

Complementary and Alternative Approaches to the Treatment of Tension-Type Headache

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Although pharmacotherapy with NSAIDs and tricyclic antidepressants comprises the traditional treatment of tension-type headaches (TTHs), the use of other therapeutic approaches in combination with medications can increase the success of treatment. Patients with comorbid mood disorders and unremitting headaches may particularly benefit from some non-pharmacologic approaches. This review focuses on complementary and alternative approaches to TTH treatment, including psychological therapies, acupuncture, and physical treatments.

Introduction

When used in combination with traditional medications, nonpharmacological treatment can increase the success of tension-type headache (TTH) treatment. Although the improvement in headache frequency and intensity resulting from behavioral therapies generally appears more gradually than that seen from pharmacologic treatment, the effect is maintained for longer periods of time, even up to several years [1]. Once learned, many of these therapies can be practiced at home and later used in stressful situations. Some forms of therapy are even available as home-based treatment in the form of audiotapes or CDs accompanied by a manual. Self-regulated, home-based treatment with little face-to-face contact with a therapist has been shown to be cost-effective and equivalent or superior to clinic-based therapy [2,3]. This review discusses psychological therapies such as biofeedback, relaxation training, and cognitive behavioral therapy (CBT). Acupuncture and physical treatments are also addressed.

Psychological Treatment

Although anyone can benefit from psychological therapy, it may be most helpful for patients in whom pharmacological options are limited, such as children and the elderly. Although psychological therapy has not been well studied in these groups, recent research has suggested that older patients may benefit from this type of treatment, particularly CBT [4,5], and relaxation training may be effective in treating juvenile TTH [6,7]. In general, psychological therapy refers to biofeedback, relaxation training, and CBT.

Psychological therapies may be more effective in preventing the transformation of episodic to chronic TTH than in managing chronic TTH [8••], so the appropriate referrals should be made when TTH is in the episodic stage. Several factors are predictive of the success of psychological therapies in TTH patients. Excessive use of acute medications, such as analgesics and ergotamines, are associated with less therapeutic efficacy than for patients who do not overuse these medications. Daily continuous headache and high scores on psychological tests that evaluate for psychiatric disorders are other variables that may predict a limited response to behavioral therapy [8••]. These patients, who are at higher risk of relapse, may benefit from booster therapeutic sessions [8••].

Electromyography biofeedback therapy

Good scientific evidence exists for the efficacy of electromyography (EMG) biofeedback therapy in the treatment of TTH [9••]. In this form of therapy, patients are given continuous information regarding the degree of tension in one or more pericranial muscles, with the goal of teaching them to assess and control the tension on their own. Electrodes are usually placed on the frontalis muscle; however, the temporalis, trapezii, and multiple sites have been used as well. During training, feedback may be given in auditory form (via clicks varying in rate) or visual form (via bars varying in length). Auditory feedback is more popular, and allows patients the added benefit of closing their eyes during training [8••]. Training is done over the course of 5 to 25 sessions. In one study [10], a 50% reduction in EMG activity at the fourth session due to

relaxation was a predictor of good outcome. In addition to office-based training, patients are usually given instructions for practicing these skills at home on a daily basis. Biofeedback is often combined with relaxation training. Alone and in combination, biofeedback training and relaxation training have been shown to reduce headache activity by nearly 50% [11].

Relaxation training

The goal of relaxation therapy is to enhance the awareness of tense and relaxed muscles, and such training has become part of conventional treatment for TTH [2]. In doing so, patients become more conscious of their posture and the way they sit, stand, walk, and sleep. Although techniques are usually learned in a dark, quiet setting, they are eventually applied to everyday aspects of work and leisure [12].

The two most widely used forms of relaxation training are progressive relaxation training (PRT) and autogenic training. PRT, which is more commonly used, promotes the recognition of tension and relaxation in the course of daily life [8••]. Fewer than 10 sessions are usually needed to complete a course of treatment [8••]. Patients are trained to sequentially tense and then relax groups of muscles throughout the body. Initially, 16 muscle groups are involved, and as treatment proceeds, muscle groups are progressively combined to result in four groups at the end of therapy. After this initial stage of treatment, patients learn relaxation by recall, cue-controlled relaxation, and differential relaxation (in which relaxation of muscles not required for current activities is maintained).

Schultz and Luthe [13] developed autogenic training, another form of relaxation training. Autosuggestion is central to this training, in which mental and somatic function are concurrently regulated by passive concentration on formulas such as “my forehead is cool.” Although Schultz and Luthe suggested 13 to 30 treatment sessions, most researchers and clinicians use fewer [8••].

Cognitive behavioral therapy

CBT is a form of treatment that addresses the relationships between stress, coping, and headaches, and the role of cognition on these relationships. Patients are taught to identify and challenge dysfunctional thoughts and the beliefs that give rise to these thoughts. Patients are often taught pain management strategies, such as imagery training and attention-diversion training. Dietary interventions, lifestyle modification, and contingency management are generally provided if relevant [8••,14,15].

CBT is probably most effective in cases where there are significant psychological or environmental problems, such as chronic work stress, mood disorders, or adjustment problems that worsen headaches or prevent headache patients from successfully implementing self-regulation skills. Although CBT can decrease TTH activity by 50% or more [11,16], it is most effective when used with bio-

feedback or relaxation training, especially in patients with higher stress levels [8••].

Combining psychological therapy with pharmacotherapy

Integrating medical management with psychological treatment can result in more effective treatment of TTH, and one early study even suggested that psychological treatment alone may be superior to medical treatment alone [17]. Holroyd et al. [18] compared amitriptyline and CBT in TTH, and showed that both types of treatment significantly reduced headache activity. Another study, in which patients were divided in groups receiving an antidepressant (amitriptyline or nortriptyline), placebo, CBT plus placebo, or CBT plus an antidepressant, showed that the three treatment groups had similar improvements in headache activity and quality of life; however, patients who received CBT plus an antidepressant were more likely to have more than 50% reduction in TTH activity than those receiving either treatment alone [19]. Combining antidepressants with psychological therapy may be most beneficial in patients with unremitting TTH or concurrent mood disorders [20].

Acupuncture

Studies on acupuncture in headache have been limited by small sample sizes and the inherent difficulties in performing sham procedures in control groups. In some studies, sham acupuncture is conducted by inserting needles at sites far from traditional acupuncture points, but this has been associated with beneficial effects as well [21]. Among the randomized controlled trials that have been conducted, uniformity in selected acupuncture points and overall treatment course has been lacking. Although some studies have suggested that needle acupuncture [21] and laser acupuncture [22] were more effective than sham or placebo procedures, a recent meta-analysis [23•] of eight randomized controlled trials concluded that compared with sham procedures, acupuncture demonstrated limited efficacy in reducing the frequency of TTH.

Physiotherapy and Other Physical Treatments

The rationale for physiotherapy (massage, passive stretching, positioning, ergonomic instruction, transcutaneous electrical nerve stimulation, and heat or cold application) in the treatment of pain is based on the assessment and treatment of biomechanical dysfunction, which occurs as a result of stress or strain on the musculoskeletal system [12]. For primary headache disorders such as TTH, which is considered to be centrally mediated, the approach is not quite straightforward, as the musculoskeletal system is not believed to play a primary pathophysiological role. Therefore, the focus of physiotherapy in TTH is to decrease or minimize chronic nociceptive input into the central nervous system [12]. When assessing a TTH patient for

physiotherapy, the history should address any musculoskeletal pain triggers and any compensatory mechanisms the patient may have devised to reduce the associated pain. Upon physical examination, tenderness of the pericranial muscles on manual palpation is a common finding in TTH [24–29] and probably represents central sensitization of these tissues [30,31]. Myofascial trigger points, which are tender nodules located within muscle tissue, are likely to be peripherally mediated and are associated with a pattern of referred pain [12]. Increased cervical muscle tone, which may be a result of poor posture or anxiety, may contribute to pericranial muscle tension because of the contiguous relationship between the shoulder, neck, and scalp muscles [32].

Although many forms of physical treatments have been advocated in the treatment of TTH, such as physiotherapy, exercise, and cervical spinal manipulations, none has proven long-term efficacy, either alone or in combination. Reviews of manual therapies [33] and of randomized controlled trials of physiotherapy and spinal manipulation [34] in TTH revealed insufficient evidence regarding their efficacy, although some studies have suggested that physical therapy may be most effective in women and patients with high headache frequency at baseline [35,36]. A randomized trial comparing physiotherapy with acupuncture [32] showed that both treatments reduced the intensity of headache and muscle tenderness, with the physiotherapy group showing a greater degree of improvement and a significant reduction in the use of analgesic medications. However, there was a high dropout rate in the acupuncture group, which may have skewed the results.

TTH patients who express an interest in physiotherapy are more likely to benefit from active strategies such as exercise than passive ones such as massage and heat or cold application [12]. The Mayo Clinic recommends regular aerobic exercise, yoga, stretching, and posture classes to help reduce the frequency and severity of TTH [37]. Yoga has been associated with stress reduction and improvements in fatigue, depression, and pain in distressed women [38], and one study [39] suggested that yoga-based management was more effective than pharmacotherapy in the treatment of chronic TTH.

Reviews of chiropractic manipulation in TTH have suggested a trend toward benefit [40–42] but the evidence is weak, with studies limited by methodological issues. Considering that neck manipulation increases the risk of vertebral artery dissection and stroke or transient ischemic attack approximately sixfold [43], patients should be advised to avoid this treatment.

Conclusions

Nonpharmacologic treatment can be combined with medications to reduce TTH activity. The best evidence exists for psychological therapies such as biofeedback and relaxation therapy. Encouraging patients to learn

these techniques can provide them with skills they can use on a long-term basis, and also engenders a sense of control over a potentially debilitating disorder. Although acupuncture and physical treatments may be helpful in some subsets of TTH patients, the evidence supporting their efficacy is limited.

Disclosures

No potential conflicts of interest relevant to this article were reported.

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