Distribution of Atypical Optic Neuritis Subtypes at a Tertiary Neuro-Ophthalmology Center

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PURPOSE

Optic neuritis (ON) is a complex clinical syndrome with diverse etiologies and treatment varies by subtype. ON may be associated with infections and systemic inflammatory diseases, but it is most commonly encountered in the setting of primary central nervous system (CNS) demyelinating disorders, such as multiple sclerosis (MS). Diagnosing ON and distinguishing subtypes is challenging. ON is misdiagnosed 60% of the time. This leads to a "double-edged" clinical conundrum in which non-ON patients may be inappropriately treated with high-dose steroids resulting in deleterious side effects, whereas atypical ON patients may be undertreated and suffer permanent vision loss. The goal of this present study is to report the distribution of the various types of ON in a Tertiary Care Center in order to inform future clinical decisions.

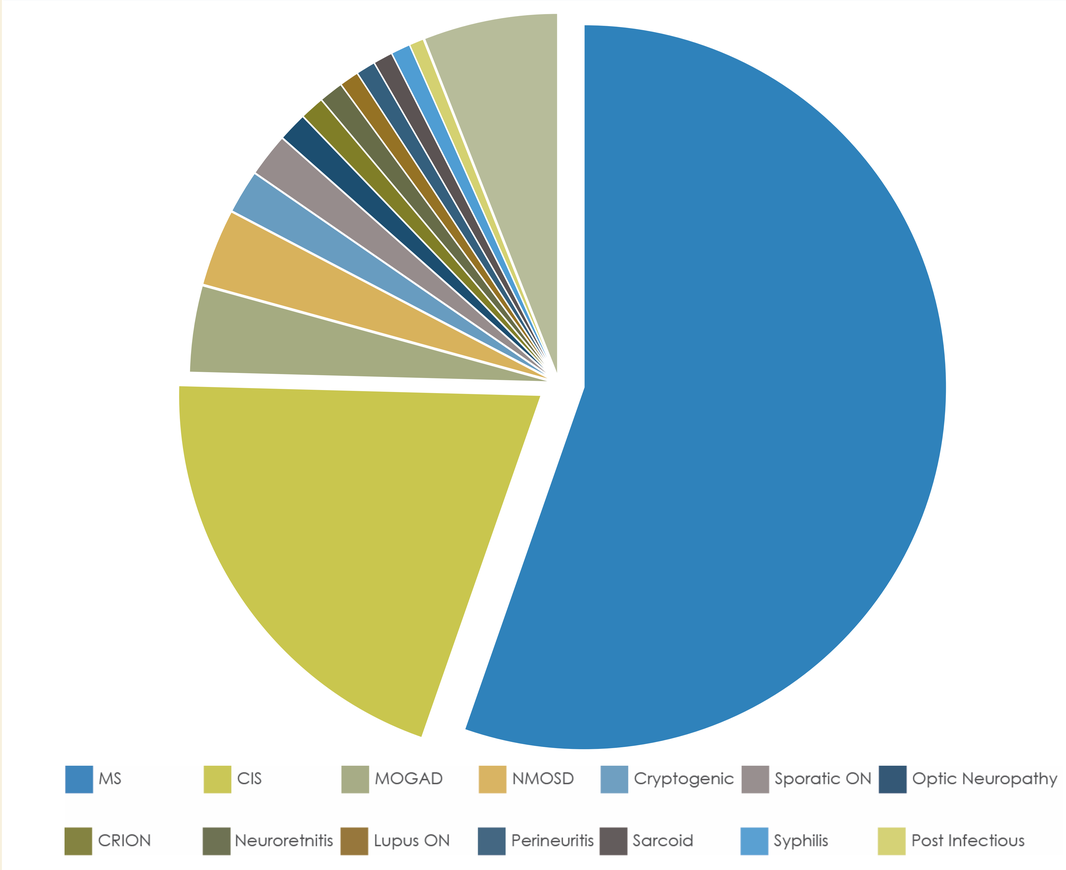
METHODS

Patients classified by the International Classification of Disease (ICD-10) between 2020 with the diagnosis of ON (H46) were identified for all Neuro-Ophthalmologist working at a tertiary center in Calgary, Alberta. Cases referred to this neuro-ophthalmologist between 2008-2020 were also retrieved from a pre-existing database. A retrospective charts review was performed using Alberta Netcare. Final diagnosis was reviewed for all patients. Patients were excluded if a final diagnosis of ON was not established or if a final diagnosis was not recorded.

TABLE 1

Diagnosis	n=468	Percentage (%)
MS	259	55
Clinically Isolated Syndrome	94	20
MOGAD	18	4
NMOSD	16	3
Cryptogenic	9	2
Sporadic Optic Neuritis	9	2
Idiopathic Optic Neuropathy	6	1
CRION	5	1
Neuroretinitis	5	1
Lupus Optic Neuropathy	4	1
Perineuritis	4	1
Sarcoid	4	1
Syphilis	4	1
Post Infectious	3	1
Other	28	6

FIGURE 1



RESULTS

Our analysis has identified 468 ON cases. Of these patients, 259 (55%) were diagnosed with Multiple Sclerosis, 94 (20%) were diagnosed with Clinically Isolated Syndrome (CIS), 18 (4%) were diagnosed with Neuromyelitis Optica, 16 (3%) were diagnosed with Myelin oligodendrocyte glycoprotein, 5 (1%) were diagnosed with Neuroretinitis, 4 (1%) were diagnosed with Sarcoid and 4 (1%) were diagnosed with Syphilis.

CONCLUSION

To the best of our knowledge, this study presents the first Canadian data that describes the distribution of the various ON etiologies in a Tertiary Care Center. This study aims to establish statistical evidence to inform clinical practice and prioritize investigations in the workup of Optic Neuritis.

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