

ANALYSIS OF PEOPLE WITH MULTIPLE SCLEROSIS IN MONTES CLAROS, MINAS GERAIS

Análise dos portadores de esclerose múltipla em Montes Claros, Minas Gerais

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Abstract: Objective: To analyse the epidemiological situation and socio-demographic of the multiple sclerosis in Montes Claros region. **Methodology:** Retrospective, cross-sectional investigation study, descriptive and quantitative type, developed based on Hospital Information System of the Single Health System, between 2008 and 2015. The variables gender, age, folk, hospitalizations number, treatment place, public expenses were considered. **Results:** The EM prevalence floated between 1.1 e 2.5/100 thousand inhabitants, therefore 1.8/100 thousand was the mean. The hospitalizations number is higher in women (75,6%). The age with more disease incidence was the 20 to 39 years old (46,4 % of total number), and brown complexion had the majority of cases (76%) . The most part of treatment happened in private method (95,1%) and in urgency situation, producing a high cost (82.8%) of R\$ 24.161,35. The deaths number was 4,9%, being the majority by women aging between 50 to 59 and 70 to 79 years old. The death rate reached higher value in 2010 (16,7), followed by 2013 (12,5). **Conclusion:** Montes Claros City – MG had the growth in the multiple sclerosis number, hospitalizations, expenses and the private system demand. These facts happen due to an increase in technology sources and the number of specialized doctors. There is necessity of more multiple sclerosis study, aiming at the improvement of multi -professional formation, so that the diagnostics and treatments can be made earlier and more efficiently.

Keywords: Multiple Sclerosis; Hospitalizations; Death Rate.

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Resumo: Objetivo: Analisar o perfil epidemiológico e sócio-demográfico da esclerose múltipla (EM) Montes Claros e região. **Metodologia:** Estudo de investigação retrospectivo, transversal, de caráter descritivo e quantitativo, desenvolvido mediante análise da base de dados do Sistema de Informações Hospitalares do Sistema Único de Saúde, nos anos de 2008 a 2015. Considerou-se as variáveis gênero, faixa etária, raça, número de internações, estabelecimento de atendimento, gastos públicos e óbitos. **Resultados:** A prevalência da EM variou entre 1,1 e 2,5/100 mil habitantes, sendo 1,8/100 mil a média encontrada. O número de internações pela doença mostrou-se crescente e maior entre as mulheres (75,6%). A faixa etária mais acometida foi entre os 20 e 39 anos (46,4% do total), ao passo que a raça parda deteve maior prevalência (76%). A grande maioria dos atendimentos ocorreu em regime privado (95,1%) e em caráter de urgência, apresentando custo mais elevado (82,8%) de R\$ 24.161,35. O número de óbitos correspondeu a 4,9%, sendo todos estes representados por mulheres, com idades entre 50 a 59 e 70 a 79 anos. A taxa de mortalidade alcançou maior valor em 2010 (16,7), seguido por 2013 (12,5). **Conclusão:** A cidade de Montes Claros – MG obteve aumento no número de casos de EM, no de internações, gastos e procura pelo regime privado. Esses fatos decorrem da melhoria nos recursos tecnológicos e no número de médicos especializados. Há necessidade de mais estudos referentes à EM, visando-se, especialmente, ao aprimoramento da formação multiprofissional, para que diagnósticos e tratamentos sejam realizados de forma mais precoce.

Palavras-chave: Esclerose Múltipla; Internações; Taxa de Mortalidade.

INTRODUCTION

Multiple sclerosis (MS) is a neurologic demyelinating disease of central nervous system, in a chronic and progressive way. It is an autoimmune pathology, in which leukocytes, mainly activated T lymphocytes, cross the blood-brain barrier and initiate an inflammatory response, destroying oligodendrocytes and axons and/or the myelin itself. In view of this, the neural impulse tends to be impaired by changing movements, sensations and various other body activities. The etiological mechanisms of the disease are still unknown, however, they seem to be associated with genetic, immunological and infectious complications.¹⁻⁵

Featuring unimodal distribution, EM reaches approximately 2 million people in the world, where there is higher prevalence in places with temperate climate, as in northern Europe and North America and South Australia (may reach 100/100 thousand inhabitants in these locations) and lower in countries close to the equator line. Whereas in Brazilian territory, the prevalence is considered low. However, regions such as East and South have diverging data regarding this reality: São Paulo and Santa Maria, for example, have the values of 15 and 27.2 per 100,000 inhabitants, respectively. Generally, the disease affects more than 30 thousand individuals in the country and is currently one of the main responsible for physical disability in young people and adults.^{2,6}

Primarily, the diagnosis of MS is clinical, based on signs and symptoms that suggest demyelinating disorders, among them muscle weakness, spasticity, fatigue, changing of vibrational/positional alteration, nystagmus, ataxia and vesical, visual, intestinal and sexual

dysfunctions. In a second moment, it is essential to carry out neurological examinations, such as magnetic resonance imaging, computed tomography or analysis of the cerebrospinal fluid for investigation of topographical changes, after all, in spite of the disease affecting mainly the white substance, cortical and gray matter lesions also may be present. It should be emphasized that the confirmation of EM is not carried out only on the detection of changes, but, when these are characteristics of this pathology.^{2,7}

The prognosis of multiple sclerosis depends on the subtype of disease, individual characteristics (such as sex, age and initial symptoms) and the degree of disability of the subject.² The Cure has not still been well clarified and, therefore, the treatment of the disease is palliative, which uses drugs to reduce the number of attacks/relapses and assist in the treatment of symptoms. Due to that, a system of medication should be well organized for any kind of treatment, especially in the case of EM, with the implementation of rules which guide the professionals immersed in this process.^{2,8,9}

It should be emphasized that, although EN is characterized as a severe and debilitating infection, there is little availability of studies on it, making it little known by the layman public and even by some health professionals. Upon the exposed and since that Montes Claros is considered a Center for receiving patients from the north of Minas Gerais State, it is essential to establish appropriate measures for the early diagnosis and consequent reduction of hospital morbidity of this disease. In addition, this study is also important due to the fact that it aims to expose the number of hospitalizations, the socio-demographic and epidemiological profile of carriers of the disease in this city.

METHODOLOGY

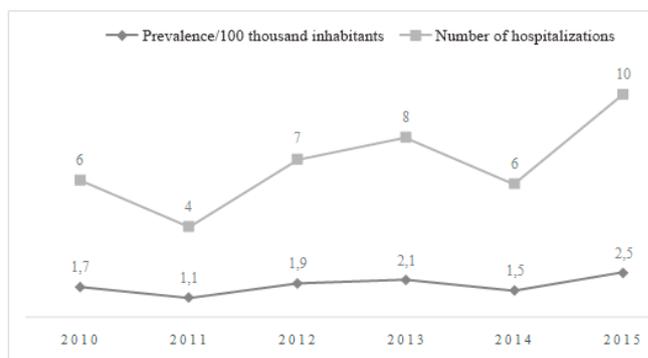
This is a retrospective study, research, cross, descriptive and quantitative character. The data were obtained from the database of the Hospital Information System of the Unified Health System - SIH/SUS, provided by the Department of Informatics of SUS (DATASUS), the electronic address (<http://www.datasus.gov.br>), regarding hospitalizations due to multiple sclerosis in Montes Claros - Minas Gerais, during the period from January 2010 to December 2015. It was considered the socio-demographic (gender, age and race) and clinical variables (number of hospitalizations, scheme, character of care, expenses, deaths and establishment of care). During data collection, it was sought to identify, in the study population, the number of hospitalizations, the socio-demographic and epidemiological profile of carriers of the disease in this city. Descriptive analyzes were performed of the surveyed data. It was used the Excel software (Office 2016) and the Statistical Pockage for Social Sciences (SPSS) for Windows version 15.0 and Origin 7.1, for management and analysis of information. Because it is a database of public domain, it was necessary to submit the study to the Research Ethics Committee approval.

RESULTS

In the period from 2010 to 2015, depending on the SIH/SUS databases, 41 patients were hospitalized in Montes Claros - MG, due to the occurrence of multiple sclerosis. It was also observed that, in the same period, the number of hospitalizations due to this pathology ranged from 4 to 10 cases - an average of 7 cases per year -, while the prevalence ranged from 1.1 to 2.5

cases/100,000 inhabitants - mean 1,8/100 thousand inhabitants (Figure 1).

Figure 1 - Number and prevalence of hospitalizations due to multiple sclerosis in Montes Claros MG, in the period from 2010 to 2015



In accordance with the socio-demographic data obtained, the number of hospitalizations for EM stood out in female patients (75.6%), the age range from 20 to 39 years (46.4%) and race (78%), as it is evidenced in table 1.

Table 1 - socio-demographic data of the patients hospitalized for Multiple Sclerosis in Montes Claros (MG), in the period from 2010 to 2015.

Variables (N)	Hospitalizations	(%)
Sex		
Male	10	24.4%
Female	31	75.6%
Age range		
15 to 19 years	5	12.2%
20 to 29 years	10	24.4%
30 to 39 years	9	22 %
40 to 49 years	6	14.6%
50 to 59 years	7	17.1%
60 to 69 years	1	2.4%
70 to 79 years	3	7.3%
Color/Race		
White	5	12.2%
Brown	32	78 %
No information	4	9.8%

Source: System of Hospital Information of SUS (SIH-SUS).

In relation to primary care provided, it is observed that the private institutions (Hospitals Aroldo Tourinho and Santa Casa) received 95.1%

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of the cases. Whereas the public regime (University Hospital Clemente Faria) was responsible for the acceptance of only 4.9%, as shown in Table 2. In both regimes, the patients were treated in urgent circumstances.

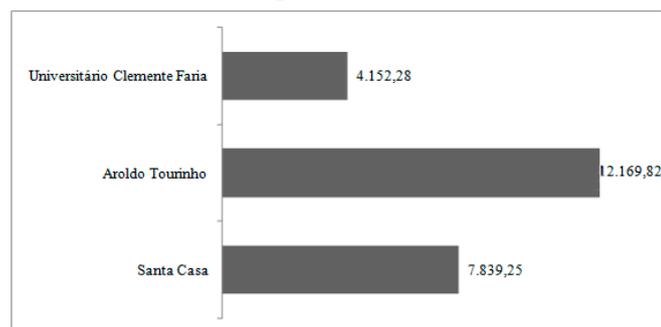
Table 2 - Distribution of Cases of Multiple Sclerosis in accordance with the regime and establishment of care in Montes Claros (MG), 2010 to 2015.

Establishment	Number of hospitalizations	(%)	Regime Public	Private regime
HSC	15	36.6%	-	15
HAT	24	58.5%	-	24
HUCF	2	4.9%	2	-

HSC: Santa Casa Hospital / HAT: Aroldo Tourinho Hospital / HUCF: University Hospital Clemente Faria

In the analysis of expenditures related to EM, there was a cost of R\$ 24,161.35 to health establishments in the city. Although the private sector held higher spending, totaling R\$ 20,009.07, the average value per hospitalization was R\$513.05. In contrast, the public sector showed the average amount of R\$2,076.14 per patient (Figure 2).

Figure 2 - Total amount spent with patients suffering from multiple sclerosis in accordance with the establishment of attendance in Montes Claros - MG, in the period between 2008 to 2015.

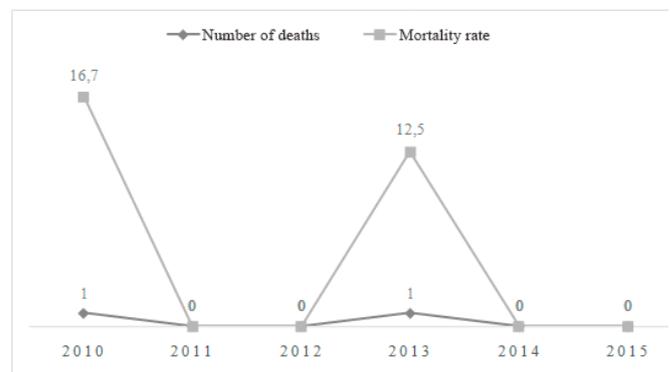


The patients remained in health establishment for varying periods, noting an average of six, eight and thirty-nine days in hospitals Aroldo Tourinho Hospital, Santa Casa Hospital and University Hospital Clemente Faria, respectively.

Among the 41 cases of hospitalizations in

the city, only 2 (4.9%) died, and they were female and the age ranges from 50 to 59 and 70 to 79 years. The mortality rate, in turn, has reached the value of 16.7 in 2010, decreasing to null levels in the next year and remained like this until the year 2012. In that same year, the mentioned rate returned to ascend, in a way that, in 2013 was in 12.5, second largest value during the period analyzed (Figure 3).

Figure 3 - Number and of deaths and mortality rate due to multiple sclerosis in Montes Claros MG, in the period from 2010 to 2015



DISCUSSION

In the period from January 2010 to December 2015 41 cases of hospitalizations were observed in the city of Montes Claros, MG. When analyzing the state as a whole, it is also possible to check the gradual increase in the number of hospitalizations due to the disease, being registered 215, 352 and 409 cases in 2008, 2014 and 2015, respectively.¹⁰

In addition, the progression in the number of hospitalizations due to the disease, between the years of 2011 to 2013 and 2014 to 2015, shown in this study, may be related to the increase of 30% in the number of neurologists and 50% in the number of magnetic resonance imaging. These events represent advances of extreme significance for the diagnosis of EM and monitoring of lesions arising from it¹¹

Similar to the State situation, the number of hospitalizations due to the disease has increased sharply in the city studied. Despite this, its prevalence is low (less than 5 cases per 100,000 inhabitants) in comparison with the state and national rates, probably because the initial phase of the disease is subtle.¹²

Thus, the prevalence of in in Montes Claros is considered low, analogous to the Brazilian average.² However, some regions of the country demonstrate divergent numbers of the general national. In the municipality of Santa Maria, in the southern part of the country, it was observed a high prevalence (14 to 27 to 100 thousand inhabitants) when compared to other regions.¹³

The cities of Santos (SP) and Belo Horizonte (MG), obtained data that attest to the prevalence of 15.54 and 18.1 per 100,000, respectively, values three times higher than that found in this work.^{14,15} These differences may be related to the existence of the latitudinal factor and of miscegenation that influenced the Brazilian population, especially, the states of São Paulo and Minas Gerais.⁵ Moreover, South and Southeast have the largest population in Brazil, in addition to better socio-economical and technological conditions, favoring the identification of more cases of the disease.

Whereas the Northeast and Midwest presented 10 (in 2004) and 4.41 to 19 cases per 100 thousand inhabitants (in 2008), respectively.^{16,17}

As to the color/race, in the present study, there was a predominance of mixed race, with 78% of the cases, different from research in Santa Maria (RS) and in Cuiabá (MS). The first noted that 30% of individuals, in Brazil, are black;¹³ whereas another showed that 80% of patients in the outpatient clinic of neurology of CRIDAC were white.¹⁸

The information presented here clarify that the number of cases was much higher among women, accounting for approximately 75.6% of them. Bodies of research performed in the cities of Cuiabá (MT) and Belo Horizonte (MG) also observed that the majority of carriers is comprised of women: (75%) and (78.8%), respectively.^{18,19} Again, this research is confirmed, with regard to the most affected gender.

From this sketch, it was observed that the demand for service regarding EM in Montes Claros is held as a matter of urgency, being 95% in private network. This situation can be understood by the fact that: many patients need other health professionals or even other medical specialties, but not always the system allows this service happen jointly; the diagnosis of EM requires an experienced clinician and, many times, there is no financial incentive for research about the disease, contributing to the studies to be insufficient; moreover, there is bureaucracy for the removal of the drugs.^{2,20}

The sum of these circumstances is in favor of the difficulty that these patients and their relatives face during the process of identification and diagnosis of the disease (many of them undergo various tests before they can receive a proper diagnosis), contributing to the demand for private system and in urgency.⁶

On the other hand, it was evidenced, in this work, that the average cost per hospitalization was higher in the public system, compared to the private sector. One explanation for this is the fact that the patients stayed about 6 to 8 days under private care, while 39 days was the time spent in public establishment.

EM requires careful and very intense care, demanding, many times, time and continuous attention, in order to achieve a better arrangement

of family dynamics to contribute in its treatment. Having said that, and given that the professionals of the Family Health Strategy address the family group as the center of primary care, the work of these is of utmost importance, since the reality of people assisted by it becomes more well-known, leading them to be more responsive to the needs of those users.²¹

Among the 41 cases of hospitalizations in the city, only 2 (4.9%) died, and they were female and the age ranges from 50 to 59 and 70 to 79 years. Two thirds of deaths in people with EM are directly related to the consequences of the disease, which usually relate to opportunistic infections. The study of Grzesiuk et al.¹⁸, for example, noticed just one death in the period observed due to infectious complications.¹⁸

In its terminal phase, associated to respiratory complications such as aspiration pneumonia, atelectasis or respiratory insufficiency, taking, on average, half of the patients to death.^{22,23} Although the mortality rate reported in this study was higher in the year of 2010 in relation to the year 2013, demonstrating that, despite the number of hospitalizations have increased over the period studied, the mortality rate has decreased or remained unchanged in recent years

CONCLUSION

In the present study, it is concluded that, in Montes Claros (MG), EM has predominated in women, ranging in age from 20 to 39 years and brown race. In this municipality, there was an increase in the number of hospitalizations in recent years, as well as the costs, especially in the private network and in urgency care. **The facts presented, therefore,** make us believe that most cases, when diagnosed, are already at a late stage.

Due to EM being a chronic and degenerative disease, time and experience are important allies in the improvement of the clinical signs: as soon as they the diagnosis and the treatment are performed, the higher will be the chances of achieving healthier life expectancy. In addition, family assistance and of health professionals involved in the care of patients also become very important in the quality of life of the same.

It is evident, therefore, that patients, doctors, nurses and other authorities in the area, should be attentive to the fact that the treatment is a search for the return of the functions. Therefore, they can and should contribute to the prevention of diseases and mortality reduction.

Thus, there is a need for further studies related to EM in order to invest in modern technology and, especially, to multiprofessional team, so that this set is capable of screening early the most susceptible patients, providing quality care and better conduct before the patient carrier of the disease. It is therefore concluded that access to information is the best way to search for improving the treatment and decrease the possible consequences of the disease, fostering the guarantee of promotion of health and the full quality of life.

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