

Acupuncture and Smoking Cessation Studies

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Introduction

“Overall there is not sufficient evidence to rule out an effect of acupuncture, acupressure and laser stimulation on smoking cessation. We should consider their possible mechanism of action in relation to justifying further research.” (White 2011) Studies exploring the possible mechanisms of action for acupuncture include: animal experiments easing the effects of withdrawal symptoms, opioid peptide release during administration of acupuncture to relieve withdrawal symptoms in humans; modification of nicotine-induced locomotor activity and neural activity in the nucleus accumbens. Other studies suggest that acupuncture may modulate dopamine release via GABA mechanisms, serotonin release, or the release of dopamine directly. (White 2011)

Studies regarding acupuncture have traditionally been of poor study design as there is much controversy over how to best set up a methodological study to evaluate the efficacy of acupuncture. Arguments abound regarding sham acupuncture control groups which pierce the body at sites that are considered by some to be inactive. These same inactive sites are considered by others to be active medicinal sites. Studies have been flawed by efficacy of practitioner, study size, practitioner/patient interaction time, decreasing power of study secondary to subjects being lost to follow up, different styles of acupuncture being used in a single meta-analysis, and inadequate frequency and duration of treatment. The methodology of acupuncture studies is an ever-evolving field.

That being said, the focus upon my research regarding Acupuncture and Smoking Cessation is in regards to the frequency of treatment and duration of treatments received for smoking cessation studies. Thus far, there is no conclusive evidence to recommend the use of acupuncture in smoking cessation.

My argument is that while the studies to date have not been good quality studies in many respects, their frequency and duration of treatment are wildly ineffective. I would like to focus on the overarching theme that the studies to date often do not describe the frequency or duration of acupuncture treatment or when described do not have an adequate frequency or duration of treatment to truly test the efficacy of acupuncture in smoking cessation.

References

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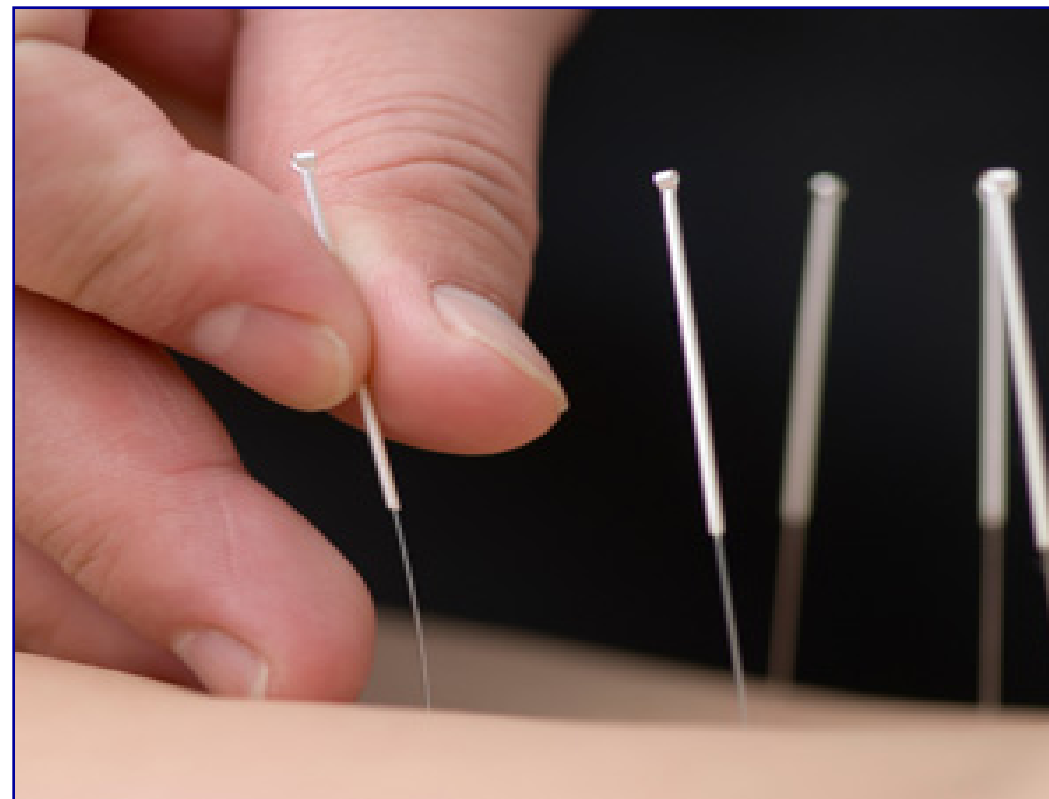
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Results

While there are many flaws discussed regarding acupuncture studies and smoking cessation, I will reiterate that the specific study flaw regarding Acupuncture and smoking cessation that I am focusing upon is frequency of treatment and duration of treatment. By frequency of treatment, I am defining this as the number of treatments a patient receives in a week. By duration of treatment, I am commenting upon the number of weeks that patients undergo acupuncture treatments. One of the earlier meta-analyses considering this subject, G ter Riet, et al in 1990, compared efficacy of acupuncture in smoking, alcohol, and heroin addiction. This meta-analysis comprised 27 controlled studies and came to the conclusion that acupuncture was ineffective for treatment of addiction. There was no comment in this study regarding the frequency of treatment or duration of therapy. The meta-analysis acknowledged that many of the studies were of poor quality.

A well designed single blind placebo controlled trial published by Norma Waite and Joanne Clough found in 1998 that 12.5% of smokers treated with electric stimulation auricular acupuncture stopped smoking at six month follow up. This study used a single 20 minute treatment with placement of ear seeds which the patients could leave in for as long as they desired. Average ear seed retention in the study subjects was 5 days. The follow up smoking cessation evaluation was at 6 months and was biochemically validated with urinary cotinine testing. The p value was p=0.055 which is statistically insignificant.



A 2011 Cochrane review by White, et al, included all studies where acupuncture, acupressure, laser therapy or electric stimulation were given alone or as an adjunct to other interventions. Different acupuncture approaches were considered such as body, face, auricular, and electric stimulation. They compared short and long term outcomes for the studies. In this study, the authors theorized at one point that a control group in which no needle insertion was performed would be a possible ideal study design. The Cochrane review discusses 33 studies comparing acupuncture to sham-acupuncture. However, neither frequency of treatment nor duration of treatments are discussed in any meaningful way in the review.

Interestingly, In this review, 12 studies which measured short-term outcomes of acupuncture compared with sham acupuncture combined statistically to give an overall positive result (RR 1.18, 95% CI 1.03 to 1.34) “We found evidence of the efficacy of acupuncture compared with sham acupuncture immediately after the intervention with a RR of 1.2, though the efficacy was not evident at the long term follow up.” (White 2011)

Many studies in the 2011 Cochrane Review used three weekly sessions, or indwelling needles over at least two weeks during the time in which the subjects were planning to quit smoking.

It is important to compare studies regarding acupuncture and smoking cessation to studies using methods such as nicotine replacement and chantix. In a 2008 Cochrane Review by Stead, et al, regarding nicotine replacement therapy for smoking cessation, a meta-analysis of 132 studies was performed with over 111 studies including over 43000 participants. In this meta-analysis the relative risk for smoking cessation was 1.58 (95% CI from 1.50 to 1.66). The Nicotine replacement study included gum, patches, nasal spray, inhalers and lozenges. The overall meta-analysis stated that having more than 8 weeks of nicotine replacement therapy was no more effective than having 8 weeks of therapy.

In a 2012 Cochrane Review, Stead, et al, entitled, “Nicotine Receptor Partial Agonists for Smoking Cessation,” the average time of use of medications such as chantix was 12 weeks. The pooled relative risk for continuous or sustained abstinence at 6 months or longer for varenicline vs placebo was 2.27 (95% CI 2.02 to 2.55; 14 trials, 6166 people).

An interesting smoking cessation and acupuncture study model by Bier, et al, in 2002, 141 subjects were placed into auricular acupuncture vs acupuncture and education vs sham acupuncture and education groups. The study involved five acupuncture or sham acupuncture treatments over four weeks for a total of 20 treatments. The number of participants in the acupuncture group that quit smoking after the four weeks of acupuncture was 40% with a p=0.023. There was an overall decrease in the amount of cigarettes smoked in the acupuncture group throughout the study with a p=0.03, measured with follow up from 3, 6, 12, 15 and 18 months. This study lost power with time due to poor follow up which are assumed to be relapsed smokers.

Conclusions

If possible mechanisms of acupuncture being successful are indeed along various aforementioned potential neurotransmitter pathways, then, it seems reasonable to give the acupuncture trials an appropriate amount of frequency and duration to be effective.

My recommendation for a study design would include having eight weeks of acupuncture treatments. During the first week of smoking cessation have five treatments per week lasting for 45 minutes. For the following two weeks have four thirty minute treatments. Then, have three thirty minute treatments for the following five weeks.

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Methods

Initially, my search began with a PubMed search using “Acupuncture” and “smoking cessation”. This returned 43 articles that were reviewed. Articles that were commentaries upon other articles were considered, however, not included in the research. I specifically looked for Cochrane Review articles searching for “acupuncture” and “smoking cessation”. As my research crystallized, I reviewed Cochrane reviews regarding nicotine patches and Chantix for smoking cessation. I also reviewed the Surgeon General’s report [Nicotine Addiction: Past and Present](#). Published in 2009.