What percentage of AQP4-Ab-negative NMOSD patients are MOG-Ab positive? A study from the Argentinean multiple sclerosis registry (RelevarEM)

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Conflicts of interest

- The authors do not have any potential financial conflict of interest relating to this poster.
- Irrestrictive research grants from Biogen Argentina, Genzyme Argentina, Merck Argentina, Novartis Argentina and Roche Argentina allowed the development and implementation of the Registry (RelevarEM). Those grants did not interfere in the development plan, variables, PI selection, patient information nor other aspects of the Registry.

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Introduction and objective

- Myelin oligodendrocyte glycoprotein antibodies (MOG-Ab) have been described in aquaporin-4-antibodies(AQP4-Ab)-negative neuromyelitis optica spectrum disorders (NMOSD) patients[1-2].
- We aimed to investigate the percentage of AQP4-Ab-negative NMOSD patients who are positive for MOG-Ab included in the Argentinean MS and NMOSD registry (RelevarEM, NCT 03375177).

1-Hamid SHM, Whittam D, Mutch K, et al. What proportion of AQP4-IgG-negative NMO spectrum disorder patients are MOG-IgG positive? A cross sectional study of 132 patients. J Neurol. 2017;264(10):2088-2094. 2-Juryńczyk M, Jacob A, Fujihara K, Palace J. Myelin oligodendrocyte glycoprotein (MOG) antibody-associated disease: practical considerations. *Pract Neurol*. 2019;19(3):187-195.

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Methods

- RelevarEM is a longitudinal, strictly observational multiple sclerosis (MS) and NMOSD registry in Argentina.
- Epidemiological, serological test and neuroimaging (MRI) data from NMOSD were described.

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Results

- A total of 165 patients (79 AQP4-Ab positive, 67 AQP4-Ab negative and 19 unknown) were included. Of these, 155 patients fulfilled the 2015 NMOSD diagnostic criteria. Of 67 AQP4-Ab-negative patients, 36 were tested for MOG-Ab and 10 of them (31.8%) tested positive.
- Presence of relapses during the previous 6 months (40% vs. 12.9%), shorter disease duration (3.9 vs. 7.5 years), lower disability (2.3 vs. 3.4) and treatment duration (1.5 vs. 3.4 years) and both optic neuritis (90% vs. 44.5%) and optic nerve lesion on MRI (80% vs. 25.1%) were significantly associated with MOG-Ab-positive compared with NMOSD, respectively.

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Results

	NMOSD (n=155)	MOG (n=10)	p-value
Age at diagnosis Mean (±SD), y	37.9 (± 14.7)	29.4 (±12.7)	0.07
Female N (%)	123 (79.3)	6 (60)	0.22
Disease duration Mean (±SD)	7.5 (±5.9)	3.9 (±3.9)	0.01
EDSS (±SD)*	3.4 (±2.4)	2.3 (±1.2)	0.03
NMOSD relapses at last 6 months			
Yes	20 (12.9)	4 (40)	0.01
Charlson comorbidity index			
0	128 (82.6)	9 (90)	0.54
≥ 1	27 (17.4)	1 (10)	
First relapse			
Optic neuritis	69 (44.5)	9 (90)	0.005
Transverse myelitis	75 (48.4)	1 (10)	0.01
Area postrema syndrome	7 (4.5)	-	
Brainstem syndrome	3 (1.9)	-	
Simtomatic cerebral syndrome	1 (0.6)	-	
AQP4-ab test performed			
No	19 (12.2)	-	
Yes	136 (87.8)	10	
AQP4 assay (n=136)			
IFI	58 (42.6)	-	
ELISA	4 (2.9)	-	
CBA	48 (35.2)	-	
Unknown	26 (19.1)	-	
Results of AQP4-antibodies			
Negative	57 (41.9)*	10	
Positive	79 (58.1)	-	
MOG-ab test performed			
No	129 (78.2)	-	
Yes	36 (21.8)	-	
Results of MOG-antibodies (n=36)			
Negative	26 (68.2)	26 (68.2)	
Positive	10 (31.8)	10 (31.8)	

	NMOSD (n=155)	MOG (n=10)	p-value
MRI at presentation			
Optic nerve lesions	37 (25.1)	8 (80)	0.0008
STM/LETM	17 (11.5)/73 (49.6)	1 (10)	0.001
Area postrema	8 (5.4)	-	1
Brainstem syndrome	4 (2.7)	-	1
Talamo/hipotálamo	-	-	-
Hemisferic white matter	1 (0.6)	-	1
Normal	7 (4.7)	1 (10)	0.41
No available	8 (5.1)	-	1
Treatment time Mean (±SD)	3.4 (±2.5)	1.5 (±0.5)	0.001
Acute treatment			
IVMP	17 (85)	4 (100)	0.41
PLEX	3(15)	-	
Chronic Treatment			
Rituximab (mas otros monocle0	54(34.8)	3(30)	0.81
Azathioprine/MMF	64(41.3)	4(40)	0.55
Micophenolate mofetil	6(3.9)	2(20)	
Unknown	25 (16.1)	-	
Others***	6(3.9)	1(10)	

*Unpaired t test with Welch's correction

**66 NMOSD patients were negative for AQP4-ab and 10 of them were positive for MOG-ab.

**Others: Eculizumab (n=2), metrotexate (n=1) and tocilizumab (n=1) in the NMOSD group and tocilizumab (n=1) in the MOG-disease group.

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Results

Patient	Age	Gender	Symptoms at presentation	Comorbilities	EDSS at last FU	Relapses at last 6 mo	MRI at presentation	Acute treatment	Preventive treatment	FU at last visit (y)
1	33	F	ON	None	0	No	ON lesion	No	AZA	3
2	27	F	ON	None	4	No	ON lesion	No	RTX	13
3	19	F	ON	None	4	No	ON lesion	No	RTX	2
4	36	F	ON	CCI = 1	3.5	Yes	Normal	IVMP	None	1
5	16	M	ON	None	3	No	ON lesion	No	TCZ	5
6	43	M	ON	None	2	Yes	ON lesion	No	AZA	2
7	37	F	ON	None	2	No	ON lesion	No	None	8
8	11	F	ON/Brainstem	None	2	No	ON lesion/Brainstem	No	RTX	4
9	51	M	ON	None	2	Yes	ON lesion	IVMP	None	0
10	21	M	ATM	None	1	Yes	Myelitis	IVMP	None	1

CCI=Charlson Comorbidity Index, EDSS=Expanded Disability Status Scale, FU= follow-up, mo=months, MRI= magnetic resonance imaging, y=years, F=female, M=male, ON=optic neuritis, ATM=acute transverse myelitis, IVMP= intravenous methylprednisolone, AZA=azathioprine, RTX=rituximab, TCZ=tocilizumab

What percentage of AQP4-Ab-negative NMOSD patients are MOG-Ab positive? A study from the Argentinean multiple sclerosis registry (RelevarEM)

Conclusions

- This is the first study of the longitudinal Argentinean registry of MS and NMOSD describing and comparing diseases that contributes to provide reliable real-world data in the country.
- We observed that 31.8% (10/36) of the AQP4-ab-negative patients tested for MOG-Ab were positive for this antibody.
- These findings are in line with results from other world regions[1-2].

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