National
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Clinical Bulletin
Information for Health Professionals

Diagnosis and Management of Vision Problems in MS

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Disturbances of the visual system are among the most common manifestations of MS, affecting up to 80% of patients at some time in the disease course and serving as the initial symptom in many patients. The presence of monosymptomatic optic neuritis, in fact, heralds clinically definite MS within 5 years in over 50% of patients who also have three or more lesions on MRI, but in only 16% of patients with normal MRI findings.

MS can affect any portion of the visual sensory system in ways that can result in significant disability, culminating in the inability to work and compromising the patient's activities of daily living.

OPTIC NEURITIS

Optic neuritis, or inflammation of the optic nerve, is the initial presenting symptom in nearly half of persons diagnosed with MS. It can be acute or chronic, and is characterized by any of the following:

- Unilateral vision loss progressing over hours or days
- Sequential involvement of the opposite eye
- Visual field defects, especially central visual field loss
- Diminished color perception and difficulty seeing in dim light
- Pain in or around the eye
- Visual phenomena

Asymptomatic optic neuropathy is also common in MS, as are abnormalities in color vision and contrast sensitivity, consistent with subclinical demyelination. Optic neuropathy also occurs in the form of chronic visual disturbances (often progressive) without an identifiable episode of acute optic neuritis.

Clinical Assessment and Disease Course

Numerous infectious or inflammatory disorders other than demyelinating disease may cause optic neuritis, but these conditions can usually be distinguished on clinical grounds without the need for ancillary tests. Central acuity is usually reduced, and most patients have a relative afferent pupillary defect or Marcus Gunn pupil (a relative lack of constriction during illumination when compared to responses in the opposite eye). The optic disc may appear normal or swollen. Retrobulbar involvement occurs in two-thirds of patients with acute optic neuritis.

The diagnosis can be confirmed with visual evoked potentials (VEP) and T-1 weighted MRI with gadolinium infusion. The VEP is particularly useful in establishing optic neuropathy in patients with clinically silent lesions.

The natural course of acute optic neuritis is variable, but vision typically worsens over several days to 2 weeks after onset. Patients then recover rapidly and achieve most of their improvement by 5 weeks (up to 1 year). Despite recovery of vision normal or near-normal, most patients are aware of differences in the quality of their vision. Persistent deficits in contrast sensitivity, color vision, and depth perception are common.

Treatment

Corticosteroids are the cornerstone of therapy for optic neuritis, based on their immunosuppressive and immunomodulatory effects. In patients presenting with optic neuritis as a first neurologic episode, treatment with a 3-day course of high-dose IV methylprednisolone, followed by a short course of prednisone, has been shown to reduce the rate of development of clinically defined MS over a 2-year period. The recommended treatment is 1 gm/day of methylprednisolone as a single daily IV infusion over 3–7 days, followed by a tapering dose of oral prednisone over 2–4 weeks.

EYE MOVEMENT ABNORMALITIES

Up to three-quarters of persons with MS demonstrate some form of eye movement abnormality, including the following:

Nystagmus

Nystagmus is a repetitive, to-and-fro movement of the eyes that can reflect abnormalities in the mechanisms that hold images on the retina. In patients with MS, pendular nystagmus can produce oscillopsia (rotating, circular eye movement with the illusion of environmental movement), poor visual acuity, nausea, and disorientation. Treatment of nystagmus is challenging, as most pharmacologic agents are only moderately effective. Baclofen, clonazepam, gabapentin, and scopolamine provide some benefit in selected patients.

Internuclear Ophthalmoplegia

Internuclear ophthalmoplegia, another neuro-ophthalmologic hallmark of MS is present in one-third of patients. The principal symptoms are diplopia, blurred vision, and oscillopsia, although many patients are without symptoms. Bilateral disease is most commonly associated with demyelination.

OCULAR INFLAMMATION

Uveitis (inflammation of the iris, ciliary body, or choroid) is reported in about 10% of MS patients. Symptoms may be mild to severe, and complications—including glaucoma, cataracts, macular edema, retinal detachment, and vitreous hemorrhage—are directly proportional to the extent and severity of the inflammation.