Authors' objectives
To evaluate the role of corticosteroids in the management of acute monosymptomatic optic neuritis (ON).

Searching
MEDLINE and HealthSTAR were searched from 1966 to July 1, 1999 for ON cross-referenced with treatment and therapy. Citations earlier than 1966 were searched by cross-referencing techniques and by handsearching Index Medicus. Only literature published in well-disseminated journals dealing with MS-related or idiopathic ON were considered. No language restrictions were reported.

Study selection
Study designs of evaluations included in the review
Retrospective and prospective studies with at least three participants were included. The specific study designs were not stated a priori. Descriptions of a small number of individual case reports were excluded.

Specific interventions included in the review
The treatments included oral, retrobulbar, and intravenous steroids, immunoglobulin and acupuncture.

Participants included in the review
Patients with idiopathic, or multiple sclerosis (MS)-related acute monosymptomatic ON were included. Studies reviewing patients with ON due to diseases such as sarcoid, lupus, anterior ischaemic optic neuropathy, trauma, hereditary optic neuropathy, optic nerve compression or other unrelated optic neuropathy, were excluded.

Outcomes assessed in the review
Speed and level of recovery, and complications of therapy, were assessed using baseline and post-treatment measurements of visual acuity, visual fields, contrast sensitivity and colour vision.

How were decisions on the relevance of primary studies made?
The authors do not state how the papers were selected for the review, or how many of the reviewers performed the selection.

Assessment of study quality
No formal assessment of quality was undertaken. The authors grouped studies evaluated in this review according to level of evidence.

Data extraction
The authors do not state how the data were extracted for the review, or how many of the reviewers performed the data extraction. Data were extracted for the following categories: study identification and year of publication; the therapy used and study design; the number of participants; outcome; and the class of evidence, i.e. class I, II or III.

Methods of synthesis
How were the studies combined?
The studies were combined in a narrative review.
How were differences between studies investigated?
The authors do not state a method for assessing any differences between the studies.

**Results of the review**
The following studies were included:

5 randomised controlled clinical trials (RCTs);

3 observational studies with concurrent controls (case-control and cohort studies); and

13 studies of class III evidence (expert opinion, case series, case reports, and studies with historical controls).

In the largest RCT (level I evidence, 457 participants), oral prednisone in doses of 1 mg/kg per day demonstrated no statistically-significant improvement in the speed or degree of visual recovery, compared with placebo. By contrast, the intravenous group had a significantly faster visual recovery than placebo over the first 30 days (p=0.02 and p=0.0001 for the respective primary outcomes). After 6 months, however, there were no significant differences between the three treatment groups in terms of visual acuity. After 12 months of follow-up, visual acuity was better than 20/20 in 69% of the eyes studied, and 20/200 or worse in only 3%.

The remaining 4 level I studies and 3 level II studies lacked the statistical power to exclude a therapeutic benefit of steroid treatment. Results from these trials were mixed.

The 13 level III studies had serious methodological flaws, which were related to very low patient numbers, retrospective analysis, no randomisation, or lack of placebo control. Results from these studies were also mixed.

**Authors' conclusions**
Oral prednisone at a dose of 1 mg/kg per day has no demonstrated efficacy in the recovery of visual function in acute monosymptomatic ON, and therefore, is of no proven value in treating this disorder. Higher doses of oral or parenteral methylprednisolone or adrenocorticotropic hormone may hasten the speed and degree of recovery of visual function in persons with acute monosymptomatic ON. There is, however, no evidence of long-term benefit for visual function.

**CRD commentary**
This was a poor systematic review. Although the authors clearly stated the research question, there were few details about the pre-determined inclusion and exclusion criteria. The literature search was limited, covering only published literature, with few details of the search strategy. Any language restrictions were not stated. There were no tests for publication bias, and the authors limited their search by the subjective assessment of which journals were deemed to be widely disseminated. It is possible that additional data may have been missed by the search.

The quality of the included studies was not formally assessed, although the authors grouped the included studies according to study design and strength of evidence. The authors have not reported how the articles were selected, who performed the selection and validity assessment, or who performed the data extraction. The data extraction was reported in tables and in the discussion in the review.

The included studies were combined in the narrative with no discussion of possible differences between them. The review process lacked sufficient detail to determine whether the results supported the conclusions, and thus should be viewed with caution.

**Implications of the review for practice and research**
Practice: The authors state that the decision to use these medications to speed recovery, but not to improve ultimate visual outcome, should therefore be based on other non-evidence-based factors such as quality of life, risk to the patient, visual function in the fellow eye, or other factors deemed pertinent by the clinician.
Research: The authors state that several management issues still lack evidence for specific recommendations:

1. Whether corticosteroid treatment is beneficial in patients whose symptom duration is longer than 8 days.

2. Whether larger doses of corticosteroids are more effective than lower doses.

3. What the optimal corticosteroid regimen is.

4. Whether the observed increased ON recurrence rate associated with oral prednisone is also observed in MS attacks.

5. Whether high-dose, methylprednisolone given periodically will improve the prognosis for patients with MS.

Bibliographic details

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Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.