Migraine and tension headache

A complementary and alternative medicine approach

BACKGROUND Migraine and tension headache are common – affecting up to 10% and 40% of the Australian population respectively – and result in significant reduction in social activities and work capacity for sufferers.

OBJECTIVE This article considers the evidence for the use of a range of complementary therapies and treatment in the prevention and management of both migraine and tension headache.

DISCUSSION Migraine and tension headache can have many precipitating factors. Considering dietary and environmental factors complements a migraine/headache consultation. There is evidence for the role of mind-body approaches, nutritional supplements such as riboflavin and magnesium, and acupuncture in the treatment of headache. By using a holistic approach we may be able to tailor a treatment program that is both effective and safe.

Michelle Woolhouse
MBBS, FRACGP, DipAcup, DipHyp, is a general practitioner, Melbourne, Victoria.
michellewoolhouse@hotmail.com

Australia is home to 2 million migraine sufferers (10% of the population) and 7 million tension type headache sufferers (up to 40% of the population).[1] Together this amounts to a huge cost in health care dollars, lost productivity in the workplace, reduction to patients' social lives, and is one of the most common reasons why people present to their general practitioner. The World Health Organisation (WHO) places migraine in the world's top 20 leading causes of disability. Migraine and tension headache have many different precipitating factors. These factors can be varied and/or multiple in most sufferers. A combination of strategies is often necessary for many patients, and complementary and alternative medicine (CAM) can have a useful role in both treatment and prevention.

Precipitating factors

Diet

Food can be a significant factor in the precipitation of headaches, particularly in children and adolescents.[2] It is often the chemicals within foods that are thought to be the culprit in migraine headaches. Chemicals such as tyramine (found in cheese), phenyl ethylamine (found in chocolate), tyrosine, monosodium glutamate (MSG), aspartame, caffeine, sulphites, nitrates (found in processed meats) and histamine (found in wine and beer) seem to trigger the condition by altering the pathophysiology of migraine attack.[2] A study of 577 migraine sufferers found sensitivity to cheese, chocolate, red wine, and beer as the most definite associations.[3]

A double blind, controlled trial showed that of 88 children with severe, frequent migraines, 93%

fully recovered on oligo-antigenic diets.[4] The children showed recurrence when the suspected foods were re-introduced to their diets. The trial showed that many foods, and food combinations, could provoke attacks in susceptible sufferers. In addition to an improvement in their headache symptoms, the authors reported improvements in symptoms such as abdominal pain, behaviour disorders, fits, asthma and eczema.

Another study found that headache was a common feature in patients with gluten sensitivity, with or without histological evidence of bowel involvement.[5] Hypoglycaemia and fasting have also been shown to increase headache frequency.

Caffeine withdrawal and caffeine usage is known to cause headaches in some individuals, therefore it is important to ascertain the amount consumed throughout each day. Withdrawal symptoms of headaches, lethargy, tiredness and muscle aches were reported after the cessation of doses of caffeine as low as 100 mg per day, the equivalent to one cup of coffee, two cups of tea, or three cans of soft drink.[6] Dehydration is another common cause, and may be exacerbated by caffeine usage.

An adequate diet history may complement any migraine/headache consultation. The use of a diet diary, with the exclusion of some of the commonly attributed foods, may help to investigate food triggers in susceptible patients.

Environmental factors

The WHO has estimated that 30% of new or refurbished commercial offices may cause health problems to susceptible individuals. Headache, rhinitis, conjunctival irritation, respiratory symptoms, skin rashes, fatigue and nausea are the most common symptoms attributed to 'sick building syndrome' (SBS). The factors thought to contribute to SBS include volatile organic compounds (from paints, lacquers, plastics and glues), moulds and other microbiological contamination, electromagnetic radiation, lighting, noise, air conditioning, excessive heating, poor ventilation and psychosocial pressure. As our population is working longer hours and are under increasing stress, this may be a plausible explanation for chronic headache in some patients.

A study undertaken in New Zealand showed that 88% of personnel attributed some symptoms to their workplace; this was a comparable result to a similar study undertaken in the United Kingdom.[7] Up to 40% of the subjects named headache as a prevalent symptom. However, further study is needed to examine the causal factors in SBS.

Sleep disorders

It may be important to consider a patient's sleep patterns when assessing a chronic headache sufferer's lifestyle. A study involving 49 patients found that overnight headaches, or headaches upon rising, reflected a sleep disturbance in 55% of the patients.[8] Treatment of the sleep disorder varied depending upon the underlying aetiology, however the results showed an improvement in headache symptomatology in 100% of participants and complete resolution in 65%. Sleep apnoea is another common cause of chronic headache, and treatment of this condition resulted in resolution of the headaches.[8]

CAM therapeutic approaches

Mind-body approaches

There is much in the way of support for the use of behavioural and relaxation therapies (with or without bio-feedback) in the treatment of tension headache and migraine. A recent review of these behavioural methods revealed a 35–50% reduction in migraine and tension type headache, which seems to rival the effectiveness of many commonly prescribed pharmacological agents.[9]

A meta-analysis suggested the most effective therapy was that of relaxation training combined with thermal bio-feedback.[10] The combination treatment was more effective than each one alone and yielded a 50% reduction in headache activity. Not only were the treatments effective, they also seemed to be long lasting. The treatment was found to be effective in both migraine and tension type headache.

Children and adolescents appear to be particularly responsive to this line of treatment.[11] Given the high level of safety of these treatments, and lack of interaction with other therapies, it is recommended they be used as part of first line treatment for benign headache disorders.

Nutritional supplements

Riboflavin

Several studies have shown the benefits of high dose (400 mg/day) riboflavin in the prevention of migraine headache. It has been postulated that the high dose of riboflavin assisted in promoting cellular mitochondrial oxygen metabolism thereby improving

headache symptomatology. A placebo controlled trial[12] involving 55 patients showed that after 3 months of taking riboflavin daily, there was a significant decrease in migraine frequency and duration of headache. In 60% of participants, the number of headache days were halved when compared to that of the placebo participants (15%). Another smaller study shared similar results and also showed a one-third reduction in the need for acute migraine medications in the riboflavin group.[13] Despite these results, the intensity of headaches did not appear to be affected.

These studies are important, as riboflavin was very well tolerated and has a high index of safety with relatively few side effects – and it is inexpensive. The effect of taking a daily riboflavin supplement was maximal after 3 months.[14] Long term studies are still needed to assess efficacy and safety.

Magnesium

Magnesium plays an important role in mitochondrial energy production, cell-to-cell communication, skeletal and smooth muscle relaxation, and serotonin and other neurotransmitter production and regulation. Significantly lowered serum, intracellular, cerebrospinal fluid and salivary magnesium have been seen in migraine and tension headache sufferers. Magnesium deficiency can lead to many physiological changes, including cerebral artery spasm and increased release of pain mediators such as substance P.[15–17]

A double blind, randomised, placebo controlled trial involving 81 people, found that a high dose (600 mg) of oral magnesium daily for 12 weeks significantly reduced the frequency of headache by 41.6% and also reduced the severity, drug usage and duration of the acute attack (but these were not statistically significant).[16]

Magnesium is an abundant mineral in our food chain, however over the past few decades western diets have seen an enormous rise in sugar, fat and phosphate (eg. soft drinks, processed foods) intake. These substances have been shown to affect the absorption of magnesium from our diet. Foods that are considered high in magnesium are nuts (almonds, cashews), red meat, legumes (especially soya), green leafy vegetables, whole grain cereals and seafood.

Of course many of these foods may be a trigger for migraine headache in sensitive people. Therefore a supplement may be appropriate. Not all supplements of magnesium are readily absorbed, and some can cause diarrhoea. A magnesium chelate such as magnesium citrate does not seem to have these side effects and is considered safe for doses up to 600 mg per day in adults.

The use of intravenous magnesium in aborting an acute attack has also been studied. One trial[17] gave 1 g of intravenous magnesium sulphate over 15 minutes, or placebo, to acute migraine sufferers with a known low serum magnesium level. In the treatment group, 13 out of the 15 experienced remission of the attack and two out of the 15 experienced pain reduction. In the placebo group, one out of the 15 experienced a partial reduction of pain. The placebo group went on to receive intravenous magnesium sulphate. Fourteen out of the 15 participants experienced complete relief from their pain. Treatment was very well tolerated. These results impress upon us the need to follow up this study with a larger population group, as it may provide us with a safer alternative for acute migraine treatment compared to other commonly used drugs (eg. pethidine).

Feverfew

Feverfew (*Tanacetum parthenium*) is a herbal extract often postulated for the prevention of migraine headache. It has been traditionally used for thousands of years for the treatment of a range of conditions including fever, gynaecological problems, psoriasis and inflammatory conditions. A recent Cochrane review[18] looked at four randomised controlled trials comparing the herb to placebo and concluded that there did not appear to be enough evidence to establish the clinical efficacy at this stage. Further research is warranted. They did however report no major safety problems in its use.

Acupuncture

In 2005, the Cochrane Collaboration studied 26 trials involving over 1000 patients, and concluded that overall, existing evidence supports the use of acupuncture in the treatment of idiopathic headache, although the quality of the evidence is not fully convincing, and further well planned, large scale studies are needed.[19]

A general practice based trial[20] involving 400 headache sufferers looked at the effect of 12 sessions over 3 months of individualised acupuncture versus standard care (what constituted standard care was not explicit in the data).[20] It found that after 1 year, there was a significantly greater improvement in

headache symptoms of 34% compared with controls of 16%. This equated to 22 days less of headaches per year. The acupuncture group used 15% less medication, made 25% fewer visits to their GP, and took 15% less sick days compared to controls.

Although further research is needed, with the high safety and low side effect profile of acupuncture, it may be an appropriate treatment to offer some chronic headache sufferers.

Conclusion

Both migraine and tension type headache are high prevalence conditions that have a significant impact on patient wellbeing. A multidisciplinary, holistic approach is often necessary for many patients. It seems appropriate to look carefully at a patient's lifestyle to identify stressors, and dietary, environmental and other factors that may precipitate headaches. Behavioural and relaxation strategies are safe and effective first line strategies and other CAM strategies including nutritional supplements and acupuncture may be helpful. By assessing a patient holistically, we may be able to tailor a treatment program that is both highly effective and safe for our patients.

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Email: afp@racgp.org.au