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Full Length Research paper

Orofacial changes in patients with multiple sclerosis treated in Brasil

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Multiple sclerosis (MS) is an inflammation of the CNS that due to its demyelination nature may present different clinical conditions. Manifestations in orofacial complex can be assessed as the first sign of disease. The aim of this study was to investigate the prevalence of orofacial alterations in MS patients and relate them to the clinical form of the disease. We developed a cross-sectional study that included 98 individuals with a diagnosis of MS. Data collection resulted from the application of a questionnaire for research into the clinical history of the disease and the occurrence of some kind of manifestation in orofacial complex. It was found that the most frequent type of event was numbness, especially the facial area, followed by facial paralysis, and that the evolutionary form predominantly relapsing-remitting revealed the occurrence of a significant incidence of orofacial manifestations. The prevalence of the analyzed sample carrying MS was female, belonging to mulatto and black race/ethnicity, and diagnosed with ages ranging from 18 to 45 years; the most frequent type of event was the numbness followed by facial paralysis and that the evolutionary form predominantly relapsing-remitting revealed the occurrence of a significant incidence of orofacial manifestations.

Key words: Facial paralysis, multiple sclerosis, numbness.

INTRODUCTION

Multiple sclerosis, demyelinating disease is the most common and autoimmune inflammation of the CNS (García and Salavierri, 2006). It was described initially in 1837 in London by Robert Carswell, a professor of pathology anatomy, while disseminating a case of brain abnormality similar to the clinical picture of this disease. The name originates from multiple sclerosis characteristics in multiple areas, visible macroscopically in the brain and spinal cord, responsible for various neurological signs pathognomonic of the condition of this pathology (Chemaly et al., 2000; Critchley, 2004; Gallud et al., 2006; Ferreira et al., 2004). From a clinical standpoint, this disease is manifested by periods of exacerbation and remissions (Schiffman, 1976). Clinical symptoms, a reflection of CNS demyelination or blocking the transmission of nerve impulses at the level of axons, may manifest as visual problems (49%) as partial or total blindness, unilateral eye pain, diplopia or optic neuritis, numbness in limbs or limb and hemiplegia (43%), sensory disturbances (23%) and genitourinary dysfunction (10%). Signs of brain lesions are less frequent (4%) and include ataxia, dysarthria, seizures, involuntary movements, anxiety and hysteria. Fatigue or constant exhaustion affects 75 to 90% of people with MS (Moreira et al., 2008), which is estimated to be the most serious symptom in 40% of patients. Psychological symptoms such as mood changes, bipolar disorder, euphory and state of apathy are described in co-existence with multiple sclerosis since the first reported cases of the disease (Mendes et al., 2003; Ybarra et al., 2007). Symptoms in the orofacial complex may be the first manifestation, among which stands out trigeminal neuralgia (painful tic – doloureux - 1.9% of cases), trigeminal sensory neuropathy (TSN) and facial paralysis (Critchley, 2004; Gallud et al., 2006; Mitchell et al., 2008;

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Table 1. Absolute and relative values of the sample according to variables: Gender, age group, race/ethnicity, education level and marital status.

Variable	Frequency	
	N	%
Sex		
Male	16	16.3
Female	82	83.7
Age group		
13-19 years	04	4.1
20-29 years	23	23.5
30-45 years	33	33.7
46 or more	38	38.7
Race/Ethnicity		
Whites	30	30.6
Blacks	19	19.4
Browns	43	43.9
Yellows	04	4.1
Amerindians	02	2.0
Level of instruction		
Illiterate	03	3.1
Incomplete fundamental	22	22.4
Complete fundamental	11	11.2
Incomplete high	06	6.1
Completo high	37	37.8
College degree	03	3.1
Incomplete higher education	15	15.3
Post-graduate	01	1.0
Civil status		
Single	44	44.9
Married	45	45.9
Widow(er)	03	3.1
Divorced	06	6.1

Ferroli, 2001).

The aim of this study is to describe the epidemiology of orofacial manifestations in a given stage of the disease on individuals with multiple sclerosis attended to in a Reference Center in Salvador, State of Bahia.

METHODOLOGY

This research was submitted to and approved by the Ethics Committee of the Faculty of Dentistry, Federal University of Bahia, registration number CAAE0045.0.368.000-08FR-235180. The Center for support of patients with multiple sclerosis (NAPEM) that works in the Ambulatory Magalhaes Neto, the University Hospital Professor Edgard Santos, UFBA, receives currently about 400 patients with MS from the capital and countryside of the state of Bahia in many different social categories. This service provides clinical, neurological, physiotherapic and pharmacological treatment and performs as well as referral to other specialties of health when necessary. We developed a cross-sectional study that included 98 individuals with a diagnosis of MS closed by neurologists members of the Reference Center of this disease, at the Clinic Magalhaes Neto of the University Hospital Professor Edgard Santos, Federal University of Bahia, attended in the period from October 2009 to April 2010. Excluded from the sample were the individuals who refused to participate in this survey, who were in relapse or those who were too weak. Data collection resulted from the application of a questionnaire for research into the clinical history of the disease, information on sex, race/ethnicity, age at diagnosis, the evolutionary form of multiple sclerosis presented and the occurrence of some kind of manifestation in orofacial complex.

RESULTS

Of the 98 patients examined, 82 (83.7%) were female and 16 (16.3%) were males. 60 (63.3%) declared to belong to mulatto and black race/ethnicity, while 37 (37.8%) reported being white. Finally, 68 (69.4%) reported having been diagnosed with ages ranging from 18 to 45 years. The predominant evolutionary form was relapsing-remitting, which corresponded to 59 subjects (60.2%). 26 (26.5%) were diagnosed with primary progressive type, while 13 (13.3%) had secondary progressive type. Tables 1, 2 and 3 express the basic characteristics of patients and disease characteristics. Asked about the occurrence of orofacial manifestations during the outbreaks, 36 (36.7%) patients surveyed reported having such symptoms, and the most frequent type of event was numbness accused by 63.8% (23), especially the percentage of 39.1% (09) assigned to the facial area. The demonstration was followed by the percentage of 41.6% (15) given to facial paralysis. The clinical form of the disease with the occurrence of orofacial manifestations was found in 69.4% (25) of patients with the relapsing-remitting form. Table 4 shows the values for the orofacial symptoms and their respective clinical forms.

We identified as prescribed for 26.5% of the patients with multiple sclerosis the immunomodulator glamatirama acetate, while for 63.5%, pharmaceutical drugs prescribed were interferons. 6.1% of patients were not using any of the immunomodulators.

DISCUSSION

The examination of patients from October 2009 to April 2010 formed a sample of 98 individuals. This sample was characterized by the prevalence of females, mean age 40.3 years; race\ethnicity black and brown, and education around 4 years of study. These observations concerning the social profile reflect the pattern of Brazilian population. According to National Survey by Household Sampling (PNAD), conducted by the Brazilian Institute of

Table 2. Absolute and relative values of the sample according to the variables: Gender, presence of family history of disease, comorbidities, age at diagnosis and clinical form of MS.

Variable	Sex			
	Male		Female	
	N	%	N	%
Presence of family history of MS disease				
Yes	01	6.3	09	11.0
No	15	93.7	73	89.0
Age of MS diagnosis				
Until 18 years	02	12.5	06	7.3
From 18 to 45 years	12	75.0	56	68.3
Over 45 years	02	12.5	20	24.4
Clinic form of MS				
RRMS	07	43.7	52	63.4
PPMS	05	31.3	21	25.6
SPMS	04	25.0	09	11.0
Comorbidities				
None	09	56.2	58	70.7
Hypertension	04	25.0	09	11.0
Diabetes	01	6.3	01	1.2
Others	02	12.5	14	17.0

Table 3. Type of impairment, affected region and frenquency of the first manifestation of MS.

Type of impairment (%)	Affected region (%)
Motor (74.5)	Upper limbs (16.4) Upper and lower limbs (35.7) Lower limbs (47.9%)
Dormancy (73.5)	Upper limbs (24.5) Lower limbs (35.2) Upper and lower limbs (40.3)
Visual Changes (55.1)	Total blindness (11.1) Partial blindness (18.5)
Pain (48)	Blurred vision (61.1) Upper and lower limbs (8.2) Head (9.2) Trunk (22.4)

Geography and Statistics (IBGE) (1999), most individuals in the Northeast, 70.1%, consider themselves as belonging to the black race or negro or brown ethnicity, and only 29.7% consider themselves white. In the sample examined, 63.3% (62) individuals self identified as black and brown, while only 30.6% (30) consider themselves whites. 4.1% (04) said to belong to the yellow race and 2.0% (02) to the Indian race. With regard to educational level, the sample ranged between incomplete Elementary School and completed High School, that is

Table 4. Prevalence of orofacial symptoms, according to clinical form of EM (p = 0.3).

Orofacial symptom	RRMS		PPMS/SPMS	
	%	N	%	N
Paresthesia	62.5	05	37.5	03
Numbness	69.6	16	30.4	07
Facial Paralysis	73.3	11	26.7	04

is, an average of four years of study, while the average education of the region was 4.3 years of study. Data presented demonstrate that there is an equivalence in the social profile of the study undertaken and the results expressed by the Northeast in the last survey conducted by the PNAD. The sample characterized by a predominance of women (83.7%) aged 20 to 50 years confirms the fact that this disease affects, mainly, women of childbearing age (Minguetti, 2001). In examining on 2006, 121 patients with multiple sclerosis, Cardoso et al. (2006) found the prevailing percentage of the order of 80.2% in female patients from the second decade of life (90.9%). The present study confirmed this predominance in females (87.3%) between the second and fifth decade of life (75.5%). With regard to race or ethnicity, this study found the higher preva-lence in mulattoes and blacks, equivalent to 63.3% (63).

Finkelsztejn et al. (2009) findings are consistent with the results of various surveys conducted in the Northeastern states of Brazil, among which, the findings of Cardoso et al. (2006), in the state of Bahia, when finding a higher prevalence in mulatto (64%), and Ferreira et al. (2004), in Pernambuco state, whose prevalence was about 93.2% allocated to that ethnicity. Studies in South and Southeast tend to show higher frequencies in Caucasians, as shown by Fragoso and Perez (2007) and Fragoso and Fiore (2005), both held in Sao Paulo, whose percentages were detected in 88 and 94% respectively. Alves-Leon et al. (2008) and Silva et al. (2009), analyzing the clinical and epidemiological profile of MS patients from Rio de Janeiro, found a higher prevalence in whites (53 and 67% respectively). Studies conducted in Mato Grosso by Grzesiuk (2006) revealed the prevalence of 80% for whites, while in Rio Grande do Sul, Finkelstjn et al. (2009) determined the prevalence of 96% for this race. The statistical data collected in the research under discussion suggests a trend of PPMS/SPMS for males, while women showed higher impairment of relapsing-remitting form. Ferreira et al. (2004) found the prevalence of progressive forms equivalent to 5.5 times higher for males. These data suggest that the epidemiology of the disease, according to race or ethnicity, can vary according to region of the country studied. The genetic variability of the population in Bahia is an important element to justify this phenomenon, probably in view of miscegenation. Based on the aforementioned findings, it can be assumed that the clinical and epidemiological characteristics of MS in this sample are presented in a unique way as compared to those described from the findings of samples collected in populations of other countries (Alves-Leon et al., 2008). The results, however, are consistent with the records found in national publications that say there is substantial variation in the characterization of data depending on the Brazilian region studied (Cardoso et al., 2006; Finkelsztejn et al., 2009).

In the state of Bahia, for example, heterogeneity in the manifestation of that disease is possibly due to the massive presence of population of African descent, given the historical origins of this ethnic or racial predominance. This finding may explain also the fact that this region presents a low prevalence of disease due to the relative protection (probably genetic) in developing MS - such as with the Eskimos and the Japanese - whose etiology consistency remains unclear today (Craelius, 1978). Clinical form predominantly found in this study was the relapsing-remitting form, milder form, characterized by acute episodes interspersed with periods of clinical stability (García and Salavierri, 2006). This finding is consistent with epidemiological studies aforementioned, which also record a higher prevalence of the relapsing-remitting form. Despite not having occurred with the majority of patients, orofacial manifestations were mentioned by 36.7% (36) of individuals who comprised the sample, episodes of numbness being accused by 23.5% (23) and facial paralysis by 3% (15). To Chemaly et al. (2000) the impairment of the maxillofacial region of patients with MS occurs when there is trigeminal nerve demyelination. Occurrences of events in oral and facial complex during exacerbations of the disease could be detected, especially in individuals whose disease expression showed a tendency to relapsing-remitting (RRMS). However, this association, although quite significant from a clinical standpoint, has not been ratified from the statistical viewpoint. The continuity of this study by expanding the sampling could probably bring new information with regard to this hypothesis, since it can significantly assist the very complex diagnosis of clinical forms of the disease, considered from a clinical standpoint. The fact that most individuals surveyed did not mention having presented oral symptoms at some stage of the disease does not rule out the importance of inclusion of the dentist in the interdisciplinary teams that care for people with MS, because in many cases, the pathological manifestations of the trigeminal nerve may be associated with MS. It is of utmost importance that the knowledge by the dentist on the pathogenesis of systemic diseases, particularly those that may present manifestations in the orofacial complex, among which the MS, since the direct intervention aimed at eliminating the symptoms present in the maxillofacial area favors more effective therapy used by neurologists.

According to Polman and Uitdehaag (2000), both

interferons and glamatirama acetate can be used for the treatment of relapsing-remitting form of MS. These authors also believe that there are no immunomodulatory drugs indicated for the treatment of progressive forms. In the Service where this work was developed, the two drugs are used in the treatment of relapsing-remitting form. 64.4% (38) of patients with the aforementioned form (n = 59) make use of some type of interferon, compared with 27.1% (16) using glamatirama acetate. The analysis of the employment of a specific type of immunomodulator for each clinical form of MS indicates that, in the service where the study was developed, there is no regular pattern of prescription, being dependent on each case the definition of medications. For patients who develop progressive forms, immunomodulators are usually prescribed, although the medical literature has not yet defined this alternative as the most suitable drug for the progressive clinical forms. The justification of the Service in question for the prescription of immunomodulators is supported by the intention to provide some protective effect that such drugs might be offered to such patients.

Conclusion

Considering the results obtained in this study we can conclude that the prevalence of the analyzed sample carrying MS was female, belonging to mulatto and black race/ethnicity, and diagnosed with ages ranging from 18 to 45 years; the most frequent type of event was the numbness, especially on the facial area, followed by facial paralysis, and that the evolutionary form predominantly relapsing-remitting revealed the occurrence of a significant incidence of orofacial manifestations.

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