Incidence and Demographics of Acute Optic Neuritis Presenting to Eye Casualty in Belfast

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INTRODUCTION

The rate of optic neuritis in the UK is 3.7 per 100,000 person years[1] . The prevalence of multiple sclerosis in Northern Ireland is higher than the UK average, and individually only Scotland has a higher prevalence[2]. There is little published literature on the incidence and characteristics of acute optic neuritis in Northern Ireland.

Eye casualty in Belfast operates as a referral-based service. In 2022, almost 17,000 patients were seen as acute referrals to our casualty.



METHOD

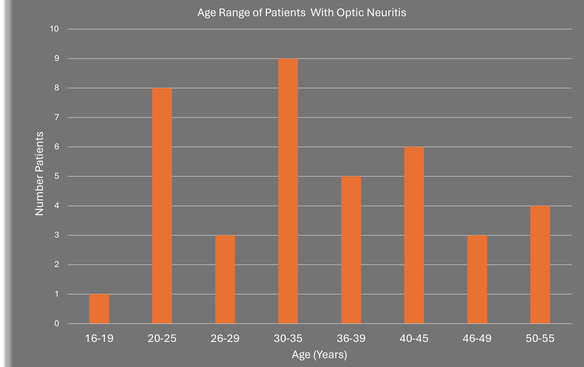
Electronic records were used to retrospectively identify patients who attended eye casualty with new likely **optic neuritis** in 2022. Demographic data was collected, in addition to final diagnosis, visual acuity outcomes, and follow-up with ophthalmology and neurology services.

RESULTS

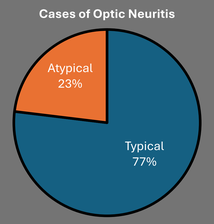
39 patients were identified with acute optic neuritis.

- 72% female / 28% male
- 92% unilateral / 8% bilateral

A wide age range was observed from 19 to 55 years old, with an average age at presentation of 35.1 years old.



Most of the cases could be described as “typical”



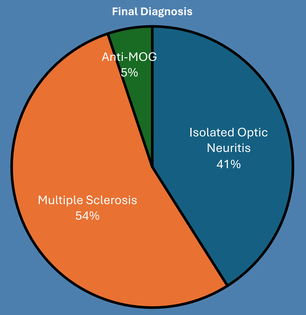
Atypical

- No pain
- Sudden visual loss or progressive over weeks/months
- age <16years / >45 years
- Marked ON swelling

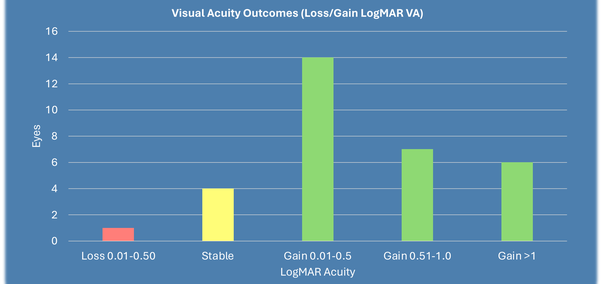
Typical

- Sub-acute onset
- Retrobulbar pain worse on eye movement
- Age 16-45 years old
- Mild/no ON swelling

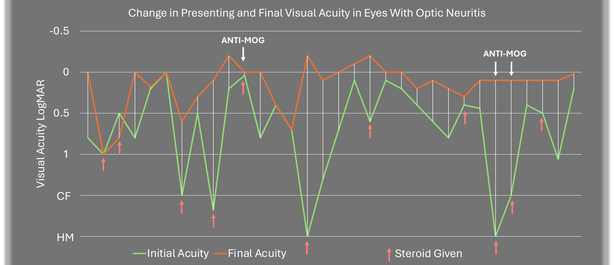
On follow-up, final diagnosis of the 39 patients was categorised as follows. There were no cases of neuromyelitis optica but two patients had anti-MOG disease.



Visual acuity analysis shows the majority of patients recovered vision from initial presentation to final follow-up



Initial presenting visual acuity (VA) for patients ranged from light perception to LogMar 0.00. The average initial VA was 0.70 LogMar and final VA 0.15 LogMAR. Profound visual loss at presentation was observed in antiMOG with marked improvement on systemic steroids.



Conclusion

From the Northern Ireland 2021 Census data[3] and the catchment area for our eye casualty, we can calculate the **incidence** (per 100,000 population) of:

Acute optic neuritis: 2.78 per 100,000
MS associated optic neuritis: 1.50 per 100,000
antiMOG optic neuritis : 0.14 per 100,000

The rate of acute optic neuritis is slightly lower than the UK average.

References

1. *Braithwaite et al. Trends in Optic Neuritis Incidence and Prevalence in the UK and Association With Systemic and Neurologic Disease. JAMA Neurol. 2020 Dec 1;77(12):1514-1523.*
2. *National Institute for Health and Care Excellence (NICE). Available from https://cks.nice.org.uk/topics/multiple-sclerosis/background-information/prevalence/*
3. *Northern Ireland Statistics and Research Agency. Available from https://www.nisra.gov.uk/statistics/census/2021-census*