Anti-MOG Antibodies Titres Stratification in Adults with a First CNS Demyelinating Event: Clinical and Radiological Implications.

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Introduction

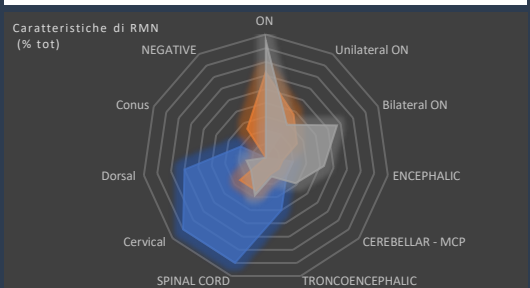
Myelin oligodendrocyte glycoprotein antibody-associated disease (MOGAD) is a Central Nervous System (CNS) demyelinating disorder with variable yet specific clinical and radiological features. Serum anti-MOG antibody detection after a first demyelinating event remains crucial for diagnosis. While endpoint dilution assays are the recommended quantification method [1], semiquantitative tests are widely used in clinical practice. This study evaluates clinical and MRI features of MOGAD patients stratified by semiquantitative anti-MOG titres at onset.

Materials and Methods

We retrospectively analyzed 20 adults (mean age 42.1 ± 18.8 years) who underwent semiquantitative serum MOG-Ab testing after a first demyelinating episode. Patients were stratified into low (0.021–0.33; n=5), medium (0.34–0.66; n=8), and high (0.67–1.00; n=7) titre groups. Variables included age at onset, EDSS, clinical presentation, MRI patterns, number of OCBs, CSF immunoprofile, and endpoint titres for concordance analysis.

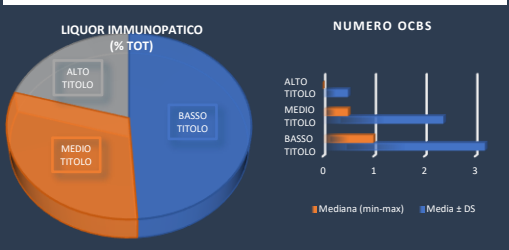
Results

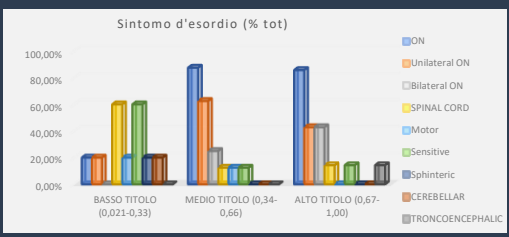
Mean age at onset increased with antibody level: 33.8 ± 14.2 years (low), 39.1 ± 16.6 (medium), 51.4 ± 18.9 (high). Optic neuritis (ON) was the most common presentation (70%), seen in 20% (low), 87.5% (medium), and 85.7% (high); bilateral ON occurred in 0%, 25%, and 57.1%, respectively. Spinal onset was reported in 25% overall: 60% (low), 12.5% (medium), 14.3% (high), with cervical, thoracic, and conus lesions in 75%, 50%, and 12.5% of these. Sensory symptoms were present in all spinal cases; sphincteric in 20%. Low-titre patients more often showed periventricular/juxtacortical MRI changes. Mean OCBs were higher in this group (3.2 ± 4.02); CSF was immunopositive in 40%, vs. 25% (medium) and 16.7% (high). EDSS was 3.0 ± 1.8 (low), 1.7 ± 1.4 (medium), 2.4 ± 1.2 (high). Semiquantitative titres correlated with dilution titres: median 1:160 (low), 1:800 (medium), 1:3000 (high).



Discussion

The data suggest that higher MOG-Ab titres correlate with clinical and radiological features consistent with the 2023 MOGAD diagnostic criteria, such as bilateral optic neuritis [1]. In contrast, low titre patients more frequently displayed OCB positivity and non-specific MRI patterns, possibly reflecting an overlap with early Multiple Sclerosis rather than true MOGAD [2]. This supports the notion that **low-positive titres should be interpreted cautiously**, especially in patients lacking hallmark features of MOGAD [3]. The correlation between semiquantitative and dilution titres indicates strong analytical concordance.





Conclusion

MOG-Ab titres evaluated by a semiquantitative method in patients with a first CNS demyelinating event appear to stratify risk for classic MOGAD features. High titres correlate with more specific phenotypes and persistent antibody presence in comparative dilution assays, while low titres may reflect alternative or overlapping demyelinating pathologies.

References

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