



THE HIDDEN COST OF Migraine



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Migraine prevalence

Migraine affects 4.9 million Australians¹ and at least 12% of the global population² with migraine incidence increasing by over two per cent between 1990 and 2019.³

Chronic pain conditions are complex, often requiring a multi-modality approach, and frequently impacting sleep, mood, and the individual's ability to socialise and work.⁴ More than one in two Australians with chronic pain will experience anxiety or depression because of their pain¹ with many reporting that finding an effective management plan is often not easy.

Table 1. Migraine management approaches^{5,6}

Acute:

- Paracetamol
- Non-steroidal anti-inflammatory drugs (NSAIDs)
- Antiemetics
- Triptans (5HT₁ agonists)
- Gepants (small-molecule calcitonin gene-related peptide receptor agonists)
- Ditans (5HT_{2F} agonists).

Preventative: Indicated with ≥3 headache days per month.

- Antihypertensives
- Antidepressants and anticonvulsants.
- Botox therapy or monoclonal antibodies – a new class of injectable prophylactic drugs targeting calcitonin gene-related peptide (CGRP).

Non-pharmacological:

- Address sleep disorders
- Avoid dietary triggers (some kinds of alcohol [such as red wine], cheese, oranges, and chocolate)
- Maintain hydration
- Avoid excessive caffeine
- Maintain a healthy body weight and exercise.



KEY HIGHLIGHTS:

- Migraine requires individualised management.
- Varying subtypes of migraine may complicate treatment and can impact clinical decision-making.
- Research supports a number of complementary medicines for the management of migraine with new research showing benefits for vestibular migraine in particular.
- Migraine that is not managed or prevented by pharmacological approaches is considered refractory.
- Medication-overuse headache is a secondary disorder caused by excessive use of acute medications.

Difficulty in managing migraine

Migraine pathogenesis is complex making clinical treatment challenging.⁷ A therapeutic plan needs to be tailored to individual clinical characteristics, preferences, and needs with a range of approaches for each individual.⁵

Most pharmacological approaches for prevention were developed for other purposes⁶ and are ineffective for many people.⁸ Migraine is classified as refractory when all classes of migraine preventatives have failed treatment and at least eight debilitating headache days per month are suffered for at least six consecutive months.⁹

The more medications trialled, the greater risk of medicine overuse headache – a secondary headache associated with frequent use of medications including triptans. Overuse headache is more common in those suffering migraine than other headache types and indicates suboptimal clinical management.⁵

Migraine types

The varying subtypes of migraine complicate treatment.

Table 2. Migraine types

TYPE	TREATMENT
Episodic migraine occurring on fewer than 15 days per month	This is the most common type of migraine and is treated with acute analgesia. ¹⁰
Chronic migraine ≥15 migraine days per month	Affects 7.6% of migraine sufferers in Australia and requires daily preventative medication. ¹⁰ Patients suffer a higher burden of medical and psychiatric comorbidity being twice as likely to suffer from depression, anxiety, and chronic pain compared to those with episodic migraine. ²
Migraine with aura	Aura accompanies migraine attacks for 20% of patients. ¹⁰ Neurological symptoms (visual, sensory or speech) can precede and/or accompany any type of migraine. ^{5,10} Symptoms usually last one hour and include flashing lights, bright, zigzag lines, and blind spots. ¹⁰ Migraine with aura is thought to occur due to cortical spreading depression (CSD), which is a wave of atypical activity that moves across the brain (including the visual cortex), altering the function of brain cells and blood vessels. ¹⁰ Evidence suggests that patients who have migraine with aura have a higher risk of ischemic stroke, haemorrhagic stroke, and subclinical ischemic lesions. ⁹ Patients are also more likely to suffer anxiety disorders and depression than patients who have migraine without aura. ⁹
Menstrual migraine	Migraine can be affected by menstruation, pregnancy, menopause, hormonal contraceptives, and hormone replacement therapy. ⁹ Eight to 13% of women who suffer from migraine have menstrual-related migraine. ⁵ These migraines are more severe, more difficult to treat, and more likely to recur. ⁶ Hormone treatment has been used but the quality of supportive evidence is low. ⁵
Vestibular migraine associated with vertigo ¹¹	Vestibular migraine commonly occurs in post-menopausal women. Migraines may be replaced with episodic, spontaneous vertigo, or vertigo is added to their symptoms. Patients also report several types of vestibular disturbances including head motion intolerance, nausea and vomiting, susceptibility to motion sickness, and visually induced vertigo. It is thought that there is genetic susceptibility, but the pathophysiology is not well understood. Several hypotheses have been put forward including mitochondrial dysfunction resulting in impaired oxygen metabolism and oxidative stress, sensitisation of trigeminovascular pathways and CSD.



Migraine treatment options

Complementary medicines show great promise as adjuncts to standard care. There is good evidence supporting a range of nutrients such as zinc,^{12,13} magnesium,¹⁴ CoQ10,^{15,16} riboflavin,¹⁷ plus the herb, feverfew.¹⁸

Ketogenic or low-glycaemic diets offer significant promise.¹⁹ Acupuncture has been used effectively for both acute and preventative treatment and is as effective as some pharmaceutical interventions for the latter.²⁰

Table 3. Migraine therapeutics

THERAPEUTIC	EVIDENCE	DOSE
CoQ10	Levels are lower in migraine sufferers and supplementation may result in significantly reduced headache frequency. ¹⁵ Supplementation decreases the frequency of headaches by up to 50% when compared with baseline or control, although it can take up to three months to see benefit. ¹⁶	100-150 mg per day ¹⁶
Feverfew (<i>Tanacetum parthenium</i>)	Reduces the frequency of migraine and symptoms of pain, nausea, vomiting, and sensitivity to light and noise. ¹⁸	50-150 mg per day ¹⁸
Magnesium	Supplementation can reduce the frequency, duration, and intensity of migraine by 41%. Significant improvements in attack frequency and severity at three months. ¹⁴	600 mg per day ¹⁴
Melatonin	May help prevent migraine and modestly reduces severity, duration, frequency, and increases the likelihood of a 50% reduction in the frequency of migraine, compared with placebo or baseline. ²¹	3-4 mg per day ²¹
Omega-3 fatty acids	Increasing omega-3 and reducing omega-6 fatty acids can reduce inflammatory responses and improve regulation of vascular tone. ¹⁹	450-1800 mg EPA+DHA per day ^{22,23}
Riboflavin (vitamin B2)	May reduce migraine attack frequency and severity. When taken alone or in combination with other ingredients for three months, B2 can reduce migraine duration, frequency, and pain scores when compared with control. ¹⁷	100-400 mg per day ¹⁷
Zinc	Assess zinc status. There is an inverse association between dietary zinc intake and migraine, ²⁴ with supplementation found to reduce migraine attack severity, ^{12,13} frequency, and duration. ¹²	15-50 mg per day ^{12,13}
Ketogenic, modified Atkins or low-glycaemic diet.	Improves mitochondrial function and energy metabolism, modulates serotonergic dysfunction, decreases calcitonin gene-related peptide (a vasoactive neuropeptide), and suppresses neuro-inflammation. ¹⁹	

RESEARCH HIGHLIGHT:

Vestibular migraines¹¹

A recent (2023) study assessed the efficacy of two tablets a day for the treatment of vestibular migraine containing a combination of riboflavin 200 mg, vitamin B6 12.5 mg, folic acid 250 mcg, vitamin B12 200 mcg, magnesium 150 mg, CoQ10 75 mg and *Tanacetum parthenium* (feverfew) leaf 280 mg equivalent to parthenolide 200 mcg over three months.

Vestibular migraine severity and frequency were assessed by the Dizziness Handicap Inventory (DHI), Vertigo Symptom Score short-form (VSS-sf), visual analogue for severity (VAS-s) and VAS for frequency (VAS-f).

There were improvements in all measures:

- DHI decreased 44.1%
- VSS-sf decreased 44.9%
- VAS-s decreased 44.1% and
- VAS-f decreased 38.9%

More research needed

More research is required to assess alternative treatment options to current pharmacological approaches to vestibular migraine management which may be associated with a range of side-effects including weight gain, sedation, weight loss, hypotension, and mood disturbances.¹¹

CLINICAL INSIGHT:

Migraine and women

Women are affected three times more than men⁹ - an Australian report found that 71% of migraine sufferers are women.¹ Women also report longer attack duration, increased risk of recurrence, greater disability, and a longer recovery period.²⁵

Is migraine the new endometriosis?

Consider how endometriosis has only recently started to receive the medical attention it deserves as a debilitating chronic pain condition. Migraine is another chronic pain condition that is underdiagnosed, poorly treated or undertreated, and is over-indexed in women.¹ Additionally, 70% of sufferers are constantly worried about disappointing others, and 52% feel embarrassed about having migraine.¹

Financial impact

Almost all migraine sufferers experience reductions in social activity and work capacity.²⁶ Economic costs are estimated to be between \$6,000 to \$21,000 per individual per year depending on the type of migraine, with impacts on productivity making up the largest share of these costs (46%).¹

Migraine headache has been ranked as the highest contributor to disability in people under the age of 50 in the world, and most of those people are women.¹⁹

Gender bias in healthcare

Two-thirds of Australian women report they have experienced healthcare-related gender bias or discrimination.²⁷ Being dismissed and disbelieved is a common experience, particularly when symptoms relate to pain.²⁷ It is unsurprising that many people with migraine do not seek medical care and, of those that do, many do not receive adequate diagnosis or treatment.² A large US study found that more than half the cases of migraine go undiagnosed, rates of management with prescription medicines are poor, and migraine continues to cause significant disability.²⁸

Finding a health professional who takes a woman's concerns seriously can be a turning point for their health care, but women report that it can often take a long time to find such a person.²⁷

SUMMARY

Migraine is a significant health burden impacting quality of life for millions of people. Current pharmacological approaches are ineffective for many migraineurs, making it imperative for research to investigate more suitable prophylactic and management options.

Clinical research into the use of natural medicines for the treatment and management of vestibular migraine has demonstrated considerable benefit to migraineurs and, when coupled with lifestyle modifications, may be an effective therapeutic to improve the quality of life of many.

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