
Analysis of Diplopia Referrals in a Tertiary Neuro-Ophthalmology Center

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Introduction: Diplopia is a common presenting symptom in patients with neuro-ophthalmic disorders. While 16% of patients presenting with diplopia in the emergency department have a life-threatening condition, little is known about the morbidity and mortality associated with neuro-ophthalmology consultations for patients referred for diplopia. This paper describes the potential for loss of vision, progression of symptoms, or systemic morbidity and mortality in patients referred to a tertiary neuro-ophthalmology practice for diplopia.

Methods: A retrospective chart review of all patients seen by two neuro-ophthalmologists in a tertiary neuro-ophthalmology practice between December 2, 2021 and May 21, 2022 was performed. All patients who were referred for diplopia were included. Our primary outcome was to describe the potential for vision loss, progression of symptoms or systemic morbidity or mortality if patients were not referred for a neuro-ophthalmic consult.

Results: 196 patients were referred for diplopia. The mean age at presentation was 61.3 ± 17.0 years and 48.5% were women. The most common final diagnosis reached following neuro-ophthalmology consultation were cranial nerve palsies (38.3%, 75/196), convergence insufficiency and decompensated phoria (22.4%, 44/196), non-neuro-ophthalmic causes (19.9%, 39/196), thyroid eye disease (4.5%, 9/196), myasthenia gravis (3.5%, 7/196), and multiple sclerosis (6/196, 3.1%). 15.3% of patients referred to neuro-ophthalmology for diplopia had potential of morbidity or mortality. Specifically, 1% (2/196) had potential of vision loss due severe papilledema in context of untreated IIH, and 3.0% (6/196) had potential for systemic morbidity or mortality due to brain aneurysms (2/196), pituitary apoplexy (1/196), anaplastic glioma (1/196) and other malignancy (2/196). In addition, 11.2% (22/196) had potential for progression of symptoms due thyroid eye disease (9/196), myasthenia gravis (7/196), and multiple sclerosis (6/196). Of the patients who had a pre-referral neuro-imaging study, 30.1% required additional neuroimaging after neuro-ophthalmic consultation.

Conclusion: Overall, 15.3% (30/196) of patients with diplopia had potential for morbidity without neuro-ophthalmology consult. This study emphasizes the importance of urgent neuro-ophthalmologic referral for patients with diplopia to allow for appropriate evaluation and investigation to reduce morbidity and mortality.