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EDITORIAL

Evidence on Acupuncture and Pain: Reporting on a Work in Progress

Surveys of acupuncture use confirm that pain is one of the most frequently cited reasons for acupuncture therapy. This is true throughout a range of countries including Australia, Japan, the UK, and the USA [1—4]. Pain is reported as the most commonly treated condition by European acupuncturists and is second only to neurological conditions according to acupuncturists in China [5]. This widespread use indicates that an improved understanding of any reported beneficial effects, possible mechanism of action, and optimum practical application is of considerable importance and potential relevance to health care.

While acupuncture has traditionally been used in countries such as China (for > 2000 years), Japan, and Korea (for > 1000 years), practice only spread to Europe and the USA several hundred years ago [6]. Early reports of its use in the West did, however, focus on pain-related conditions: in 1826, Bache reported treating several cases of "muscular rheumatism", "chronic pains", and "neuralgia" with "acupuncturation" [7]. More intense interest in acupuncture outside Asia originated in the early 1970s. This was through reports such as that by an American journalist who was treated with acupuncture while visiting China [8]. This raised interest particularly in the possibilities of the use of acupuncture in the postoperative period.

In fact, there has been continuing and increasing interest in acupuncture for treating pain, and this is reflected in the numbers of articles on acupuncture and pain listed on PubMed since the 1970s. The increase in publications on the topic follows an interesting pattern: a fairly steady number of articles per year over the period from the 1970s to the year 2000 followed by a dramatic increase from 2000 to date.

Research interest covers a wide spectrum of pain conditions as demonstrated by the topics covered in this special issue. Apart from postoperative pain, trials have been conducted on other time-limited painful conditions such as dental pain and labor. Intermittent, but longer term, conditions have also been investigated including migraine and dysmenorrhea. The application of acupuncture in the management of arthritis, low back pain, myofascial pain, and fibromyalgia has also been of significant interest. Based on clinical trials listed on PubMed, the conditions that have received the greatest attention over the most recent 3-year period are musculoskeletal pain, gynecological pain, postoperative pain, headaches, myofascial pain, and neuralgia. The focus on musculoskeletal pain, in particular, reflects the fact that, according to the surveys referred to earlier, the primary pain-related problems for which acupuncture treatment is sought are musculoskeletal [1—4]. Included in this category are low back pain, neck, and joint pain. Headaches also feature in the list of the most frequently treated problems.

Much acupuncture treatment takes place outside conventional health care settings in many countries, but patterns of acupuncture have been shown to be similar in other contexts such as in hospitals. For example, the most treated conditions in a Korean medical hospital were also low back pain, neck pain, and shoulder pain [9]. A similar study of internal medicine patients at a German center revealed that back pain, fibromyalgia, and headache were predictors of acupuncture use [10].

The considerable use of acupuncture for pain has resulted in a sustained research effort to fully measure and understand any potential effect of acupuncture on pain. Efforts to draw conclusions based on systematic reviews of the evidence have produced variable results and are somewhat difficult to interpret. In the case of prophylaxis of migraine, an earlier version of the review had concluded that the evidence was promising but insufficient, while in the most recent version the authors were able to include a further 12 trials [11]. This allowed them to conclude that there was consistent evidence of a benefit of acupuncture treatment compared with no prophylactic treatment or routine care only. There was, however, no evidence of an

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effect of "true" acupuncture over sham interventions, which the authors admit is a finding that is difficult to interpret. In the case of low back pain, an earlier systematic review had concluded that acupuncture "effectively relieves low back pain" [12]. By contrast, a more recent review (albeit by different authors) found better outcomes compared with no treatment or other treatments, but that these effects were not observed when acupuncture was compared with sham acupuncture [13].

New approaches to the evidence have included sophisticated forms of secondary analysis such as individual patient meta-analysis. These have indicated that there are significant differences between true and sham acupuncture but the differences are relatively modest and do not fully explain effects reported in trials [14]. The suggestion that nonspecific effects or factors in addition to needling contribute to the therapeutic effect of acupuncture is similar to that proposed in previous reviews. This leads to the question of exactly what role nonspecific effects play in chronic pain.

Returning to the systematic reviews produced by the Cochrane Collaboration, the Cochrane review of the evidence on fibromyalgia presents what are now familiar conclusions: "There is low to moderate-level evidence that compared with no treatment and standard therapy, acupuncture improves pain …(in people with fibromyalgia). There is moderate-level evidence that the effect of acupuncture does not differ from sham acupuncture in reducing pain…" [15]. A closer examination of the review reveals a further finding that appears relevant: the points selected varied considerably but reporting of the rationale for treatment was limited or nonexistent for most trials.

This may be due to the fact that the potential mechanism of action of acupuncture in a number of these conditions is not fully understood. In fact, the etiology of the conditions to be treated is often poorly understood and so proposing a mechanism of action for an effect or a rationale for treatment is problematic. Added to this, many pain-related conditions consist of a spectrum of symptoms: migraine is often associated with nausea and vomiting and visual disturbances, nonspecific low back pain with depression and fatigue, and fibromyalgia with fatigue and sleep disturbances. To add even further complexity, there appears to be links between the pain conditions themselves: patients with fibromyalgia are more likely to have headache, irritable bowel syndrome, and rheumatoid arthritis [16]. Those with migraine may also have irritable bowel syndrome [17].

The complexity and variability of the conditions being treated appears to lend weight to an individualized approach to treatment, which is used in many of the trials included in these reviews. The issue is "what is an appropriate control treatment in this context?" and "is it possible to define a treatment that controls for all the variation and complexity involved?". Might points that are not specific for pain have a specific effect on one of the comorbid symptoms or is it simply that the nonspecific, nonneedling elements of the treatment are of most relevance? This is particularly relevant if one considers that, in several types of chronic pain, there are indications that antidepressants are effective through a greater improvement in mental symptoms than in physical pain [18].

Added to the challenge of unraveling any potential effect of acupuncture in chronic pain is that developing an animal model of a pain syndrome such as fibromyalgia is difficult, particularly if the etiology is not well-described [19]. Consequently, in this situation animal models primarily mimic symptoms and interpreting any responses to treatment is a further challenge.

In summary, the sustained research focus on a potential effect of acupuncture in pain which is evident is warranted. The high prevalence and wide range of conditions involving some form of pain indicates that confirmation of any beneficial effects may have significant implications. Questions remain to be answered on aspects including the role of nonspecific effects in different acupuncture interventions, the relevance of these to practice and patients, and the precise mechanism of action in chronic pain conditions. In order to achieve a greater understanding of the role of acupuncture in pain, the importance of rigorous reporting of aspects such as rationale for interventions alongside the use of rigorous research methods cannot be underestimated.

Disclosure statement

The authors declare that they have no conflicts of interest and no financial interests related to the material of this manuscript.

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