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Short communication

Movement disorders in a cohort of Algerian patients with multiple sclerosis

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INFO ARTICLE

Article history:
Received 2 November 2016
Received in revised form
4 April 2017
Accepted 15 June 2017
Available online 16 November 2017

Keywords:
Movement disorders
Multiple sclerosis
Prevalence
MRI correlation

ABSTRACT

Multiple sclerosis is an inflammatory demyelinating disease of central nervous system. Except for cerebellar tremor, occurence of other movement disorders remains rare. Our study aimed to evaluate their prevalence in our population of patients with multiple sclerosis, and to compare it with literature data. Our results showed higher prevalence compared to European studies, raising the question of mechanisms of the disorder. MRI correlation was also studied, in 3 cases over 8 and a possible correlation was found.

1. Background

Multiple sclerosis (MS) is an inflammatory demyelinating disease of the central nervous system characterized by the dissemination of lesions in time and space [1]. Except for cerebellar tremor, which is very common in patients with MS, other movement disorders (MD) are rare [2,3]. There have been described cases of parkinsonism, paroxysmal dystonia, restless legs syndrome and hemifacial spasm, but their occurrence remains extremely rare in patients with MS [4]. Thus, the aim of our present study was to evaluate the prevalence of MD in a cohort of patients diagnosed with MS, and to compare our data with what has been reported in the literature.

2. Patients and methods

Our department of neurology conducted a survey study between January 2012 and June 2016, registering all cases of MD arising in any patient diagnosed with MS. Included in the study were all new patients diagnosed with MS, according to the 2010 revised McDonald diagnostic criteria, during this time period. Patients with all forms (relapsing–remitting, primary progressive and secondary progressive) of the disease were

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https://doi.org/10.1016/j.neurol.2017.06.022

included. Excluded from the study were patients being followed concomitantly for another disease likely to cause MD, as well as MS patients presenting with MD during the course of the disease clearly due to any cause other than MS (toxic, infectious, vascular, etc.). Because it is such a common condition in MS, cerebellar tremor was not considered.

All patients were examined by a neurologist experienced in the field of MS, while patients with associated MD were reviewed by a neurologist experienced in the field of MD. Thus, of the new patients who were examined during the study period, a total of 289 had a diagnosis of MS according to the revised McDonald criteria.

3. Results

Eight of the new 289 MS patients were diagnosed with MD during the period of the study (54 months), and five of them were women. The average age of these eight patients was 37.7 (range: 28–59) years. MD revealed the disease in five cases (62.5%) and, in seven cases, the form of MS was relapsing–remitting. Regarding the type of MD, three patients had painful paroxysmal dystonia (37.5%), which revealed MS in two cases, two further patients had hemifacial spasm (25%), another patient had bilateral blepharospasm (12.5%) revealing the disease and one patient had hemiballism (12.5%) as the first presentation of the disease. The diagnosis of primary progressive MS was also made, according to the McDonald 2010 criteria, in one patient with parkinsonism lasting for 10 years associated with a pyramidal syndrome.

Regarding the clinical evolution of MD, they resolved spontaneously in two cases, with carbamazepine treatment in two other cases and after infusion of methylprednisolone in three further cases. In the patient with parkinsonism with a progressive course, no therapy was effective for the MD.

Magnetic resonance imaging (MRI) showed a possible radiological MD correlation in three cases (37.5%) (Table 1). In one case (Fig. 1), T2-weighted fluid-attenuated inversion recovery (FLAIR) sequences showed a nodular lesion without gadolinium enhancement in the thalamocapsular region contralateral to paroxysmal dystonia. In the second case, T2-weighted MRI showed a lesion in the pons ipsilateral to hemifacial spasm (Fig. 2) and, in the third patient with bilateral blepharospasm, an inflammatory medial pons lesion was revealed (Fig. 3).

4. Discussion

In our cohort of 289 patients diagnosed with MS, the appearance of MD was observed in eight cases (2.76%). In the literature, there have been studies looking at MD and their frequency in MS. Over a 10-year period, 10 cases (0.4%) out of 2500 patients were reported in one study [5], while another reported 12 cases (1.6%) out of 733 patients [6]. In contrast, the prevalence of MD in our surveyed MS patients was higher. However, compared with previous studies, our cohort was smaller, which might be explained by the lower prevalence of MS in North Africa compared with Europe. Also, ours was a single-center study and limited to only new patients diagnosed with MS in our department during a 54-month period. Nevertheless, in our group of MS patients with MD, painful paroxysmal dystonia was predominantly observed (42.8%), as has often been reported in the literature [7–9].

In more than half of our reported cases, the relationship between the location of demyelinating lesions and MD was not established [4]. However, a possible correlation was found on MRI in three cases: the first patient had a thalamocapsular lesion contralateral to paroxysmal dystonia (Fig. 1); the second patient had a pons lesion ipsilateral to hemifacial spasm (Fig. 2); and the third, a case of bilateral blepharospasm, had a lesion of the medial pons (Fig. 3). Looking for specific focal lesions on conventional MRI can be difficult, given the limited neuroimaging methods for exploration of the basal ganglia [10].

In the literature, the causal or coincidental nature of MD in association with MS has long been discussed [4], raising the question of the mechanisms behind their occurrence. It has been supposed that paroxysmal symptoms, especially spasms, result from ephaptic transmission between sensory pathways and corticospinal tracts [11]. Moreover, the response to corticosteroids in some cases may be an indication of an inflammatory/demyelinating mechanism behind the disorder. In our present MS patients, MD resolved completely with infusions of methylprednisolone in three cases and spontaneously after a few days of evolution in three other cases, and required medical treatment with carbamazepine in two further cases [12,13]. The patient with progressive parkinsonism failed to respond to any treatment. The causal relationship of the latter disorder with MS, however, is difficult to establish, particularly in the absence of any

Table 1 – Eight patients with multiple sclerosis (MS) who developed movement disorders (MD) over a 54-month period of observation.

	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8
Age, years	29	41	35	33	39	28	33	59
Gender	M	F	F	M	F	M	F	F
Clinical form of MS	RR	RR	RR	RR	RR	RR	RR	PP
MD type	PD	PD	Bleph	HS	PD	HB	HS	Park
Revealed MS	No	Yes	Yes	No	Yes	Yes	No	Yes
MRI correlation	–	Thalamo-capsular	Pons (lateral)	Pons (medial)	–	–	–	–
Treatment	CBZ	CBZ	MP	MP	Spont	Spont	MP	None

M, male; F, female; RR, relapsing–remitting; PP, primary progressive; PD, paroxysmal dystonia; Bleph, blepharospasm; HS, hemifacial spasm; Park, parkinsonism; HB, hemiballism; CBZ, carbamazepine; MP, methyl prednisolone (infusion); Spont, spontaneous remission.