CLINICAL INQUIRY

Steroid Use in Prevention of Recurrent Migraine

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Clinical Question

Does administration of intravenous dexamethasone as part of standard acute migraine treatment reduce migraine recurrence?

Evidence-Based Answer

Addition of intravenous dexamethasone to standard abortive therapy in the acute management of migraines reduces recurrence at 48-72 hours. Strength of Recommendation [SOR] is A, based on consistent results of three meta-analyses. Migraine recurrence may be associated with incomplete relief of migraine symptoms at initial presentation. ([SOR]: B, based on one small randomized control trial).

Methodology

A systematic review was performed in the PubMed database using the keywords “migraine treatment”, “steroids and migraine treatment”, and “dexamethasone and migraine recurrence”. Only meta-analyses and randomized control trials (RCTs) were included. The bibliographies of the meta-analyses also were reviewed for RCTs fitting search criteria. Finally, only articles reporting patient-centered outcomes (including reduced morbidity, reported symptom improvement, improved quality of life, and lower cost) in the acute setting (24-72 hours) were included.

Evidence Summary

Migraine headache is a common medical complaint accounting for millions of emergency department visits annually. Standard treatment of acute migraine generally includes use of antiemetics, non-steroidal anti-inflammatory drugs (NSAID), opioids, triptans, ergots, and antihistamines.[1] There may be an inflammatory process linked to the occurrence of migraines, therefore, targeting the inflammatory cascade may be beneficial in treatment.

Three meta-analyses met inclusion criteria and all showed a decrease in migraine recurrence when dexamethasone was added to standard therapy. Colman et al.[1] showed a 26% relative risk reduction in recurrence of migraines when using dexamethasone versus placebo in addition to standard medical therapy. Adverse effects between treatment and control groups were not statistically significant, except that persons in the treatment group were more likely to report dizziness than the placebo group. Similar findings were reported by Singh et al.[2] who found that

moderate to severe recurrent headache could be prevented in 1 out of 10 patients who received dexamethasone along with standard anti-migraine therapy, while Giuliano et al.[3] also reported prevention of migraine recurrence in 10% of patients.

A total of seven randomized control trials (RCTs) were included in this review, with some conflicting findings. Innes et al.[4] randomized 98 patients presenting to the emergency room with migraine to receive either 24 mg of intravenous (IV) dexamethasone or placebo in addition to standard treatment. At 48-72 hour follow-up, patients in the dexamethasone group had a 59% relative risk reduction in recurrence of severe migraine (number needed to treat (NNT) = 4). Similarly, Baden et al.[5] showed a relative risk reduction of 84% in migraine recurrence at 48-72 hours in patients treated with 10 mg IV dexamethasone versus placebo (NNT = 1), while Jones et al. [6] reported a 37% relative risk reduction in migraine recurrence in patients treated with 20 mg IV or intramuscular (IM) dexamethasone.

Fiesseler et al.[7] randomized 173 patients getting standard therapy to receive either oral prednisone 40 mg, IV dexamethasone 10 mg, or placebo, and found no statistically significant difference in symptoms recurrence at 24-72 hours. In a slightly larger study, Friedman et al.[8] randomized 205 patients to receive either dexamethasone or placebo as adjunctive therapy and also did not find a significant decrease in migraine recurrence within 72 hours. However, migraine recurrence was decreased in the treatment group after 72 hours. Two other small RCTs, Donaldson et al.[9] and Rowe et al.[10], also failed to show a statistically significant decrease in recurrence at 72 hours, however, Rowe found that migraine recurrence was associated with incomplete relief of migraine symptoms at initial presentation.

Heterogeneity between the studies, including variation in standard medical therapy, dosage range, route and type of steroid, and time to presentation from onset of migraine requires further scrutiny. Although dexamethasone appears to reduce recurrence of migraines, further studies are needed to determine appropriate dose, time to administration, and other potentially confounding factors. Furthermore, the correlation between incomplete symptom relief and increased recurrence of migraines is an important finding for guiding future studies investigating predictors of migraine recurrence.

Recommendations from Others

A 2011 article published in the American Academy of Family Physicians gave a SOR A for using intravenous dexamethasone in the treatment of acute migraine based on results of two meta-analyses.[11] The International Headache Society and American Academy of Neurology websites were searched using the keywords “migraine” and “migraine treatment” and did not find any recommendations on specific therapies. We also searched the National Guidelines Clearinghouse using keywords “migraine treatment” and “steroids in migraine treatment” and did not return any results.

References

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Keywords: steroids, migraine disorders, dexamethasone, secondary prevention, systematic review

Appendix
(Adapted from American Family Physician*)

Strength of recommendation	*Basis for recommendation*
A	Consistent, good-quality patient-oriented evidence**
B	Inconsistent or limited-quality patient-oriented evidence**
C	Consensus, disease-oriented evidence** (usual practice, expert opinion, or case series for studies of diagnosis, treatment, prevention, or screening)

*http://www.aafp.org/dam/AAFP/documents/journals/afp/sortdef07.pdf

**Patient-oriented evidence measures outcomes that matter to patients: morbidity, mortality, symptom improvement, cost reduction, and quality of life.

Disease-oriented evidence measures intermediate, physiologic, or surrogate end points that may or may not reflect improvements in patient outcomes (e.g., blood pressure, blood chemistry, physiologic function, pathologic findings).