Seroreversion versus clinical score in predicting relapse in MOGAD

NEUROIMUNOLOGIA
Hospital das Clínicas FMUSP

European Charcot Foundation

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Introduction

- Myelin oligodendrocyte glycoprotein antibody-associated disease (MOGAD) can present with relapsing or monophasic disease courses.
- Monophasic patients may not require immunosuppressants, highlighting the need to identify this group.
- Previous studies proposed monitoring anti-MOG antibody seroreversion or utilizing clinical scores to pinpoint patients with low risk of relapse.
- However, these methods lack reproducibility across cohorts and utilize only select predictors.

Objective

- This study aims to assess the association of seroreversion and MOGAD-AR scores[1] with monophasic MOGAD.

Methods

- We conducted a retrospective observational study involving MOGAD adult patients from the Demyelinating Diseases Outpatient Clinic at HCFMUSP, São Paulo, Brazil, in 2024.
- Patients were identified through a REDCap database, with inclusion based on the 2023 international diagnostic criteria.
- Exclusion criteria included those without follow-up appointments or with initially negative anti-MOG antibodies.
- Data on demographics, disease characteristics, treatment, and seroreversion were collected.
- Cox regression was used to evaluate hazard ratios (HR) for relapse based on MOG-AR risk grades (1-2 versus 3-4) (Table 1), seroreversion and a combination of both (multivariate analysis)

Results

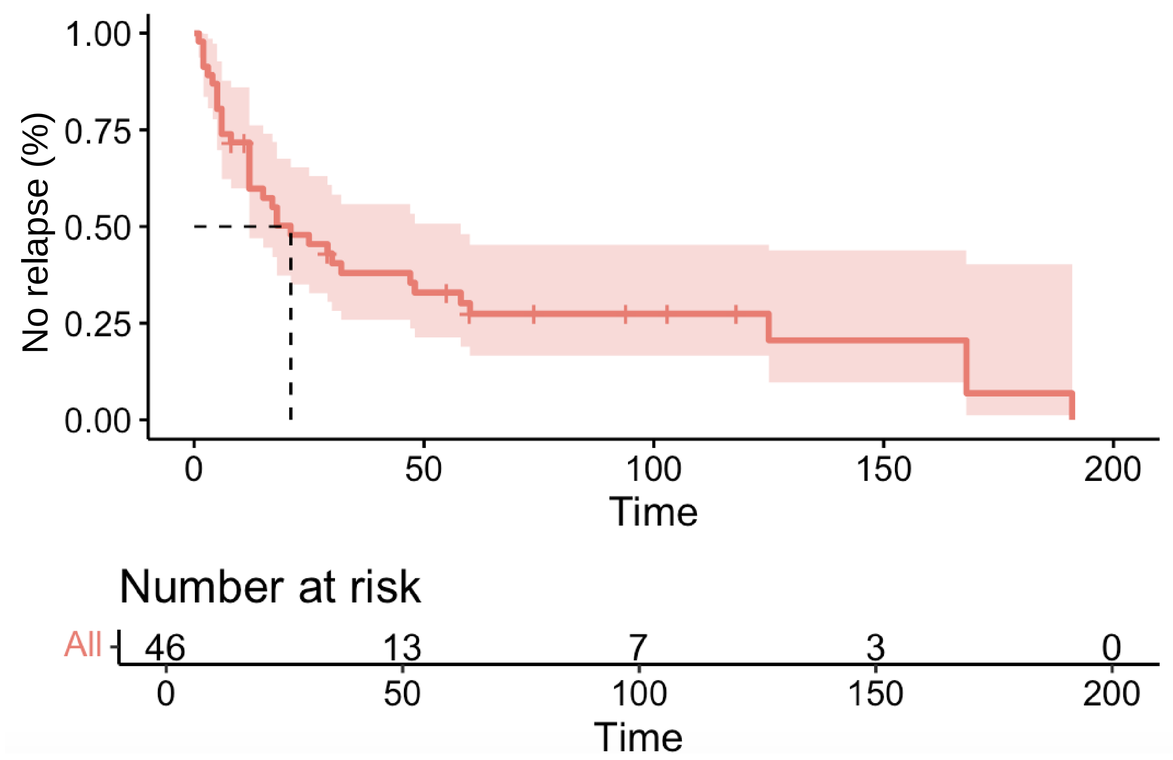
- The study included 46 patients (37% male, median age at first attack 31 (IQR 24 - 40) years).
- The most common initial manifestation was optic neuritis (76%). Relapses occurred in 76% of patients, with a median time to relapse of 17.5 (IQR 6.5, 57.25) months (Figure 1).
- No significant association was found between higher MOG-AR risk grades and relapse (univariate HR 0.55, 95% CI 0.28 - 1.10, p = 0.09; multivariate HR 0.75, CI 0.26-2.12, p = 0.59).
- Seroreversion occurred in 67% of those tested, acting as a protective factor against relapse (univariate HR 0.29, 95% CI 0.09 - 0.88, p = 0.03; multivariate HR 0.27, 95% CI 0.09 – 0.86, p = 0.03).

Table 1. MOG-AR risk scores

Risk factor	Points
Onset age (45y or older)	2
Female sex	2
Attack phenotype	
Cortical encephalitis	4
ADEM	3
Optic neuritis	2
Cerebral monofocal	1
Brainstem or cerebelar	1
Myelitis	0
No use of immunosupressive therpay	5
Oral steroids (< 3 months)	3

Adapted from Yun, 2024. Risk grade: grade 1 = 0–4; grade 2 = 5–8; grade 3 = 9–12; grade 4 = 13–16.

Figure 1. Time to relapse in MOGAD patients



Discussion

- Our study was characterized by a high relapse rate in MOGAD. Monophasic disease was linked to seroreversion, but not MOG-AR scores. Further validation of the MOG-AR score is needed.
- Our study may be limited by selection bias due to the nature of a referral tertiary outpatient clinic for adult demyelinating diseases.

Conclusion

- Seroreversion of anti-MOG antibodies significantly predicted monophasic disease, while MOG-AR risk grades, isolated or combined with anti-MOG seroreversion, did not effectively indicate relapse risk in our study.

Disclosure

- Authors have nothing to disclose.

1. Xu, Yun, et al. "A simple score (MOG-AR) to identify individuals at high risk of relapse after MOGAD attack." *Neurology: Neuroimmunology & Neuroinflammation* 11.6 (2024): e200309.

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