

» EVIDENCE SUMMARIES

# Drugs for the treatment of migraine in children and adolescents

BY DR HANAN KHALIL



Migraine affects up to 10% of children and adolescents. Treatments for migraine include symptom-controlling and preventive strategies.

Symptom-controlling therapies aim to eliminate pain and reduce the symptoms associated with migraine, including nausea and photophobia. Whereas, preventive medications are used to reduce the frequency and severity of migraine attacks.<sup>2,3</sup>

Oral analgesics such as paracetamol and ibuprofen are the backbone of acute therapy for migraine in children and adolescents. However, other agents such as ergot derivatives (e.g. dihydroergotamine) and the serotonin receptor agonists (triptans) have proven to be effective in adults.<sup>4,5</sup> This review will summarise the current literature addressing the effectiveness of the various classes of drugs in the treatment of acute migraine in children and adolescents.

## Characteristics of the studies

Prospective, placebo controlled studies of pharmacological interventions for acute migraine for children and adults were included. All study designs were included including; parallel group and cross over designs. All studies including participants under the age of 17 diagnosed with acute migraine were included.

## Quality of the research

Studies included in the report had a low risk or an unclear risk of bias. Only one study was of high risk of bias. Attrition bias was a major drawback.

## Results

The following databases were searched; Cochrane Central Register of Controlled

Trials (CENTRAL) (1991 to 2013, Issue 3), OvidSP MEDLINE (1946 to Feb 2016), Ovid MEDLINE In-Process & Other Non-Indexed Citations (2012 to Feb 2016), EMBASE (1980 to Feb 2016), Database of Abstracts and Reviews of Effects (1991 to Apr 2013), International Pharmaceutical Abstracts (1970 to Apr 2013), PsycINFO (1806 to Apr 2013) and EBSCOhost CINAHL (Cumulative Index of Nursing and Allied Health) (1937 to Apr 2013). Other gray literature and had searching the reference list of the included studies. The Clinical trials register (ClinicalTrials.gov) was also searched along with trial registries from GlaxoSmithKline and AstraZeneca.

The outcome measures were selected based on the suggested guidelines for controlled trials of drugs in migraine. The primary outcome measure was the percentage of pain-free participants at two hours; pain freedom was defined as the absence of pain at two hours before the use of additional or rescue medication. Secondary outcomes measure included the following; headache relief, headache recurrence, the use of rescue medication, presence of nausea and vomiting.

The purpose of this evidence summary is to provide the best available evidence for the effectiveness of pharmacological interventions of migraine in children and adolescents. For the full review, please refer to Richer L, Billingham L, Linsdell MA, Russell K, et al. Drugs for the acute treatment of migraine in children and adolescents. Cochrane Database of Systematic Reviews 2016, Issue 4. Art. No.: CD005220. DOI: 10.1002/14651858.CD005220.pub2.

Dr Hanan Khalil is the Director of the Centre for Chronic Disease Management, a collaborating centre of the Joanna Briggs Institute, Faculty of Medicine, Nursing and Health Sciences, Monash University, and a reviewer for the consumer group of the Cochrane Collaboration. Dr Khalil is also the Editor in Chief of the International Journal of Evidenced Based Health Care.

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A total of 27 randomised controlled trials (RCTs) of migraine symptom-relieving medications, including 9,158 children were included in the review. The mean age range of children was between 8.2 and 14.7 years.

A total of 24 studies included a triptan medication. Other medications included paracetamol, ibuprofen and dihydroergotamine.

Two small studies with 162 children included ibuprofen and found it to be beneficial than placebo in reducing pain for 2 hours. (RR 1.87, 95% confidence interval (CI) 1.15 to 3.04).

Another study comparing paracetamol with placebo found no benefit in relieving migraine pain.

Three studies including 273 children comparing triptans with placebo found a beneficial effect (RR 1.67, 95% CI 1.06 to 2.62, NNTB 13). A total of 21 studies including 7,026 adolescents also found a

beneficial effect of triptans over placebo (RR 1.32, 95% CI 1.19 to 1.47, NNTB 6).

Triptans however were associated with a small number of minor adverse events in adolescents (RD 0.13, 95% CI 0.08 to 0.18, NNTH 8).

One study including 490 adolescents comparing sumatriptan plus naproxen sodium versus placebo found a substantial benefit of the combination in relieving pain (RR 3.25, 95% CI 1.78 to 5.94, NNTB 6).

Only one small study of 13 children examining the efficacy of dihydroergotamine versus placebo found no benefit in reducing pain.

### Implications for practice

There is insufficient evidence addressing the efficacy of paracetamol and the use of other NSAIDs or the combination of these analgesics with other medications (e.g. metoclopramide, caffeine) children or adolescents. More studies addressing

these combinations are needed to identify more treatment options.

### Conclusion

Triptans are effective treatment for migraine for children and adolescents. Other options include ibuprofen and a combination of naproxen and sumatriptans can also be recommended.

### References

1. Richer L, Billingham L, Linsdell MA, et al. Drugs for the acute treatment of migraine in children and adolescents. Cochrane Database of Systematic Reviews 2016, Issue 4. Art. No.: CD005220. DOI: 10.1002/14651858.CD005220.pub2
2. Bonfert M, Straube A, Schroeder AS, et al. Primary headache in children and adolescents: update on pharmacotherapy of migraine and tension type headache. *Neuropediatrics* 2013;44(1):3-19. [DOI: 10.1055/s-0032-1330856]
3. Stovner LJ, Hagen K, Jensen R, et al. The global burden of headache: a documentation of headache prevalence and disability worldwide. *Cephalalgia* 2007;27(3):193-210. [DOI: 10.1111/j.1468-2982.2007.01288.x]
4. Derostier FJ, Lewis D, Hershey AD, Winner PK, Pearlman E, Rothner AD, et al. Randomized trial of sumatriptan and naproxen sodium combination in adolescent migraine. *Pediatrics* 2012;129(6):e1411-20. [DOI: 10.1542/peds.2011-2455]
5. Hämmäläinen ML, Hoppu K, Valkela E, Santavuori P. Ibuprofen or acetaminophen for the acute treatment of migraine in children: a double-blind, randomized, placebo controlled, crossover study. *Neurology* 1997;48(1):103-7. [DOI: 10.1212/WNL.48.1.103]

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