Alternative therapies in the treatment of headache in childhood, adolescence and adulthood

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Accepted for publication: December 17, 2004

Summary

In recent years, it has become common practice, in the treatment of headache, to use alternative methods, both alone and in association with drug therapies. Alternative therapies would appear to be more indicated in certain subjects: patients opposed to pharmacological treatments, those showing low tolerance of drugs or with a history of drug abuse, and those presenting medical contraindications or poor response to certain drugs.

Numerous studies of alternative therapies have been published and here we review the literature data on the topic, considering in particular the accuracy of the various study methods in evaluating the effectiveness of the different therapies and their specificity for the different forms of headache. Specialists involved in the assessment and care of headache patients should strive to increase their knowledge of alternative therapies, so as to be better equipped to guide patients towards safe, economical and potentially effective treatments, rather than useless, costly or dangerous ones.

KEY WORDS: acupuncture, alternative therapies, chiropractic manipulation, headache, homeopathy, phytotherapy.

Introduction

This study offers an overview of so-called alternative or unconventional therapies and of their use in the treatment of headache.

It is by no means easy to define what is meant by the expression alternative therapies, as these cover a broad spectrum of practices and beliefs. They might be considered medical practices that do not conform with official medical standards, but seem to have some scientific basis, or are in any case very widely used.

A study by Eisenberg et al. (1), which considered the prevalence and costs of unconventional medicine in the United States, estimated that 425 million visits were made to providers of alternative therapies in 1990, and that around 13.7 billion dollars were spent on these treatments. The authors interviewed, by telephone, 1539 adults, enquiring expressly about their recourse to unconventional therapies for some of the most frequent medical conditions they reported (rachialgia, anxiety, allergies, headache, arthrosis, insomnia, arterial hypertension, digestive disorders, depression). In this study, 27% of headache sufferers reported using alternative treatments, which only rachialgia (36%) and anxiety (28%) patients were found to use more. In a more recent study, the same authors (2) revealed that the percentage of adult patients using alternative therapies increased over the subsequent years, rising from 34% in 1990 to 42% in 1997. This increase over the years in the use of alternative medicine is also reflected in the general paediatric population of the United States, in which recourse to unconventional therapies rose from 11% to 20% in the period 1994-1999 (3).

In a study by von Peter et al. (4), 73 adult headache patients were administered a standardised questionnaire with the aims of determining the extent of their recourse to unconventional therapies for headache and of deepening the patients’ knowledge and expectations of these treatments. The results reveal that 98% of the subjects were familiar with at least one of the so-called alternative therapies, the most well-known seeming to be acupuncture, phytotherapy, and physical and dietary-nutritional therapies. Eighty-four per cent of the patients reported using these therapies, while 88% of those interviewed viewed them as potentially effective headache remedies. The explanations most frequently given for failure to have recourse to unconventional treatments were: lack of adequate information and recommendations on the part of medical professionals, lack of time, high costs and lack of insurance coverage.

In view of the considerable extent to which unconventional therapies are used in the treatment of various pathologies, including headache, it would appear important for physicians to increase their knowledge of these therapies, so as to be able to guide patients towards the safer and potentially more effective ones, thereby realising the “synergistic” model hypothesised by Andrew Weil (5), in which unconventional therapies are intended not to replace traditional medicine, but to complement it.
In spite of this highly frequent recourse to alternative therapies, the results relating to their effectiveness in the treatment of various conditions are still controversial, partly because clinical trials of unconventional therapies often present major methodological weaknesses. Linde et al. (6) evaluated the methodological accuracy of 207 randomised trials, contained in five previously published systematic reviews on acupuncture, homeopathy and phytotherapy. The authors found that the accuracy of the studies varied greatly, and that they had major methodological flaws, relating above all to the patient sampling criteria and follow-up methods used, and to the variability of the study designs and therapies investigated.

We examine, with reference to clinical trials that have assessed their effectiveness, the main alternative therapies used in the treatment of headache.

Acupuncture

Acupuncture, part of a whole complex of naturalistic theories compatible with Confucianism and Taoism, is a technique that has been used in Chinese traditional medicine for around 3000 years (7). Since the 1970s, the use of acupuncture for the treatment of pain (mainly in settings unrelated to the philosophies originally associated with it) has increased in the western world, and at least 500 randomised and controlled clinical studies have evaluated its effectiveness, often yielding conflicting results. In support of the effectiveness of this technique in the treatment of pain, there seems to exist considerable evidence of the occurrence of repeatable physiological effects. The analgesic effect would appear to depend on the stimulation of small-diameter nerve fibres with a high excitability threshold and at spinal, brainstem and hypothalamic level, of the system of endogenous opioids, an effect that naloxone, an en- dorphin-antagonist, appears in a dose-dependent fashion, to cancel out (8,9). Stimulation of the expression of β-endorphin levels...

Nutritional factors

The possibility of adopting a dietary approach in the treatment of headache has often been raised, but few scientific studies have considered the question. In susceptible subjects, foods containing tiramine can trigger migraine attacks, as can additives and sweeteners. Some patients claim to benefit from the elimination of starchy foods, sugars and milk products from their diets. Although these claims have not been investigated scientificaly, there is no real reason to discourage patients inclined to try these approaches, given that they are both safe and economical. Vegetarian-type diets, on the other hand, can result in a deficiency of B12, which can aggravate headache and provoke other disorders (23). Magnesium is an element that plays an important role in migraine pathogenesis. Numerous studies have reported low magnesium levels in the plasma and tissue cells of migraineurs (24-26). Magnesium deficiencies reduce the migraine threshold through various mechanisms: vasocostriction, reduction of the affinity of serotoninergic receptors and activation of N-methylaspartate receptors. Mauskop et al. (27) administered, via intravenous infusion, 1 gram of magnesium sulphate to 40 migraine patients during acute migraine attacks and obtained a significant reduction of pain in 87% of them. Intravenously administered magnesium has also been found to be effective in the treatment of cluster headache attacks; in a study of 22 patients, 41% experienced a significant reduction of the pain, a good result given that cluster headache has been found to be refractive to various therapies (28).

Two double-blind, placebo-controlled studies have evaluated the effectiveness of magnesium in the prophylaxis of migraine in adults. In a study by Peikert et al. (29), magnesium was found to be superior to placebo, while Pfaffenrath et al. (30) did not find significant differences between the two. However, it should be pointed out that this second study used a magnesium salt that is not easily absorbed (aspartate hydrochloride trihydrate) and that diarrhoea occurred in 45% of the treated subjects (as opposed to 18.6% in the study by Peikert et al., which used tridymite) (30). A double-blind placebo-controlled study of magnesium efficacy in migraine prophylaxis conducted by Wang et al. (31) considered, instead, a group of 118 juvenile subjects. The authors reported that the patients receiving magnesium oxide for 16 weeks showed a significant reduction in the frequency and intensity of their attacks compared with the placebo-treated group.

Schoenen et al. (32), on the other hand, demonstrated the effectiveness of riboflavin (vit. B2) in migraine prophylaxis in a randomised, double-blind, placebo-controlled study of 55 adult patients. The maximum effect was reached after three months of treatment with the vitamin (400 mg/day). Riboflavin is the precursor of flavin mononucleotide and flavin adenine dinucleotide, both of which are involved in electron transport in the respiratory chain. The rationale for using this drug is the hypothesis that a deficit of mitochondrial energy metabolism has a role in the pathogenesis of migraine (33, 34).

Phytotherapy

Herbs have been used as remedies for a number of centuries and feverfew (Tanacetum parthenium) is undoubtedly the plant that has been most studied in connection with the treatment of headache. Feverfew is known in herbal medicine for its anti-inflammatory, antipyretic and lenitive properties in the treatment of burns (35). The main active compound of feverfew is sesquiterpeine lactone parthenolide, which has been demonstrated, in vitro, to inhibit serotonin release from platelets (36). This mechanism of action constitutes the rationale for the use...
of feverfew in migraine prophylaxis. Vogler et al. (37) conducted a systematic review of the literature, analysing five randomised, double-blind, placebo-controlled studies that had evaluated the effectiveness of feverfew (daily doses ranging from 50 mg to 143 mg) as a preventive treatment for adult migraine. Studies by Johnson et al. (38) and Murphy et al. (39) demonstrated a significant reduction in the frequency of attacks and accompanying phenomena in feverfew-treated patients vs controls on placebo. Palevitch et al. (40) also reported a significant reduction in pain intensity and accompanying symptoms in feverfew-treated patients, while a further two studies (41, 42) failed to find significant differences compared with placebo. The authors concluded that the effectiveness of feverfew in migraine prophylaxis remains to be proven. The randomized, double-blind, multicentre, controlled trial by Pfaffenrath et al. (43) provided data on the safety and tolerability of a new stable extract (MIG-99) reproducibly manufactured with supercritical CO2 from feverfew in the prophylaxis of migraine with and without aura. MIG-99 compared with placebo failed to show a significant migraine prophylactic effect in general and was shown to be effective only in a small predefined subgroup of patients at an intermediate dosage. On the other hand the incidence of adverse events was similar for the active treatment groups and the placebo group and no dose-related effect was observed in any safety parameter. Because of the low number of patients these findings should be verified in a larger sample. A study by Grossmann et al. (44) demonstrated a significant reduction in migraine attacks with a prophylactic treatment with a special CO2 extract from Petasites hybridus compared to placebo, without adverse events. Because of the combination of high efficacy and excellent tolerance the authors emphasised the value of Petasites hybridus in the prophylactic treatment of migraine.

Aromatherapy

The fact that certain intense smells can trigger migraine attacks in predisposed subjects suggests a role for the olfactory system in mediating headache. Conversely aromatherapy is used in the treatment of headache. In a randomised, double-blind, placebo-controlled study of 32 healthy volunteers, Göbel et al. (45) evaluated the effect, on certain neurophysiological and algesimetric parameters, of local applications (on the temples and forehead) of peppermint and eucalyptus oil extracts. The peppermint preparation was found to raise the pain threshold and to have a muscle-relaxing effect, while the eucalyptus, despite producing a relaxing effect, did not significantly modify the pain threshold. According to the authors, these results provide a basis for the use of this substance in the treatment of tension-type headache.

Physical therapies

Within the context of these alternative approaches, we should also consider the various manoeuvres that are instinctively performed by headache patients in an attempt to relieve their pain. These are self-administered procedures that have not been recommended by a physician or other health professional, but are routinely used by some patients. Zanchin et al. (46) investigated the occurrence of some of these manoeuvres (compression, the application of heat or cold, massage of different areas of the head) in a sample of 400 patients affected by primary headaches (migraine with and without aura, tension-type headache and cluster headache). Of the patients recruited, 65% used at least one of the manoeuvres mentioned: 30% used compression, 27% the application of cold, 25% massages, and 8% the application of heat. Furthermore, a statistically significant relationship emerged between type of headache and type of manoeuvre adopted: cold and compression of the forehead or temples in migraine without aura, compression of the temples in migraine with aura, and nape or temple massage in tension-type headache. Ultimately, however, the effectiveness of these measures in reducing pain was found to be low: they were found to be satisfactory pain control methods by only 8% of the subjects, and more often than not gave only temporary relief. Despite this, they were still used routinely (in every attack) by 46% of the patients studied. The authors conclude that use of these manoeuvres in headache becomes fundamentally a ritual, the practising of which does not necessarily correlate with the benefit obtained. A study by Puustjarvi et al. (47) evaluated the effects of massage in patients with chronic tension-type headache. The authors reported a reduction in the pain, still present after six months, following a series of ten one-hour massage sessions conducted over a period of two weeks. However, in spite of the effectiveness of this type of approach (the treatment procedure was, incidentally, poorly described), most of the patients found it to be too much of a commitment. In a more recent study, Quinn et al. (48) reported that nape and shoulder massage could, potentially, be an effective non pharmacological treatment for reducing the frequency and duration of chronic tension-type headache attacks.

Another physical approach that is quite widespread in the treatment of headache is that of chiropractic manipulation. While recognising the potential benefits of chiropractic techniques, it is important to remember that in over a hundred reported cases they have been linked with severe complications, mainly stroke. Given that there exists no definite proof of the effectiveness of chiropractic manipulation, it would seem wise to discourage headache patients from having recourse to it (23).

Concluding remarks

On the basis of this review of the literature on the use of so-called alternative therapies in the treatment of headache, we can affirm that scientific proof of their effectiveness is often lacking. However some treatments are known to have a good scientific basis, such as the use of magnesium, feverfew and riboflavin. The fact that some of the studies considered were found to present major methodological weaknesses means that further studies, conducted according to the principles of evidence-based medicine, are certainly needed in order to provide definitive evaluations. That said, we should, given the extensive use of alternative therapies, strive
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to learn more about them, and not ignore the fact that a considerable proportion of the world’s population uses different therapeutic methods from those familiar in the west. It is also important that physicians, when encountering patients who use or intend to use alternative therapies, are able to draw on their own knowledge in order guide these patients, discouraging them from using potentially harmful ones (e.g., chiropractic manipulation, dieting, electrotherapy) and helping them in the direction of safer ones, whose therapeutic effects have been demonstrated (e.g., acupuncture, magnesium, riboflavin). Furthermore, in subjects whose headache is not adequately controlled using acute treatment or pro- phylactic drugs, there is a need to understand better and possibly to integrate the use of non pharmacological and/or alternative treatments. There can be no doubt that this considerable recourse to alternative therapies reflects some of the limits of modern medi- cine: indeed, treatments are never effective in 100% of cases and patients are often unhappy with their rela- tionship with their doctor. In the case of adult migraine, for example, the advent of the triptans has certainly rev- olutionised treatment, and allowed millions of people to achieve a better quality of life. But we have to remem- ber that 30% of patients do not respond to these drugs, and that some patients experience unpleasant adverse effects, which in some can be severe. It is not surpris- ing therefore that many of these patients, disappointed in traditional medicine, turn to unconventional thera- pies. It is also important to consider the fact that headache patients often do not consult their physician, but have recourse directly to alternative therapies, which are frequently more economical, seem safer (al- though this is not always the case), and whose practi- tioners often adopt a holistic approach to the care of the patient (23). Finally, in the case of juvenile patients, there are specific elements that favour recourse to uncon- conventional therapies: i) parents are often uncertain and fearful of submitting their children to treatment with traditional drugs; ii) adolescents can use recourse to al- ternative therapies as a way of affirming their independ- ency; iii) as far as headache is concerned, there are fewer drugs available to treat children than adults. To conclude, given the high response to placebo in headache sufferers (30–40%) (23) we feel (and this ap- plies particularly to children) that patients should not be prevented from using alternative treatments, providing they are actively liked by the patient, and on condition that the treatment in question is not costly or harmful. On the contrary expensive treatments with no evi- dence-based proof of efficacy should not be encour- aged. However, it is to be hoped that other studies will be conducted, in accordance with the criteria of evi- dence-based medicine, in order to clarify the indica- tions, effectiveness and limits of alternative methods of treating headache in the different age groups.

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