunda kontrol grubuna göre yüksek bulunmuştur. MS grubunu EDSS 3 ve altı ile EDSS 4 ve üzeri her iki grubu karşılaştırdığımızda YTT 30 puan üzeri hasta EDSS 3 ve altında 11 (%25), EDSS 4 ve üzeri 13 (68.5) hasta saptanmıştır. EDSS göre karşılaşıldığında EDSS 4 ve üzeri olan grupda 30 puan alan hasta oranı daha fazla saptanmıştır.

Sonuç: Çalışmamızda MS hastalarında yeme bozukluğu sıklığı toplumdaki genel sıklığa oranla yüksek bulunmuştur. Bu oran ileri EDSS olan hastalarda istatiksel olarak daha da anlamlılığa ulaşmıştır. MS hastalarının takiplerinde ve tedavi süreçlerinde atak tetikleyiciler arasında bazı vitamin mineral eksikliği olduğu da göz önüne alındığında yeme bozuklukları veya bozulmuş yeme davranışının varlığı önem kazanmaktadır.

Anahtar kelimeler: Disabilite, Beslenme, Multipl skleroz, Yeme tutumu

Abstract

Objective: To examine attitudes to eating in multiple sclerosis (MS) patients.

Materials and Methods: The study included 64 cases diagnosed with MS according to the 2017 McDonald criteria and a control group of 64 healthy volunteers of similar age, gender, and education level. All the study participants underwent a detailed neurological examination and were then administered the Eating Attitudes Test (EAT), the Beck Anxiety Inventory (BAI), and the Beck Depreession Inventory (BDI).

Results: In the comparisons between the groups of the EAT results, a score of ≥30 was obtained by 24 (37.5%) MS patients and 14 (21.8%) of the control group. When the MS patients were compared in two groups according to the Expanded Disability Status Scale (EDSS) score of ≤3 and ≥4, an EAT score of ≥30 was obtained by 11 (25%) patients with EDSS score ≤3 and by 13 (68.5%) patients with EDSS ≥4.

Conclusion: The frequency of eating disorders in the MS patients in this study was found to be higher than the overall frequency in the general population. This rate reached statistical significance in patients with high EDSS scores. When it is considered that some vitamin and mineral deficiencies are among the triggers of MS attacks, the presence of eating disorders or poor eating behaviour is important in the follow-up and treatment processes of MS patients.

Keywords: Disability, Eating attitude, Multiple sclerosis, Nutrition

INTRODUCTION

Multiple sclerosis is a chronic autoimmune disease of the central nervous system, in which there is inflammation, demyelinisation, and axon loss. There can be great variability in the course of the disease between patients, and despite significant advances in treatment having been recorded in recent years, MS continues to be one of the most common causes of neurological disability in young adults. Although the cause of the disease is not fully known, genetic, immunological, and environmental factors have been reported to contribute to the development of the disease. Several clinical phenotypes can be seen in patients, the most common of which are sensory and visual complaints. In addition, psychological dimensions of problems occur in multiple sclerosis patients. These patients could have physical, psychological and social problems. These include depression, anxiety, fatigue, insomnia, and pain. Nutrition, which is one of the environmental factors, plays an important role in both etiology and comorbid diseases (1,2).

Eating disorders are psychiatric disorders characterised by changes in eating behavours, which emerge primarily in adolescents and young adults. Eating disorders are classified into three groups as anorexia nervosa, bulimia nervosa and other eating disorders. It is more common in Western countries, but its incidence is increasing in other countries.Studies have reported that it is more common in women than in men.Many factors such as genetic factors, sociocultural factors, psychological and biological factors (dopamine, leptin, serotonin level) cause the development of eating disorders. Especially the structural abnormalities in the brain and the development of autoantibodies directed to these eating-related regions show the importance of biological factors in this process. (3,4).

Disruption of the balance of the microbiota in the gut, changes in the composition of the microbiota and this disruption of the intestinal barrier due to conditions chronic inflammatory diseases such as MS paves the way for the development (5).

Eating disorders may initially be misdiagnosed and the diagnosis process may be delayed. Especially MS patients are at risk of developing eating disorders due to both physical problems and accompanying psychosocial reasons. It is necessary to evaluate the risk of eating disorders in terms of good management of the symptoms of the disease, early diagnosis and treatment process (6).

The aim of this study was to examine eating attitudes in MS patients and to evaluate the relationship of these with disability.

MATERIALS AND METHODS

The study included 64 patients who presented at the MS Clinic of the Neurology Department of Kahramanmaraş Sütçü İmam University Medical Faculty between March 2022 and June 2022, and were diagnosed with MS by a neurology specialist according to the 2017 McDonald criteria. A control group was formed of 64 healthy volunteers of similar age, gender, and education level. Approval for the study was granted by the Kahramanmaraş Sütçü İmam University Ethics Committee (decision no: 2022/08, dated: 01.03.2022). Participation in the study was on a completely voluntary basis, and informed consent was provided by all the study participants.

The study inclusion criteria were defined as voluntary, literate, aged 18-60 years, a diagnosis of MS according to the 2017 McDonald criteria for the patient group, and no health problems for the control group. The sociodemographic information of all the subjects was recorded. Height and weight were measured and the body mass index (BMI) was calculated. The subjects were separated into 3 groups according to BMI as <18.49: low, 18.5-24.9: normal, and ≥25: high BMI.

The Expanded Disability Status Scale (EDSS) score was used to evaluate the functional status of the MS patients. A record was made of patient age, disease duration, disease onset, neurological examination findings, and follow-up duration.

The Eating Attitudes Test (EAT), the Beck Anxiety Inventory (BAI), and the Beck Depression Inventory (BDI) were applied. The subjects participating in the study were divided into groups as below 30 points and above 30 points according to their eating attitudes. They were divided into groups as below 17 points and above 17 points according to the Beck depression scale.

The Eating Attitudes Test (EAT)

It is a self-report scale consisting of 40 items. The scale can be applied over the age of 11 years.It was developed by Garner and Garfinkel in 1979 to objectively measure the symptoms of anorexia nervosa.The validity and reliability of the scale were made by erol and savaşır. The threshold value of the scale is 30 points. Over 30 points are considered an eating disorder.

Beck Depression Inventory (BDI)

The scale evaluates the severity of depression-related symptoms in the cognitive, emotional and physical symptoms sub-dimensions of individuals. The mental health status in the last week is considered. It is a self-evaluation scale that includes 21 symptom categories scored from 0-3 with Likert-type responses. The

maximum total points are 63 and higher points indicate a greater severity of depression. The scale was developed by Beck and the reliability and validity studies of the scale in Turkish were conducted by Hisli, with the cutoff value accepted as 17 points.

Beck Anxiety Inventory (BAI)

In the scale, especially the anxiety dimension is evaluated. It consists of 21 items, each scored between 0 and 3, to give a total in the range of 0-63 points. Higher total points indicate a higher level of anxiety. The reliability and validity studies of the scale in Turkish were conducted by Ulusoy et al., with an accepted cutoff value of 17 points.

Statistical Analysis

Data obtained in the study were analyzed statistically using SPSS software (Statistical Package for the Social Sciences). Descriptive statistics were stated as mean±standard deviation (SD) values, number (n) and percentage (%). Conformity of the data to normal distribution was assessed with the Kolmogorov-Smirnov test, and variance homogeneity with the Shapiro-Wilk test. For the comparisons of categorical varables between two groups, the Chi-square test was applied if the expected values were not >20% or<5%, and if this condition was not met, the Fisher Exact test was applied. In the comparisons of numerical variables between two groups, the Independent Samples t-test was used for data showing normal distribution and the Mann Whitney U-test for data not showing normal distribution. A value of $p<0.05$ was accepted as statistically significant.

RESULTS

Evaluation was made of a total of 128 individuals as 64 in the MS group and 64 in the control group. In the MS group, the female-to-male ratio was 71.9% female and 28.1% male.

In the control group, the ratio of female to male was 58.5% female and 41.5% male. The mean age was 38.64±8.75 years in the MS group and 37.94±8.12 years in the control group. There was no statistical difference between the groups (p=0.615).

In the MS group the mean disease duration was 6.5±5.3 years and the mean EDSS points were 2.33±1.7. The sociodemographic data of the MS group and the control group are shown in **Table 1**.

In the comparisons between the groups of the EAT results, a score of ≥30 was obtained by 24 (37.5%) MS patients and 14 (21.8%) of the control group (p=0.47). When the MS patients were compared in two groups according to the EDSS score of ≤3 and ≥4, an EAT

Table 1. Socio-demographic characteristics of people in the MS and control group		
	MS (n=64)	**Control (n=64)**
Age	38.64±8.75	37.94±8.12
Sex		
Female	46 (%71.9)	38 (%58.5)
Male	18 (%28.1)	26 (%41.5)
Job		
Officer	10 (%15.6)	16 (%25)
Workers	5 (%7.8)	22 (%34.3)
Hausewife	33 (%51.6)	2 (%3.1)
Unemployed	3 (%4.7)	2 (%3.1)
Retired	4 (%6.3)	2 (%3.1)
Self-employment	3 (%4.7)	2 (%3.1)
Student	6 (%9.4)	18 (%28.1)
Smoker	11(%17.2)	17(%26.5)
Non-smoker	53(%82.8)	47(%73.5)
EDSS	2.33±1.7	

EDSS: Expanded Disability Status Scale

score of ≥30 was obtained by 11 (25%) patients with EDSS score ≤ 3 and by 13 (68.5%) patients with EDSS ≥4. The rate of patients with EAT score >30 points was determined to be greater in the group with EDSS ≥4 points (p=0.01). BDI points of >17 were obtained by 22 (34.4%) patients in the MS group and by 18 (28.1%) control group subjects. The mean BDI points were determined to be 13.6 in the MS group and 10.6 in the control group (p=0.4). BAI points of >17 were obtained by 51.6% of the patients in the MS group and by 32.3% of the control group subjects (p=0.027). When the groups were evaluated according to BMI of ≥25, there were determined to be 39 (60.9%) patients in the MS group with BMI ≥25, and 30 (46.2%) control group subjects. There were seen to be a greater number of MS patients with high BMI but the difference between the groups was not statistically significant (p=0.09). EAT, BDI, BMI data of the MS group and the control group are shown in **Table 2**.

DISCUSSION

Multiple sclerosis (MS) is a demyelinisation disease of the central nervous system, characterised by a broad range of symptoms and findings including various functional systems (pyramidal, cerebellar, sensory, brainstem, intestines and bladder, visual, mental, ambulation). Nutrition is important in MS patients in respect of both attacks and progression.

Table 2. Comparison of groups according to Eating Attitude Test, Beck Depression Inventory, Beck Anxiety Inventory and Body Mass Index.

	MS (n=64)	control (n=64)	P
EAT ≥30	24 (%37,5)	14 (%21,8)	0.47
BDI ≥17	22 (%34,4)	18 (28,1)	0.40
BAI ≥17	33 (%51,6)	21 (%32,3)	0.02
BMI≥25.0	39 (%60,9)	30 (%46,2)	0.09

EAT: Eating Attitude Test BDI: Beck Depression Inventory
BAI: Beck Anxiety Inventory BMI: Body Mass Index

There are many studies in literature that have reported that attack frequency and the disease course are affected by lifestyle and nutrition causing Vitamin D deficiency in particular (7,8).

In a review of nutrition in MS, Riccio and Rossano reported that a diet rich in fruit and vegetables with high polyphenol (resveratrol quercetin, curcumin catechin, etc) and fibre content, dried legumes, fish containing omega-3 fatty acids, and foods containing probiotics-prebiotics, with appropriate energy intake and physical activity, reduced inflammation. It was emphasized that a sedentary lifestyle and a diet containing high salt and sugar, animal fats, fried food, and insufficient fibre had the effects of increasing inflammation, and it was also highlighted that trans-fats increase inflammation, and therefore trans-fats hould be avoided in MS (9).

There is a limited number of studies in literature related to the frequency of potential eating disorders in MS. In a study of 186 patients, Terzi et al. determined eating attitude disorder at the rate of 9.14%. In the current study, eating attitudes disorder was determined in 37.5% of the MS patients. This rate was further increased in MS patients with an EDSS score of ≥4, and this rate was determined to be statistically significant. MS patients with a high EDSS score may have to make changes in their eating habits to meet their individual needs. The likelihood of reduced movement, fatigue, listlessness, and reduced activity can create the problem of weight gain in some patients. However, weight loss and unbalanced nutrition can also be seen in some MS patients with a high EDSS score. This can cause muscle fatigue, spasms, reduced mental activity, reduced immune response to infection, and anemia (10,11).

Since the discovery of the immunogenic properties of fat tissue in recent years, evidence has emerged related to a possible link between obesity and MS pathogenesis. Obesity at an early age, especially in adolescence, has been determined as a risk factor for the development of MS. Moreover, by negatively affecting the progression of the disease, obesity may contribute to an increase in disease severity, and may also cause comorbid diseases (12,13).

When the groups in this study were evaluated according to BMI ≥ 25, although the rate of MS patients with BMI ≥25 was higher than that of the control group (60.9% vs. 46.2%), the difference was not statistically significant.

Accompanying psychological factors such as anxiety, depression, and obsessive-compulsive disorder may have an effect on the pathophysiology of eating disorders seen in MS patients. Psychiatric symptoms are common in MS patients and have been previously described by Charcot and investigated in the spread of encephalomyelitis. Mood disorders are the most common of these psychiatric symptoms. Depression in MS is the most predominant psychological disorder with a lifelong prevalence of approximately 30.5%. Anxiety is also often seen with a reported prevalence of 35.6% (14-16). In the current study, depression according to the BDI was determined at 34.4%, and anxiety according to the BAI at 51.6%. These results were seen to be consistent with findings in literature.

Limitations of this study can be said to be the relatively small sample size, the single-centre design, and that the scales used were non-diagnostic.

In conclusion, eating disorders and MS are two important health problems, which are much more likely to be seen in young adults. The frequency of eating disorders in the MS patients in this study was found to be higher than the overall frequency in the general population. This rate reached statistical significance in patients with high EDSS scores. Unwanted developments in the natural course of MS may be seen associated with the negative effect of eating disorders on the immune system. When it is considered that some vitamin and mineral deficiencies are among the triggers of MS attacks, the presence of eating disorders or poor eating behaviour is important in the follow-up and treatment processes of MS patients. Some type of screening for eating disorders should be applied to this group of patients, and the opportunity for early diagnosis and treatment shoud be provided in this process.

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