Aggressive multiple sclerosis in Argentina: data from the nationwide registry RelevarEM

RELEVAREM

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INTRODUCTION

Aggressive MS (aMS) describes a form of the disease with a rapid progressive course leading to significant disability in multiple neurologic systems or even death in a relatively short time after onset. Despite there being no consensus on the exact definition of aMS, several studies performed during the last years have tried to better identify and understand the frequency and distribution as well as the progression and treatment response in order to determine more accurately which patients with aMS would most benefit from higher-efficacy, higher-risk treatments. The objectives of the present study were to describe the frequency of aMS as well as to compare clinical and radiological characteristics in aMS and non-aMS patients included in RelevarEM

METHODS

The eligible study population and cohort selection included adult-onset patients (≥18 years) with definite MS. AMS were defined as those reaching confirmed EDSS ≥6 within 5 years from symptom onset. Confirmation was achieved when a subsequent EDSS ≥6 was recorded at least six months later but within 5 years of the first clinical presentation. AMS and non-AMS were compared using the $\chi 2$ test for categorical and the Mann-Whitney for continuous variables at MS onset and multivariable analysis was performed using forward stepwise logistic regression with baseline characteristics at disease onset

Menon S, Shirani A, Zhao Y, Oger J, Traboulsee A, Freedman MS, Tremlett H: **Characterising aggressive multiple sclerosis**. *J Neurol Neurosurg Psychiatry* 2013, **84**(11):1192-1198. Menon S, Zhu F, Shirani A, Oger J, Freedman MS, Tremlett H: **Disability progression in aggressive multiple sclerosis**. *Mult Scler* 2017, **23**(3):456-463.

RESULTS

A total of 2158 patients with MS were included: 74 AMS and 2084 non-aMS. The prevalence of aMS in our cohort was 3.4% (95%CI 2.7-4.2%). Mean age at disease onset for aMS was 42 ± 5 years vs. 31 ± 4 years for non-aMS, and mean follow-up time for aMS and non-aMS was 8 ± 2.5 and 12 ± 4.3 years, respectively. Almost 82% of aMS were currently retired from work due to the disease vs. 33.4% in non-aMS patients. Regarding treatment, 36.5% in aMS vs. 6% in non-aMS were currently in monoclonal antibodies treatment ($p<0.001$) (Table 2). In the regression analysis, patients with aMS were more likely to be male ($p=0.003$, older at MS onset ($p<0.001$), have primary progressive MS (PPMS) phenotype ($p=0.03$), multifocal presentation ($p<0.001$), and spinal cord as well as infratentorial lesions at MRI during disease onset ($p=0.004$ and $p=0.002$, respectively)

CONCLUSIONS

3.4% of our patient population could be considered AMS. Men, patients older at symptom onset, multifocal presentation, PPMS phenotype, and spinal cord as well as brainstem lesion on MRI at clinical presentation all had higher odds of having AMS.

Baseline characteristics of aMS and non aMS

	aMS (n=74)	Non aMS (n=2084)	p	OR (95%CI)
Number of patients and %	74 (3.4)	2084 (96.4)	-	-
Mean age at disease onset, years ± SD	42 (5)	31 (4)	<0.001	1.76 (1.23-2.11)
Female gender, n (%)	37 (50%)	1390 (66.7%)	0.003	0.64 (0.54-0.86)
Mean follow-up time, years ± SD	8 (2.5)	9.5 (4.3)	0.18	-
Disease course				
Primary progressive course, n (%)	16 (22)	250 (12)	0.03	1.54 (1.13-1.76)
Relapsing course, n (%)	58 (78)	1834 (88)	0.01	0.76 (0.55-0.92)
MR abnormalities at clinical presentation				
Infratentorial lesions, n (%)	63 (85.1%)	1362 (65.6%)	0.002	1.21 (1.04-1.42)
Spinal cord lesions, n (%)	62 (82.7%)	1183 (56.7%)	0.004	1.33 (1.16-1.97)
Positive Gadolinium lesions, n (%)	40 (55.1%)	1078 (51.7%)	0.32	1.06 (0.87-1.32)

Treatment at disease onset and Current status in aMS and non aMS

	aMS (n=74)	Non aMS (n=2084)	p-value
At disease onset			
Injectables, n (%)	17 (23.5)	719 (34.5)	0.05
Orals, n (%)	44 (59.5)	1094 (52.5)	0.23
Monoclonal antibodies, n (%)	6 (8)	42 (2)	<0.001
No treatment, n (%)	7 (9)	229 (11)	0.58
Current status			
Injectables, n (%)	4 (5)	500 (24)	<0.001
Orals, n (%)	33 (45)	1146 (55)	0.01
Monoclonal antibodies, n (%)	27 (36.5)	127 (6)	<0.001
No treatment, n (%)	10 (13.5)	311 (15)	0.11

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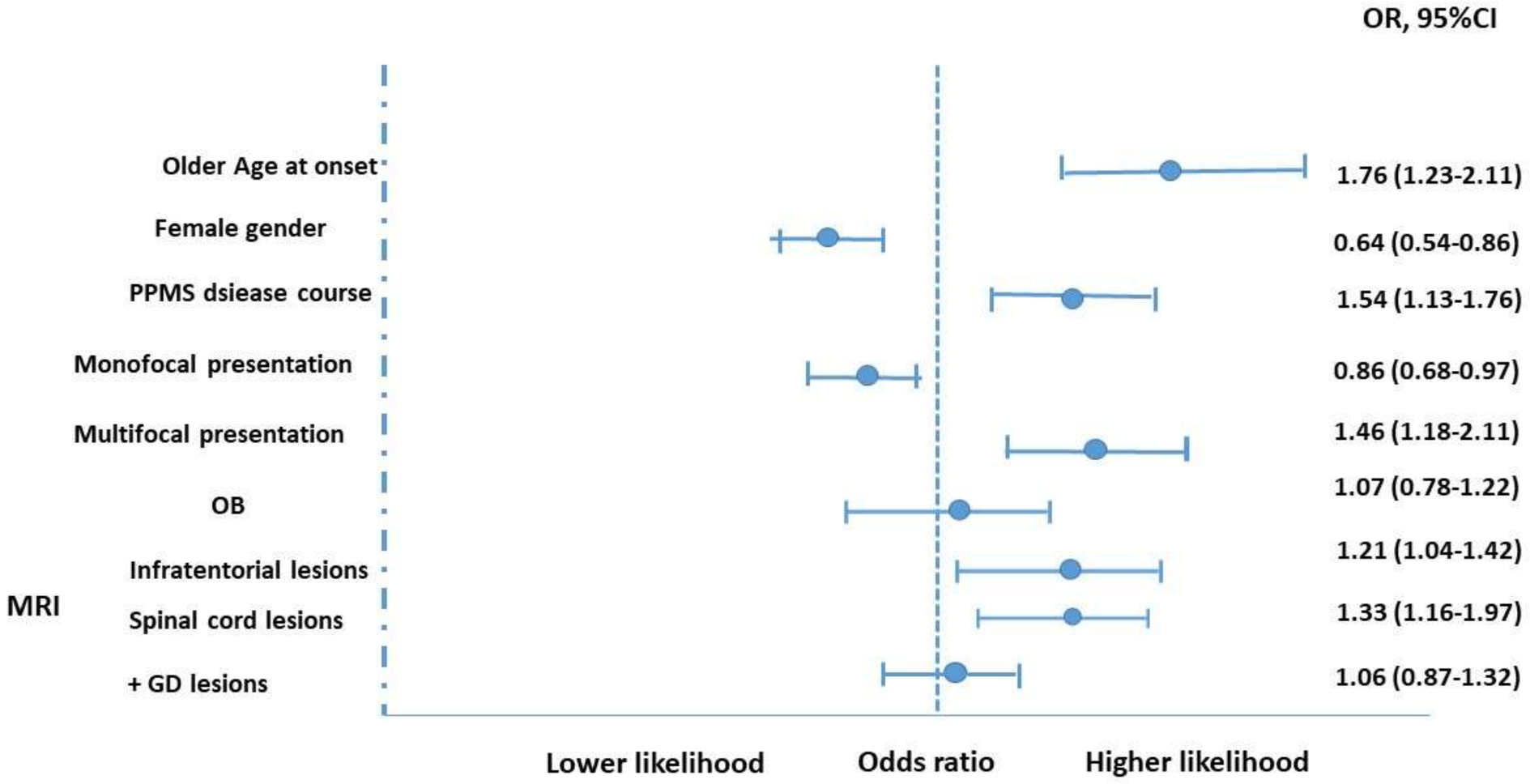
Association between patient characteristics at baseline and aMS in the cohort



aMS = aggressive multiple sclerosis; OB = oligoclonal bands; CSF = cerebrospinal fluid, GD = gadolinium, PPMS = primary progressive multiple sclerosis

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Conclusions

- We describe and compare baseline characteristics in AMS and non-AMS in Argentina
- 2158 patients with MS were included: 74 AMS and 2084 non-AMS.
- The prevalence of AMS in our cohort was 3.4% (95%CI 2.7-4.2).
- AMS were more likely men, older at symptom onset, multifocal presentation and PPMS
- AMS had more likely spinal cord as well as infratentorial lesions at MRI during disease onset