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Myelin Oligodendrocyte Glycoprotein Antibody (MOG-IgG)-Positive Optic Neuritis: Clinical Characteristics, Radiologic Clues and Outcome

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Purpose: To characterize the clinical phenotype of myelin oligodendrocyte glycoprotein antibody (MOG-IgG) optic neuritis.

Design: Observational case series

Methods:

•Setting: multicenter

•Patient/Study Population: Inclusion criteria: 1) History of optic neuritis; 2) Seropositivity (MOG-IgG binding index>2.5); 87 MOG-IgG seropositive patients with optic neuritis were included (Mayo Clinic, 76; other medical centers, 11). MOG-IgG was detected using full-length MOG-transfected live HEK293 cells in a clinically validated flow cytometry assay.

•Main Outcome Measure(s): Clinical and radiologic characteristics and visual outcomes.

Results: 57% were female and median age at onset was 31 (range 2-79). Median number of optic neuritis attacks was 3 (range 1-8), median follow-up 2.9 years (range 0.5-24), and annualized relapse rate was 0.8. Average VA at nadir of worst attack was CF. Average final VA was 20/30; for 5 patients (6%) it was ≤20/200 in either eye. Optic disc edema and pain each occurred in 86% of patients. MRI showed perineural enhancement in 50% and longitudinally extensive involvement in 80%. 26 patients (30%) had recurrent optic neuritis without other neurologic symptoms, 10 (12%) had single optic neuritis, 14 (16%) had CRION, and 36 (41%) had optic neuritis with other neurologic symptoms (most NMOSD-like phenotype or ADEM). Only one patient was diagnosed with MS (MOG-IgG-binding index 2.8; normal range ≤ 2.5). Persistent MOG-IgG seropositivity occurred in 61 of 62 (98%). 61% received long-term immunosuppressant therapy.

Conclusions: Manifestations of MOG-IgG-positive optic neuritis are diverse. Despite recurrent attacks with severe vision loss, the majority of patients has significant recovery and retains functional vision long-term.