Regular article

Acupuncture treatment for opiate addiction: A systematic review

James B. Jordan, (Ph.D.)*

Graduate School of Counseling Psychology, University of Maryland University College, Okinawa, Japan

Received 11 February 2006; accepted 20 February 2006

Abstract

A review of the efficacy of acupuncture as treatment for opiate addiction, covering 33 years of reported literature in western scientific journals, was systematically undertaken. Some abstracts from Chinese language journals were also briefly reviewed. Supportive evidence often came from noncontrolled nonblinded methodologies. When well-designed clinical trials (randomized, controlled, single-blind methodologies) were used, there was no significant evidence for acupuncture being a more effective treatment than controls. Some of the current supportive evidence for efficacy came from Chinese journals that have not been translated into English yet.

© 2006 Elsevier Inc. All rights reserved.

Keywords: Acupuncture treatment; Opiate addiction; Alternate therapies; Drug treatment; Heroin; Substance abuse treatment

1. Introduction

Acupuncture has a long history in China as a panacea for illnesses. In the past 33 years, it has been reported in mostly western literature reviews under many topics of medical research, such as pain control (Arita, Hayashida, & Hanaoka, 2004; Eshkavari & Heath, 2005; Mendelson et al., 1983) in fibromyalgia (Assefi et al., 2005), headaches (Melehart et al., 2005), and Parkinson’s disease (Tan, Lau, Jamora, & Chan, 2005). In psychology, acupuncture has recently been studied for the treatment of depression (Allen, Schnyer, & Hitt, 1998; Du, Li, Yan, Zhang, & Huang, 2005; Ernst, Rand, & Stevinson, 1998; Jorm, Christensen, Griffiths, & Rodgers, 2002; MacPherson, Thorpe, Thomas, & Geddes, 2004), alcoholism (Smith & O’Neal, 1975), cocaine addiction (Avants, Margolin, Chang, Kosten, & Birch, 1995), and schizophrenia (Rathbone & Xia, 2005).

For some westerners, acupuncture is seen as a quick, inexpensive, and relatively safe form of treatment for addictions (D’Alberto, 2004). But is this treatment effective? The purpose of this article is to draw conclusions, based upon the 33 years covered in the literature, as to whether acupuncture is an effective treatment for opiate addiction. There are many reviews of acupuncture, but there are few controlled clinical studies. Methods and research designs have been issues of debate among acupuncture clinicians and researchers (Margolin, Avants, & Kleber, 1998). Other issues are as follows: the validity of previous research studies that did not control subjects with randomized assignment, the use of specific point locations for needle insertion, the degree of blinding among research subjects, and bias checks.

2. Traditional diagnostic process

The ancient theory of traditional Chinese medicine was first recorded in the “Yellow Emperor’s Classic of Medicine,” the oldest known book about Chinese medicine and one of the earliest known medical texts (also known as “Plain Questions and the Canon of Acupuncture”) that was compiled sometime before 200 BC. The book was a summary of medical ideas and techniques on medical anatomy and physiology of the previous millennia (Hu, 2004).

Traditional Chinese medicine is based on the concept of the flow of energy or Qi (“chi”) through meridian pathways in the body. A decision for intervention is based on a
diagnosis by pulse, and a conceptualization of the strengths and weaknesses is made within the concept of five elements (Hu, 2004). Qi flows through each of the 12 main meridians, which represent a major organ system, and on these meridians are 365 acupuncture points. When yin and yang are out of balance, Qi becomes blocked, leading to illness. Diagnosis depends upon what is perceived to be out of balance—usually an excess of yin or yang energies—as all meridian points are associated with yin and yang. Usually, a three-level pulse diagnosis on the wrist related to the body’s major organs is performed; an eye diagnosis looks at the quality of the iris and at the sclera for discoloration; a cursory physical examination, usually visual only, assesses overall health and weight/muscle mass distribution. This is the traditional protocol, and other Asian countries have adopted variations to this. “Oriental diagnosis” was popularized in the west during the early 1970s by Japanese Nyoiti Sakurazawa (aka George Oshawa) and Michio Kushi (Tara, 1976). The western concept of homeostasis is another way of viewing the traditional Chinese medicine diagnostic process.

Both China and the west have been diligently putting this ancient healing technique under the scrutiny of scientific analysis. Acupuncture needles hooked up to a very mild electrical current, known as electroacupuncture, has also emerged as a trend (Cai, 1980; Choy et al., 1978).

The earliest reports looked at ways to explain the acupuncture phenomenon to western scientists. Two studies (Gunn, Ditchburn, & King, 1976; Matsumoto & Lyu, 1975) reported a high correlation between acupuncture point loci and peripheral nerve location. Brewington, Smith, and Lipton (1994), in their review, summarized that several researchers (e.g., Bergsman & Wooley-Hart, 1973; Brown, Uleh, & Stern, 1974; Reichmanis, Marino, & Becker, 1976; Rosenblatt, 1981) concluded that acupuncture points are anatomically unique points of low impedance on the skin and can be located with a sensitive ohm meter; in addition, it has electrical potential higher than those of surrounding areas (Wensel, 1980, as reported in Brewington et al., 1994).

3. Materials and methods

A keyword search was conducted utilizing the EBSCO search engine through the University of Maryland University College’s online library resources. The keyword search was conducted in January 2006 using the following databases: Academic Search Premier, CINAHL, ERIC, MEDLINE, PsycARTICLES, PsycBOOKS, PsycEXTRA, Psychology and Behavioral Sciences Collection, and PsycINFO. No dates were used as limiting parameters. Two keyword searches were used and checked against each other. The keywords in the first search were “acupuncture” in all default fields AND “opiate” in all default fields. The second search used “substance abuse treatment” and “acupuncture.” Comments and replies were not included; only review articles and clinical trials were reviewed. Past review articles are briefly summarized here, but the main body is based upon clinical trials.

4. Results

4.1. Issues in acupuncture treatment

Acupuncture has historically been used for just about everything. But more recently, western scientific methodology has appeared in acupuncture research in several countries such as Singapore (for a host of treated diagnoses such as Parkinson’s disease; Tan et al., 2005), Denmark (for the treatment of postpartum depression; Rusted & Jorgensen, 2005, Danish abstract only), and Japan (for effective treatment of chronic pain; Arita et al., 2004).

Some of the wide research applications of acupuncture include the following: variability in clinical response, where analgesic tolerance has been identified as a likely limitation (Chevlen, 2003); the need for a common treatment protocol based upon traditional Chinese medicine, as has been made with the National Acupuncture Detoxification Association protocol (D’Alberto, 2004); and context of treatment in determining differences in outcome measures (Margolin, Avants, & Holford, 2002).

Brewington et al. (1994), in their review, reported that previous research (e.g., Patterson, 1974, 1975, 1976; Wen & Cheung, 1973a, 1973b, 1973c) “reported that electrical stimulation appeared crucial in alleviating withdrawal distress with substance abusers, and that needle insertion and the use of traditional acupuncture point locations were also not of critical importance in alleviating withdrawal symptoms. Empirical evidence supporting this claim has apparently not been published” (p. 290).

According to a review by Clayton (2005), in general, meta-analyses have not demonstrated a significant efficacy of complementary and alternative medicine therapies: pharmacological and biologic treatments such as herbal therapies; dietary supplements; natural hormones; health and healing practices such as hypnosis, meditation, yoga, biofeedback, exercise, and chiropractic or massage therapy; and nontraditional medical systems such as acupuncture.

4.2. Adverse events of acupuncture

In a review of the research literature, Ernst and White (2001) determined the range of incidence of adverse events associated with acupuncture. The results were not uniform, but the most common adverse events were needle pain (1–45%) from treatments, tiredness (2–41%), and bleeding (0.03–38%). Fainting and syncope were uncommon, with an incidence of 0–0.3%. Feelings of relaxation were reported by as many as 86% of patients. Pneumothorax was rare, occurring only twice in nearly a quarter of a million treatments. Their conclusions were that, although the
incidence of minor adverse events associated with acupuncture may be considerable, serious adverse events are rare.

4.3. Accurate application

Another issue in acupuncture treatment has been the accuracy of meridian points used in scientific research, leading to confounding results for acupuncture research. The first study by Brown et al. (1974) reported only techniques for location. Recently, several authors from South Korean universities (Yin, Park, Seo, Lim, & Koh, 2005) evaluated two traditional methods of point location: directional (F-cun) and proportional (B-cun). These are collectively called the cun measurement system. They suggest that differences in results may depend upon racial physiological differences between Europe and Asia, as measurement is based upon the length of an individual practitioner’s index finger joint length in B-cun. Their conclusions were that the F-cun method is unreliable and that further research should be conducted to determine a more accurate point-locating method primarily based on the B-cun method.

4.4. Drug addictions

The earliest writers in western-oriented professional journals on acupuncture for the treatment of substance abuse were Wen and Cheung (1973a, 1973b, and 1973c). They reported that acupuncture alleviated withdrawal symptoms in an opiate-dependent patient treated with electroacupuncture while undergoing surgical analgesia for another disorder. But, in the history of narcotic withdrawal treatment, there have been many "cures" enthusiastically received and then quietly dropped after turning out to be either ineffective, dangerous, or both (Kleber & Riordan, 1982).

Today, acupuncture treatment is almost always in conjunction with drug counseling. Previous reviews (e.g., Moner, 1996) were supportive of acupuncture as a safe effective treatment for addictive diseases with opiates, alcohol, cocaine, and nicotine. Auricular acupuncture is the most common form of acupuncture treatment for substance addiction in both the United States and the UK (D’Alberto, 2004; Margolin, 2003; Margolin et al., 2002); auricular acupuncture is the bilateral insertion of needles in the outer ears.

4.5. Evidence for acupuncture as treatment for drug addiction

Early research began by looking at the phenomenon of the analgesia effects of acupuncture that demonstrated similarity to those of endorphins and enkephalins (Chapman & Benedetti, 1977; Clement-Jones et al., 1979; Pomeranz & Chiu, 1976).

According to Severson, Markoff, and Chun-hoon (1977), the first clinical report of acupuncture for the detoxification of heroin- and opium-addicted patients in the professional literature was the study of Wen and Cheung (1973b), which was carried out in Hong Kong. Severson et al. performed a follow-up project in Hawaii under the supervision of Wen. The clinical trial had a small sample and had limited success. The methodology did not include the blinding of subjects, or a control group. “Of the eight patients, five were detoxified successfully; one elected to leave the hospital before detoxification was finished, and two had poor relief of symptoms and were switched to methadone-assisted detoxification” (p. 915).

There is evidence on both sides of the fence regarding the efficacity of auricular acupuncture treatment for drug-addicted patients. Some research studies support the viability of the method (Avants et al., 1995; Gurevich, Duckworth, Imhof, & Katz, 1996; Margolin et al., 1998; Timofeev, 1999), whereas others cast doubts (Bullock, Kiresuk, Phaley, Culliton, & Lenz, 1999; Otto, Quinn, & Sung, 1998).

Avants et al. (1995) laid the methodological foundation for research in acupuncture treatment for cocaine-addicted (and opiate-addicted) patients. They conducted a 6-week single-blind study of acupuncture for cocaine dependence in methadone-maintained patients (N = 40) to identify an appropriate needle puncture control for use in future large-scale clinical trials. They found an overall positive response to treatment on a variety of drug-related and psychosocial measures. Among cocaine-addicted patients, abuse decreased significantly for patients, and the only statistically significant difference between the two types of needle puncture used was on ratings of craving. They went on to suggest that very large sample sizes would be required to detect treatment differences between the control condition and active acupuncture.

Otto et al. (1998) performed a pilot study on auricular acupuncture as an adjunctive treatment for cocaine addiction and found no significant difference between treatment and control groups. They did point out that the patients, as a whole, remained in treatment longer than a retrospectively analyzed group that received no acupuncture.

Looking at electroacupuncture, one of the earliest researchers to use this technique in methadone withdrawal was Gomez and Mikhail (1978). At times, opiate and electroacupuncture research included two treatment variables, which made it difficult to sort out differences (e.g., Kroening & Oleson, 1985). In addition, Cai (1980) demonstrated that strong pain consists of sensory and emotional components, both of which can be influenced by electroacupuncture; in addition, Cai found that electroacupuncture has an analgesic effect on both components, but the effect is more marked in emotional components. But others questioned electroacupuncture and the predetermined classic Chinese acupuncture treatment by looking at objective criteria to define points for needle insertion in cocaine-abusing subjects. Margolin, Avants, Birch, Falk, and Kleber (1996) did not recommend the use of electrical devices for point determination. They felt that there was
lithium. In a pre–post acute withdrawal stage method, the
was given an oral administration of lofexidine hydro-
ulization in the treatment of heroin withdrawal syndrome. One
was to make a technical standard for acupuncture manip-
treatment of heroin withdrawal syndrome. Their objective
clinical application of acupuncture on 220 subjects for the
4.6. Evidence against acupuncture as treatment for
drug addiction

Bullock et al. (1999) performed a single-blind, random-
ized, placebo-controlled study to evaluate auricular ac-
puncture in the treatment of cocaine addiction. Their study
had 236 residential and 202 day treatment clients. Treatment
group subjects received acupuncture at three ear points
considered specific for the treatment of substance abuse. They did not find any significant treatment differences
between true and sham acupuncture, and their control
psychosocial groups. They also found no differences among
the three dose levels of true acupuncture.

Margolin et al. (2002) gave the best evidence against the
use of acupuncture as treatment for drug addiction. They
demonstrated in a clinical trial that auricular acupuncture
treatment for cocaine- and opiate-addicted patients is neither
a stand-alone treatment nor of great benefit. In a compre-
hensive study that contained two-thirds cocaine-only-
dependent subjects and one-third cocaine/opiate-dependent
subjects (receiving methadone treatment), Margolin et al.
purged a cap on the issue and on the methodological problems
previously reported. This was a follow-up to a previous
smaller study (Avants, Margolin, Holford, & Kosten, 2000)
by primary researchers at Yale University. This large well-
designed study (a randomized, controlled, single-blind
clinical trial conducted from November 1996 to April
1999) found no significant evidence for acupuncture being
a more effective treatment than controls. The controls
consisted of neutral needle insertion and relaxation techni-
que. Their conclusion was that auricular acupuncture
treatment does not warrant a stand-alone treatment for
cocaine or opiate addiction (i.e., one third of their subjects).

In addition, a review of six acupuncture trials conducted
by D’Alberto (2004) could not confirm acupuncture to be an
effective treatment for cocaine abuse (alone). D’Alberto
reviewed several databases to answer the question: “Is
acupuncture effective in the treatment of cocaine addiction?”
D’Alberto made sure to exclude some parallel forms of
treatment that also use acupuncture meridian theory, such as
moxibustion, laser acupuncture, transcutaneous electrical
nerve stimulation, and electroacupuncture. The review
focused only on people addicted to cocaine (their main
addiction) and on needle acupuncture, either in a single-
blind or a double-blind process, using randomized subject
procedures and a reference group incorporating a form of
sham points. The results found a relatively adequate
methodology quality in clinical trials, but did not yield a
statistically significant association.

5. Discussion

Acupuncture treatment does not demonstrate the type of
qualitative and quantitative research needed to validate its
efficacy in the treatment of opiate-addicted (or cocaine-
addicted) patients. An explanation of past reports on the
positive, albeit limited, effects of acupuncture with addicted
patients probably was due, in large part, to synergistic
placebo effects. Whatever other treatments were ongoing at
that time, such as counseling, treatment milieu, or support
groups, probably provided some of the positive outcomes.
This conclusion comes from the lack of controls in
supportive clinical trials, where other variables such as
counseling and milieu were not methodologically controlled.
This author speculates that, with the addition of exotic (to westerners’ minds) acupuncture treatment, a certain placebo effect synergized with other modalities, and the result was a limited positive effect. One should not underestimate the power of placebo in working toward humans’ capacity for recovery. However, when well-run methodologically sound studies are painstakingly administered, the placebo effect becomes apparent and the minimal efficacy of acupuncture in opiate addiction can be demonstrated.

As far as recommendations go, the author agrees with Carol and Rounsaville (2003), who point out the glaring problem in substance abuse research: Behavioral treatments, for which there is strong empirical support, have rarely been implemented in clinical settings. This is partly because a reductionistic behavioral approach does not typically work with a diagnosis per se, but rather with a specific defined behavior. In addition, part of the problem is that a behavior can occur in the context of several diagnoses, as well as before, during, and after any given treatment. There needs to be a cognitive component to the behavioral approach to articulate an association with pathological epidemiology.

After 33 years of active research by both Asian and western scientists, the evidence is just not there to support acupuncture as a central treatment for opiate or any other drug addiction. Supportive research that continues to come from China needs to be translated to see if the methodology is equivalent to western nonsupportive research. Therefore, the conclusions of the clinical trials in this review are limited to English professional journals.

In order for a new treatment to be accepted and marketed, there needs to be robust scientific research with successive positive outcomes. When Prozac (fluoxetine; Eli Lilly and Co., Indianapolis, IN) hit the market, it quickly took off, developing into a panacea; despite some minor setbacks, it becomes apparent and the minimal efficacy of acupuncture for the treatment of cocaine addiction. Investigation of a needle puncture control. Journal of Substance Abuse Treatment, 12, 195–205.


