

Systematic Review Snapshot

Clinical Synopsis

TAKE-HOME MESSAGE

Triptans, particularly if administered subcutaneously, provide rapid relief for acute cluster headache.

METHODS

DATA SOURCES

The authors searched the Central Register of Controlled Trials (CENTRAL), MEDLINE, and EMBASE without language restrictions. Reference lists of retrieved studies and review articles were also searched.

STUDY SELECTION

Only randomized, double-blind, placebo-controlled trials using a triptan for an episode of cluster headache in adults (>18 years) were included. The diagnosis of cluster headache had to comply with the International Headache Society's definition of this disorder.

DATA EXTRACTION AND SYNTHESIS

Quality of study methodology was assessed independently by 2 investigators using the standard Cochrane risk of bias assessment and the Oxford Quality Scale (also known as a Jadad score). Pooled data were reported as a relative risk with 95% confidence intervals and number needed to treat.

Do Triptans Effectively Treat Acute Cluster Headache in the Emergency Department?

EBEM Commentators

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Results

Summary of primary endpoints for the treatment of cluster headache with a triptan medication.

Medication	Number of Studies (N)	Time to Headache Relief, Minutes	RR (95% CI)	Approximate NNT
Zolmitriptan 10 mg IN	2 (223)	30	2.4 (1.7–3.3)	3
Zolmitriptan 10 mg PO	1 (226)	30	1.2 (0.93–1.6)	—
Sumatriptan 6 mg SQ	2 (258)	15	2.3 (1.8–3.0)	2

N, number of subjects; *RR*, Relative risk; *CI*, confidence interval; *NNT*, number needed to treat; *IN*, intranasal; *PO*, per oral; *SQ*, subcutaneous.

Six trials were included in the systematic review; however, only 5 were included in the meta-analysis that assessed the effectiveness of 2 triptans (zolmitriptan and sumatriptan), using 2 standard doses and 3 routes of administration (oral, intranasal, and subcutaneous). All 5 trials were blinded, randomized, crossover trials; 3 of these trials were judged to be at low risk for bias (scored 5/5 on the quality score), whereas 2 had minor flaws (4/5) because of inadequate reporting of randomization or blinding methodology.

Commentary

Cluster headache is a severe unilateral headache that predominantly occurs in men and is recurrent and often debilitating. Fortunately, cluster headache is uncommon, with a lifetime prevalence in adults of 124 per 100,000.¹ Although narcotic alternatives are preferred for headache management in the ED, the data for cluster headache have not been as robust as those for other forms of headache (eg, acute migraine).

The results of this Cochrane review indicate that either zolmitriptan or sumatriptan offer significant therapeutic benefit for patients with acute cluster headache. The best therapeutic outcomes were achieved with either intranasal zolmitriptan or subcutaneous sumatriptan administration compared with oral dosing or placebo. The validity of these results was enhanced in 2 important ways. First, the crossover design of the included trials minimizes confounding between each group because each patient acts as his or her own control. Second, these results may represent a conservative estimate of the thera-

peutic effect because subjects were enrolled from headache clinics. It is likely that these patients experienced headaches that were more severe, frequent, or resistant to treatment than that of the typical cluster headache patient, although this may be representative of individuals who visit the ED. Last, only minor adverse events were reported (eg, local skin irritation, nausea, fatigue) in these trials.

The results of a more recent meta-analysis support the conclusions of this Cochrane review and add that high-flow normobaric oxygen therapy (6 to 12 L/minute) for at least 15 minutes should be coadministered.² Although the evidence for oxygen therapy is derived from only 2 small randomized trials, oxygen therapy is relatively inexpensive and the magni-

tude of effect impressive (number needed to treat=2).^{3,4} Therefore, using triptans with concomitant high-flow oxygen therapy may be the most efficient method to improve ED throughput and increase patient satisfaction for this painful disorder.

1. Fischera M, Marziniak M, Gralow I, et al. The incidence and prevalence of cluster headache: a meta-analysis of population-based studies. *Cephalalgia*. 2008;28:614-618.
2. Francis GJ, Becker WJ, Pringsheim TM. Acute and preventive pharmacologic treatment of cluster headache. *Neurology*. 2010;75:463-473.
3. Cohen AS, Burns B, Goadsby PJ. High-flow oxygen for treatment of cluster headache: a randomized trial. *JAMA*. 2009;302:2451-2457.
4. Fogan L. Treatment of cluster headache. A double-blind comparison of oxygen v air inhalation. *Arch Neurol*. 1985;42:362-363.

This is a systematic review abstract, a regular feature of the *Annals'* Evidence-Based Emergency Medicine (EBEM) series. Each features an abstract of a systematic review from the Cochrane Database of Systematic Reviews and a commentary by an emergency physician knowledgeable in the subject area. The source for this systematic review abstract is: Law S, Derry S, Moore RA. Triptans for acute cluster headache. *Cochrane Database Syst Rev*. 2010;(4):CD008042. The *Annals* EBEM editors assisted in the preparation of the abstract of this Cochrane systematic review.

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