

Review: Corticosteroids do not improve visual acuity in acute monosymptomatic optic neuritis over the long term

Kaufman DI, Trobe JD, Eggenberger ER, Whitaker JN. Practice parameter: the role of corticosteroids in the management of acute monosymptomatic optic neuritis. Report of the Quality Standards Subcommittee of the American Academy of Neurology. *Neurology*. 2000 Jun 13;54:2039-44.

QUESTION

What is the effectiveness of corticosteroids for managing acute monosymptomatic optic neuritis?

DATA SOURCES

Studies were identified by searching MEDLINE and HealthSTAR (1966 to July 1999) with the terms optic neuritis, treatment, and therapy and by hand searching *Index Medicus* citations published before 1966.

STUDY SELECTION

Studies were selected if they specifically addressed therapy for multiple sclerosis (MS)-related or idiopathic optic neuritis and included ≥ 3 patients. Studies were excluded if they simply described case reports or reviewed optic neuritis caused by such conditions as sarcoidosis, lupus, anterior ischemic optic neuropathy, trauma, hereditary optic neuropathy, optic nerve compression, or other unrelated optic neuropathy.

DATA EXTRACTION

Data were extracted on study design and quality, treatments, patient numbers, and outcomes.

MAIN RESULTS

582 articles were identified, and 21 pertinent studies were assessed for methodologic quality and included in the review. 5 studies were well designed, prospective, randomized, and placebo-controlled (class I evidence); 3 studies were well-designed and observational (class II evidence); and 13 studies had evidence provided by expert opinion, case series, case reports, and historical control patients (class III evidence). The largest study was the Optic Neuritis Treatment Trial (ONTT, class I evidence), which included 457 patients with acute optic neuritis and no history of MS who were randomized to oral placebo for 14 days or to oral prednisone alone, 1 mg/kg of body weight daily for 14 days, or intravenous methylprednisolone (IVMP), 1000 mg/d for 3 days, and then oral prednisone, 1 mg/kg daily for 11 days. In the ONTT, IVMP but not oral prednisone alone improved the time to recovery of visual acuity more than did placebo at 30 days but did not improve the time after 6 months. Further, IVMP was more effective than placebo for reducing clinically definite MS at 2 years (relative risk 0.34, 95% CI 0.16

to 0.74), but 5-year MS rates did not differ for the 3 treatment groups. In the 4 other studies with class I evidence (2 using adrenocorticotropic hormone [ACTH]—1 using IVMP and 1 using oral methylprednisolone [MP]), no long-term benefit was seen for recovery of visual acuity, although some studies showed that corticosteroids decreased the time to recovery.

CONCLUSIONS

Methylprednisolone or adrenocorticotropic hormone but not oral prednisone may decrease the time to recovery of visual acuity in acute monosymptomatic optic neuritis. However, there is no evidence of long-term benefit in visual function.

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COMMENTARY

Optic neuritis is one of the most common acquired optic nerve disorders in persons < 50 years of age. From a patient's perspective, the important issues are whether vision remains impaired and whether the disorder is the first manifestation of MS. Corticosteroids have been used for many years to treat this condition, but uncertainty has surrounded their efficacy. Kaufman and colleagues have reviewed the evidence and conclude that high-dose MP or ACTH may hasten the speed of visual recovery but has no long-term benefit on visual function. About 30% of patients will develop clinically definite MS at 5 years after an episode of optic neuritis. In the largest trial of corticosteroids in optic neuritis (of oral prednisolone, IVMP, or placebo), high-dose IVMP reduced the probability of developing MS at 2 years but not at 5 years (1).

What does this mean to the practicing clinician? Given that no other proven form of therapy for optic neuritis exists, should corticosteroids be given to every patient? The answer is "probably not," given the drug's lack of effectiveness in improving long-term vision and in reducing the probability of developing MS. Deciding whether to use corticosteroids should depend on such factors as patient preference, severity of visual impairment, and potential risks of therapy (e.g., in patients with diabetes mellitus).

Now that the interferons and glatiramer acetate copolymers are effective in slowing the progression of MS, early diagnosis may be more important (2). In this context, should a first attack of optic neuritis be treated as a first episode of MS, particularly if magnetic resonance imaging shows lesions consistent with demyelination elsewhere in the brain (this condition usually occurs in 50% to 70% of patients with their first attack of optic neuritis)? At this stage, the answer is "no." Entry criteria for trials of interferon and copolymers in MS require that episodes are recurrent and that a certain level of disability is present. Hence, regulatory approval for these drugs in most countries is based on similar criteria. Ongoing and planned trials, however, include monosymptomatic patients, and indications for treatment may change.

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