A literature search on substance misuse, drug, smoking and alcohol addictions yielded the following controlled clinical studies: 13 studies on drug misuse, 20 studies on smoking cessation and 4 studies on alcohol misuse. These limited experimental studies are reviewed and considered in this briefing paper. Although research on the efficacy of acupuncture and drug misuse is still at an early stage, evidence for its efficacy is encouraging. However, the methodological weaknesses found in acupuncture research can also be found in most substance abuse research. (1) Sufficient early trial and empirical findings suggest that there are positive treatment effects. Indeed, the use of the treatment is very popular and the method documented as quick, safe and potentially as useful as an addition to addiction services. (1,2) Further research is essential and consensus reached on how such trials should be conducted and to determine how acupuncture can be best incorporated into comprehensive substance abuse programmes.

Introduction

Both traditional whole body acupuncture and auricular acupuncture have been used to treat people who have problems with addictions to drugs, alcohol and cigarettes. The use of auricular acupuncture in treating acute drug withdrawal is relatively recent, with Wen and Cheung in Hong Kong in 1973 (3,4,5) first describing the effects of acupuncture in alleviating the severity of opiate withdrawal symptoms. The practical application of acupuncture in the traditional drug treatment setting evolved at New York’s City Lincoln Hospital during the 1970’s (6). As a result, many acupuncture programs based on the Lincoln protocol were established world wide in a variety of settings. The work was extended to the treatment of other substance misuse disorders such as addiction to cigarettes and alcohol.

The Lincoln protocol is relatively simple. Five small needles (shen men, ‘sympathetic’ ‘kidney’, ‘liver’ and ‘lung’ on each ear) (7) are inserted at points regarded as specific for chemical dependency (8,9). Many acupuncturists do not restrict themselves to ear points, but use certain body points as well. The technique aims to relieve withdrawal symptoms and craving, general relaxation and improvement in mental and physical functioning. Treatments last 30-40 minutes and client progress is monitored by regular urine analysis. Acupuncture treatment offers the client support during acute and post acute withdrawal through the relief of classic symptoms. Up to 50 people can be treated in one hour and the programme has claimed considerable success in retaining difficult to treat drug
users i.e. out of 1,500 crack clients between 1986-1988, more than 80% were retained after their first treatment (Lincoln Hospital unpublished 1988).

In 1985, the National Acupuncture Detoxification Association was formed. The organisation was to assist practitioners to acquire the skills to develop Drug and Alcohol programmes. In 1986, auricular acupuncture was introduced into the UK by John Tindall and is currently used in various drug agencies, particularly in London e.g. Core Trust, Angel Drug Project, City Roads and the Stockwell Project.

In October 1991, the National Institute on Drug Abuse (NIDA) sponsored a technical review to discuss the efficacy of acupuncture for the treatment of substance abuse (10). The current status of research and directions for future study were discussed. It was agreed that although potentially useful, studies provided equivocal results because of design, sample size and other factors and that further research was needed. However, it was felt that acupuncture was a safe, effective and inexpensive treatment for addictive diseases, being easily administered and producing significant results.

**Literature Search**

Following a search on ARRCBASE and Medline using the key words addict*, detox*, substance abuse, substance dependence, narcotic dependence, alcohol, smoking and tobacco. Further literature was retrieved from the references identified in the publications obtained. A total of 100 references were identified concerning use of acupuncture and substance misuse. ARRCBASE is a specialist acupuncture database built up by the Acupuncture Research Resource Centre. The database contains articles relevant to Chinese Medicine and acupuncture from the British Library’s AMED (Alternative Medicine Database) and the American Medline databases. Of the references retrieved, papers were excluded for one of the following reasons, they were in a foreign language, were predominantly related to treatment and not treatment evaluation and 4 were excluded because they did not involve insertion of needles (11-14) and one article (15) was published twice. A total of 27 review articles were retrieved which commented on various studies. Only controlled studies were included in the evidence review if they met the following criteria: human subjects addicted to either drugs (13 studies included), cigarette smoking (20 studies included) or alcohol (4 studies included) were studied, a reference/control group was used (i.e. controlled trial design), needles, press needles, staples or electro-acupuncture were used in the acupuncture treatment.

**DRUG MISUSE**

**Introduction**

Drug treatment can be divided into the stages of detoxification, rehabilitation and relapse prevention. Acupuncture has been used for all stages of drug treatment. Detoxification refers to the initial phase of treatment when a client is experiencing the direct effects of drug tolerance associated with chronic drug use. The therapeutic goals are to counteract the effects of drug withdrawal and return the individual to a relatively ‘neutral’ or ‘normal physiological state. This stage usually requires approximately 3 to 7 days of treatment. (2) Rehabilitation is the second
stage of treatment for substance dependence and begins after detoxification. This stage involves a combination of procedures designed to educate the patient about the negative effects of drugs and alcohol, motivate the individual to admit the substance abuse is a problem and to develop effective strategies for sustained behavioural change. This stage varies in duration and treatment setting from 15-90 days or more. Relapse prevention is the third stage of treatment and begins near the rehabilitation phase. The goals are to maintain the gains achieved in earlier phases of treatment and to develop strategies for resisting the temptations to use drugs in the future.\(^{(10)}\) The greatest challenge in the treatment of substance abuse is relapse (its prevention and management).\(^{(1)}\) There is much anecdotal evidence in the literature for acupuncture’s success in almost all drug addicted clients at almost all stages of treatment. For detoxification, acupuncture has been used to relieve physical symptoms of withdrawal. During the rehabilitation phase, acupuncture is used to reduce dysphoria and induce a general state of relaxation. For relapse prevention, it has been used to encourage relaxation and relieve or prevent symptoms of drug craving.\(^{(10)}\)

**Specific Studies**

In one of Wen’s initial studies on acupuncture and substance abuse, naxolone (analgesic medication) and ear acupuncture were combined.\(^{(16)}\) At one year follow up, 51% of the subjects in the treatment group were drug free. Subsequent studies used electro acupuncture where the patient adjusted the stimulation themselves.\(^{(3,4)}\) The number of treatments varied according to the needs and responses of the individual patients and the relief of withdrawal symptoms commonly found. The research methods, however, lacked rigour. Pomerantz reported five successful replications of Wen’s findings.\(^{(17)}\) Smith’s research in the late 1970’s resulted in the establishing the standard for treatment due to his reported clinical experience with many cases.

**Cocaine**

In a 6 week, single blind study of acupuncture for cocaine dependence in methadone maintained patients (n=40) patients were randomly assigned to receive daily acupuncture in 3 auricular sites and 1 body site (Li4), or at control sites within 2-3 mm of 4 active sites.\(^{(18)}\) Cocaine use decreased significantly for patients in both groups. The only statistical difference between the two types of needle puncture was on ratings of cravings. Power calculations on the basis of these findings suggested that very large sample sizes would be required to detect treatment differences. Margolin et al 1993 used a single blind study design (n=48) to compare the sensations experienced when needles were inserted into sham and real auricular acupuncture points\(^{(15)}\). Both ears were needled, one in sham sites and the other in active sites for cocaine addiction. Subjects completed a questionnaire rating the sensations in the ear and identifying which ear had received real acupuncture. Real points were perceived as more painful than sham points but this outcome was just as likely to have arisen by chance.

The effect of auricular acupuncture in reducing cocaine/crack craving and consumption was examined via a single-blind, placebo trial of 150 people seeking treatment\(^{(20)}\) for cocaine addiction. The authors reported that counselling should have been included in the treatment as this is required to affect the psychosocial factors that may lead to relapse. Patients were randomly assigned to experimental
or placebo acupuncture treatments. Treatments were provided in an outpatient setting for one month. Placebo treatments involved needle insertion at points not used for drug treatment. Outcome measures included a reported drug use, attendance, urine drug screens and an Addiction Severity Index measured at each treatment session. Within a two week period, the treatment group had significantly lower levels of cocaine in their blood relative to the control group. Treatment retention was the same for both.

Another randomised controlled trial was carried out in 1995 on 98 subjects abusing cocaine. The long-term effects of the 5 needle NADA protocol was superior to the effects of a one needle auricular treatment. The study also demonstrated the benefits of using an integrated treatment approach within such a programme.

A single blind study of auricular acupuncture was conducted in 36 cocaine dependent in patients in a substance abuse treatment unit to determine whether the treatment could help reduce craving, increase treatment retention and prevent relapse. Although there was regular assessment of both treatment and control groups, the study failed to show a significant difference even though the group receiving acupuncture remained in treatment longer than those who received no acupuncture.

In 1999, the treatment of cocaine addiction using a single blind, randomised, placebo-controlled design was evaluated using two linked but concurrent studies. The first study randomised 236 residential clients into three groups, true acupuncture, sham acupuncture and conventional treatment without acupuncture. The treatment group received acupuncture at three points considered to be specific for the treatment of substance abuse. Control subjects were treated with 3 non specific sham points. The second study randomised 202 day patients into one of three dose levels of true acupuncture (28, 16 or 8 treatments). Subjects received acupuncture at five rather than three specific ear points. Non specific sham points were not used in the second study. The data failed to show any significant treatment differences between the three groups and no differences were observed among the three dose levels of true acupuncture groups. Relative to pre-treatment usage, a significant decrease in cocaine consumption was reported by both groups.

**Heroin**

One of the first trials was carried out by Wen and Teo and compared drug abstinence in an ear acupuncture group and a methadone group. The acupuncture group were nearly twice as likely to be free of drugs at 1 year but no statistics were provided.

Man and Chuang in 1980 employed a controlled trial methodology to compare electro acupuncture and methadone and assigned subjects to the treatments, but failed to say whether this was randomised. They did however within the study assess subject’s withdrawal symptoms and was not blinded and there was an 83% drop out rate and therefore follow up invalid.

In a electro acupuncture study by Newmeyer et al subjects were allowed to pick the treatment they wanted; acupuncture, acupuncture and medications and medications. A questionnaire profiling subjects’ mood states were given several times during the trial. There were less withdrawal symptoms in the acupuncture group related to pain and psychological states such as depression, irritability or anxiety. There was also less evidence of drug use in the urine drug screens in the acupuncture group.
Clark's controlled trial of detoxification of people taking opiates compared acupuncture with methadone and failed to produce a significant difference between the two groups although the acupuncture group was more likely to have drug free urine at 90 day follow up. (26)

A controlled study of detoxification for addiction to heroin randomly assigned 100 addicted persons in a single blind design (27), to the standard auricular acupuncture treatment used for addiction, or to a sham acupuncture treatment that used points that were geographically close to the standard points. Attrition was high for both groups (only 20 subjects completed the study), but those assigned to the standard acupuncture treatment attended the acupuncture clinic more days, reported less heroin use, had less evidence of drug use in urine drug screens and stayed in treatment longer than those assigned to sham treatment. Self-reports of frequency of drug use suggested that those with lighter habits (those using heroin once daily or less) found the treatment modality more helpful. Although this study was an encouraging preliminary study, the sample size was small and the self-report nature of the outcome measures preclude any definitive conclusions.

Multi substance abuse

Patients with substance abuse problems admitted to a psychiatric unit over an 11 month period were offered auricular acupuncture (28). Out of 77 patients offered the treatment, 30 refused or had fewer than 4 treatments (control groups) and 47 had acupuncture 5 or more times (treatment group). The treatment group did significantly better than the control groups with 75% compliance with psychiatric/substance abuse treatment versus 20% respectively. Average inpatient stay was 22 days for the treatment group compared with 16 days for the control group. The treatment group were also more likely to stay in follow up treatment for at least 4 months than the control group i.e. 58% vs 26%. This study obviously has an inherent bias, due to the choice of the control group.

Reviews and meta analysis

Ter Riet (29) identified 5 controlled clinical studies on heroin use (16,24,25,30). Although four reported positive results (16,25,30,31), their methodological quality was rated as poor and it was felt that the research did not support the efficacy of acupuncture in the treatment of substance misuse. The reference groups did not all receive a sham acupuncture, the patients were not blinded to the treatment, nor were they randomly allocated to their treatment groups.

Conclusion

Since Wen and Cheung's initial reports, numerous descriptive studies citing the effectiveness of acupuncture and/or electro-acupuncture as a detoxification treatment for opiate addiction have appeared in the literature (32-45). Much of this research including Wen and Chung's (3-5) study have been severely criticised in previous reviews for a variety of methodological reasons: the lack of adequate experimental controls and comparison groups (10,14,46,47), the appropriateness of selecting a placebo and the double blind procedure (10). Following the meta analysis of Ter Reit et al 1990 (29), Brewington et al 1994 (48) conducted a comprehensive review of acupuncture treatment of substance misuse and concluded that the findings did support a role of acupuncture as an aid to treatment of substances abusers. Their review included anecdotal reports, animal studies,
studies of human heroin, cocaine and alcohol users in which some form of placebo was used, comparisons of acupuncture with methadone detoxification in opiate addicts and, studies of acupuncture analgesic effects.

Although acupuncture has been incorporated as a treatment component in various drug addiction programmes for over 20 years, its efficacy has not been demonstrated in large scale controlled trials. The critical issues to be addressed in such a trial include the choice of appropriate controls conditions, point location for needle insertion, degree of blinding and bias checks. Margolin et al 1998 have discussed these issues in their article on planning a randomised, controlled trial of acupuncture for cocaine addiction and how they plan to overcome them. However the above studies indicate that acupuncture may produce a significant effect in terms of treatment retention when compared with sham or placebo procedures and lighter users attend the clinic more days and over a longer period of time than those with heavier habits. The limitation for many of these studies was the high attrition rate for all groups and the lack of resources to carry out long term follow up of cases. Additional research is needed to determine how best acupuncture can be incorporated into comprehensive substance abuse treatment programmes.

SMOKING CESSATION

Introduction

Smoking is the largest single cause of preventable death in industrialised countries. People who stop smoking live longer than those who continue to smoke and their risk of developing lung cancer, heart disease, stroke and respiratory illness decreased. Cigarette smoking however remains a difficult habit to break with many smokers trying several times before they can successfully stop. As a result, assistance is sought from a wide variety of professionals.

Acupuncture is a popular treatment often used as a treatment for smoking cessation and is believed to reduce associated withdrawal symptoms. The use of acupuncture originated from the work described above on drug addicts in Hong Kong. The data on effectiveness are, however contradictory. Uncontrolled studies have suggested an effect on smoking cessation. Some investigators claim very high rates of success but often this is not based on sound methodological assessments. Uncontrolled studies have claimed a smoking cessation success rate of 61-95%.

Specific Studies

Many of the studies on smoking cessation are not comparable. Protocols vary as to the location and number of needles, the frequency and duration of treatments, the method used (staples, needles, lasers, electrical stimulation) and the definition of placebo (sham acupuncture, self-monitoring) that are known to produce treatment effects. The severity of smoking behaviour, motivational characteristics and the lack of long term follow up and small sample sizes are the other criticisms that have been made.
A study in 1977 of 92 subjects who had smoked more than 15 cigarettes for 3 years were randomised into two groups, an indwelling needle in an active point (lung) for 1 week and an indwelling needle in an inactive auricular point (kidney) for 1 week. (51) At 1 week those receiving acupuncture at the active site were more likely to have abstained but at a 3 months follow up abstinence was not sustained.

In 1977, Lacroix and Besancon also used bilateral facial acupuncture weekly for 3 weeks and compared it with sham acupuncture. (52) The method of randomisation was not stated in their paper, but they demonstrated a significant effect, with 74% of the acupuncture group stopping smoking compared with 29% of controls. No long term follow up was reported.

Parker and Mok also in 1977 compared electro acupuncture stimulation to effective auricular points (shenmen and lung) and inactive points (shoulder and eye) over a 3 week period. (53) Although there were indications that the group receiving active treatment were more likely to decrease their cigarette consumption the differences failed to achieve significance.

Tan et al 1978 (54) treating patients three times a week reported a significant decrease in cigarette smoking when comparing the use of laser acupuncture compared with controls in a controlled trial.

In a study by MacHovec et al 1978 (55) acupuncture (using a sutured bead on the ear lobe at the acupuncture site for an indefinite time) was compared with hypnosis in individual and groups sessions and self reported smoking cessation was higher for both acupuncture and hypnosis groups compared with controls. An electro acupuncture controlled trial with 78 volunteers used two needles in either an active or a placebo site and employed self-retained ear seeds. At 6 months, 12% of the active group had stopped smoking compared with 0% of the placebo group (p=0.05). Note this study does not state whether subjects were randomised.

A randomised trial was carried out by Lagrue in 154 smokers. (56) This study employed facial acupuncture which was repeated after 1 week and was compared with sham acupuncture. Although there was no significant reduction between the two groups in the number of subjects achieving abstinence, there was 80% reduction in consumption at 1 week.

Lamontagne et al in1980 (57) compared two types of acupuncture therapy, one aimed at smoking withdrawal and the other aimed at enhancing relaxation and a control group in a randomised controlled trial. There was a decrease in cigarette use in the acupuncture group but the effect did not continue for 1, 3 and 6 month follow up. The poor choice of acupuncture control procedure, since the anti-smoking effect of ‘relaxation’ treatment cannot be ruled out.

A two part study by Martin et al carried a randomised controlled trial comparing indwelling needles to effective auricular points lung and hunger for 3 weeks and electro acupuncture for 20 minutes to points in the hand and ear to ineffective auricular points (elbow and eye) was carried out with 132 smokers. (58) In the second part of the study 128 smokers were randomised into those receiving the ‘effective auricular points and the same ‘ineffective’ points. After 3 weeks there was no significant difference between the groups in either study nor were differences significantly different at 6 months follow up.

In 1982, Steiner et al carried out a randomised controlled trial in 32 subjects in people who had been smoking over 20 cigs/day for consecutively. (59) Acupuncture to genuine body and ear points was given over a two week period and compared to sham acupuncture. No significant difference in immediate cessation was observed between the two groups.
The study by Cottraux recruited 558 subjects who had smoked 10 or more cigarettes for 2 years into a study which compared, behaviour therapy, facial acupuncture, placebo capsules and a waiting list control. Those in the acupuncture and behaviour therapy groups were significantly more likely to stop smoking at 15 day follow up than the placebo group. This difference did not carry over to the 9 and 12 month follow up period.

In a randomised controlled trial of 130 smokers, acupuncture (auricular and whole body acupuncture) and conventional medical treatment were compared. Abstinence and reduction in smoking were assessed over a 12 month follow up.

Gillams in 1984 used an indwelling needle (relaced every week) in 81 subjects who had been smoking more than 50 cigarettes for 5 years. A group of subjects with an indwelling needle in the auricular point for the lung was used for a period of 4 weeks were compared with a group with a needle placed in an inactive point. Group therapy was given each week to both groups. At 3 month follow up there was no significant difference between the groups. This is not surprising given the group of 'hardened' smokers that were included in the study.

Vandevenne et al recruited 200 self referred smokers for a randomised controlled trial where acupuncture (3 auricular and 2 body points) and sham acupuncture were compared. There was no difference between acupuncture and control groups in immediate cessation or at 1 yr follow up.

A study by Clavel in 1985 demonstrated that subjects treated with either acupuncture or nicotine gum showed a better response than a control group. However, there was no difference between the two active treatments, probably as a result of the lack of power. Both were effective in helping smokers to stop, but did not reduce the tendency to relapse over time. In a later randomised controlled trial, Clavel failed to show the efficacy of acupuncture compared with nicotine gum. This was a large study of 996 subjects compared the use of nicotine chewing gum and acupuncture in a randomised controlled placebo trial. Cessation rates one month after the beginning of treatment differed significantly between the groups but the efficacy of acupuncture was not shown. In a later 2x2 factorial design study, the same authors again failed to show a difference in cessation rates between acupuncture and control and nicotine gum and controls at 12 month follow up.

In 1991, Leung's controlled trial compared behavioural therapy with indwelling needles in auricular points in 95 subjects who had smoked for least 1 year. Subjects were followed up at 1,3 and 6 months.

The effects of acupuncture on smoking reduction/cessation and the specificity of points was investigated in 46 healthy men and women volunteers who wanted to stop smoking. Subjects were randomly assigned to one of two groups. One group was given effective acupuncture treatment (the test group) and the other group was given acupuncture treatment at points assumed to have no effect on smoking cessation (control group). Clinical outcome measured included; serum cotinine, serum thiocyanate, serum peroxides and plasma fibrinogen. The daily cigarette consumption fell during the treatment period in both groups but the reduction was significantly greater in the test group (p<0.002). Altogether 31% of those in the test group had quit smoking completely at the end of the treatment compared with none in the control group. For the test group the concentrations of cotinine and thiocyanate were reduced significantly after the treatment period (p<0.001). For both groups the taste of tobacco worsened during the treatment period, but the effect was more pronounced for the test group than for the control group (p<0.05). The desire to smoke fell significantly in both groups after treatment, and the
reduction was larger for the test group than for the control group (p<0.001). There were no significant changes in the serum peroxides and plasma fibrinogen concentrations during the treatment period for either group. The study suggests that acupuncture may help motivated smokers to reduce their smoking or even quit altogether.

In a recent electro-acupuncture study, White et al \(^{(69)}\) observed no significant difference between the mean reduction in withdrawal symptom scores of the two groups between day 1 and day14. i.e.39% (acupuncture group) and 42% (control group). At 9 months, only 3 of those quitting at 14 days were still not smoking. The authors concluded that electro- acupuncture did not have a specific effect in reducing nicotine withdrawal symptoms.

A randomised placebo-controlled trial of 78 smokers were given a single treatment of electro-acupuncture using two needles at either an active or a placebo site plus self retained ear seeds for two weeks in a general practice setting. \(^{(70)}\) The active treatment group were significantly more likely to have stopped smoking than the placebo group at 6 months.

**Reviews and meta analysis**

There have been several reviews and meta analysis carried out in this field usually analysing many of the same papers but in a different way using different acceptance criteria. A review by Schwartz 1988 \(^{(71)}\) found in an analysis of seven studies to analyse a real versus sham acupuncture model, and involving a total of over 5000 patients, gave cumulative results which suggested that real acupuncture works 25% of the time. Sham acupuncture was almost equally effective; cessation rates between 20% and 25% (percentages of people abstinent for 6 months).

A meta analysis by Ter Riet et al 1990 \(^{(29)}\) noted that the negative outcomes exceeded by far the number of positive outcomes \(^{(51,52,54,57,58,59,61,62,63,72,74)}\). The studies with negative outcomes were graded as methodologically superior, though on the whole there was a lack of rigorous and scientific methodology. This criteria based review \(^{(29)}\) concluded that the more rigorous the methodology, the more likely it was to have a negative outcome. A criticism was that the authors were not experts in acupuncture and may therefore have included studies that were unsatisfactory from an acupuncture point of view. In addition, their main conclusion was not that acupuncture did not work, rather that when studies involving real acupuncture and sham acupuncture were analysed, little difference could be detected between the ‘real treatment’ and ‘placebo’. Also, they failed to consider the specificity of the point selection.

A review in 1995 argued that trials in which control subjects were needled in inappropriate sites underestimated the effects of acupuncture, since needling anywhere could trigger the release of endorphins which aid the relief of withdrawal symptoms \(^{(75)}\). Lewith 1995 \(^{(75)}\) concluded that acupuncture is as effective as nicotine replacement therapy and that the site of needle insertion did not seem to be important. The reasoning being that acupuncture non specifically triggers the release of endorphins. The real versus sham acupuncture model is an inappropriate methodology to investigate the value of acupuncture in the context of smoking cessation. However, it must be emphasised that the effects of smoking are equal to that of the best studies demonstrating withdrawal from smoking and a variety of nicotine replacement treatments. Lewith 1995 \(^{(75)}\) states that a formal meta analysis is fraught with difficulties in combining the results of disparate studies which use different time points and techniques. As with acupuncture for most conditions, treatments will need to be repeated on up to 4 occasions and if
the person does not cease or substantially reduce cigarette consumption intake it is unlikely that further treatment is worthwhile.

A more recent review in 1997 was carried out by authors experienced in acupuncture and trial methodology based on a synthesis of best evidence (76). The method of 'best evidence synthesis' (77, 78) employs the greatest internal and external validity using well-specified criteria. It favours effect size over statistical significance. In this review studies were included if they met the following criteria; single-blind controlled design i.e. controls receive sham acupuncture, pre-allocation concealment of randomisation, appropriate choice of control points, more than 25 subjects in each group. The outcome measure was complete sustained cessation of smoking both immediately after treatment and at the longest follow up period. Sixteen controlled trials were identified. (51,52,53,54,56,57,59,60,61,62,63,66,74,78) In two cases, two separate studies were reported. The analysis did not find that the type of acupuncture used was more effective than 'placebo' or 'sham' for smoking cessation. They also concluded that sham acupuncture was an inappropriate control as it was likely to have some physiological effects which are similar to real acupuncture. If significant differences are to be shown, acupuncture trials should have larger sample sizes. Practitioner blinding was another problem identified although the study by Lagrue (52) did manage to achieve this. The authors of the review suggested that research should now be concentrated on: Is electro-acupuncture more successful than simple needle acupuncture? Are other treatment schedules (e.g. different end points, repeated attendances) more effective? Does acupuncture reduce the withdrawal symptoms associated with smoking cessation?

In 1998 a Cochrane review summarised the data on acupuncture for smoking cessation. (79) A total of 16 trials were identified. (51,52,53,54,56,57,59,60,61,62,63,65,72,74,78,79) The authors suggested that acupuncture was not superior compared with sham points for smoking cessation for any time point considered in the review (early after treatment, at 6 or at 12 months). Similarly when acupuncture was compared with other anti-smoking interventions, there were no differences in outcome at any time point. Acupuncture appeared to be superior to ‘no intervention’ at early follow up but this difference was not sustained. The results with different techniques did not show any one particular method (i.e. auricular acupuncture or whole body acupuncture) to be superior to control intervention. The review concluded that acupuncture appears to act only as a placebo in smoking cessation. Future research should concentrate on investigating whether acupuncture can lead to a reduction in nicotine withdrawal symptoms.

**Conclusion**

Many of the initial studies were carried out in France and some authors have not agreed with the choice of control points that were chosen by some investigators. The ‘shoulder’, ‘kidney’ and ‘eye’ points are not thought to be inactive by some, and others have stated that the ‘elbow’ and the ‘eye’ points may be effective as they are innervated by the vagus nerve. Although acupuncture has been claimed to be of enormous value in aiding smoking cessation it is likely that this assumption is probably based on some of the early studies involving hard drug addiction rather than smoking. The site of needle insertion does not seem to be important but acupuncture can trigger the release of endorphins which will help withdrawal from a number of addictions including smoking. (75) It therefore follows that a real-versus sham acupuncture model is an inappropriate manner in which to investigate the value of acupuncture in the context of smoking cessation.
Different types of acupuncture treatments can be used, the most common being the placement of a small semi-permanent needle into an acupuncture point on the ear. Sometimes this is preceded by electro stimulation to promote endorphin release or body acupuncture. There is however, no physiological evidence that acupuncture relieves withdrawal symptoms. The studies described do not demonstrate that acupuncture alone aids smoking cessation but it is thought that it can be a useful technique through which smoking cessation can be promoted. However, acupuncture may act as a ‘placebo procedure’ to help the smoker handle the addictive component of smoking. For sustained abstinence, the psychosocial aspects of smoking must be addressed. Treatment should be tailored to the individual and counselling, skills training may also be needed alongside acupuncture in order to achieve efficacy. As with any smoking cessation method, motivation to quit is necessary for continued abstinence. It is important to emphasise that the effects of acupuncture are equal to the best studies demonstrating withdrawal from smoking with a variety of nicotine replacement treatments.

ALCOHOL

Introduction

Alcoholism is a major health problem in society and its effects range from being a cause of road traffic accidents to increased risk of stroke and mental health problems. There have however, been few controlled trials carried out to value the efficacy of acupuncture to treat people who have problems with alcoholism.

Specific Studies

Four controlled trials on the use of acupuncture in the treatment of alcohol misuse were identified. A randomised trial of acupuncture on 54 hardcore alcoholic recidivists was carried out to investigate whether sobriety could be achieved and episodes of drinking and detoxification centre admissions reduced as a result of therapy. Specific points for substance misuse were compared to non specific points, Patients in the treatment group expressed less need for alcohol (p<0.003), and had fewer drinking episodes (p<0.0076) and admissions to the detoxification centre (p<0.03) during the study than control patients. The majority of treated patients felt that acupuncture had a definite impact on their desire to drink, whereas, only a few control patients noted this effect (p<0.015).

A second placebo controlled study by Bullock investigated 80 severe recidivist alcoholics who received acupuncture either at points specific for the treatment of substance abuse (treatment group) or at non specific points (control group). A total of 21 out 40 of the treatment group completed the programme compared with 1 of the 40 controls. Significant treatment effects persisted at the end of the six month follow-up and more control patients expressed a moderate to strong needs for alcohol, and had more than twice the number of both drinking episodes and admissions to a detoxification centre. The difference in effect size between true and sham acupuncture ranged from 24-36% depending on the measure used and the stage of treatment.

Worner et al described a replication of Bullock’s study. A total of 56 alcoholics, one third of whom had also reported illicit drug use were examined.
 Clients were allocated to one of three treatment groups, specific acupuncture, sham transdermal stimulation or standard care. They used rates of completion of treatment and detoxification as outcome measures. Results showed no significant differences across a number or criteria between the three groups. Once again this study suffered from small sample sizes (20 per group).

More recently Rampes et al carried out a 6 week single blind randomised controlled trial to determine the effectiveness of auricular acupuncture in reducing the craving for alcohol \(^{(83)}\). Groups were randomised to specific electro-acupuncture treatment, non- specific electro- acupuncture treatment or normal treatment. A significant change in craving was observed for both acupuncture groups and a 44% increase in craving for controls at week 8. By week 24, there were no such differences between the groups. Numbers in each arm of the study were however, small.

Reviews and meta analysis

Ter Riet analysis \(^{(29)}\) of two of the above studies \(^{(81,82)}\) concluded that these studies were of insufficient quality and therefore interpretation was not meaningful.

Although the results suggested that acupuncture may be helpful in breaking the cycle of alcohol misuse, the number of subjects was small (less than 50 per group) and the high drop-out rate in the placebo group could have biased the results. In addition, the results were not validated with biochemical measures and self reported data on alcohol consumption.

Following Rampes article \(^{(84)}\), Ter Riet carried out a second analysis based on the criteria used in a previous meta-analysis and confirmed that the study did not provide evidence that electro-acupuncture was efficacious in the treatment of addiction \(^{(85)}\).

Conclusion

Although the studies which evaluated the use of acupuncture in treating people with alcohol problems have been limited., they have on the whole provided positive results. There have been high drop out rates and future studies should focus on the reasons why people drop out and thus limit loss to follow up. The studies considered in this section are very different from each other. For example Worner et al \(^{(83)}\) used several body points in addition to 2 ear points, Bullock used 3 ear points and a hand point. \(^{(81,82)}\) Worner used sham acupuncture but Bullock did not. Worner had a standard-care-only treatment group; Bullock's attended minimal AA style group meetings. The frequency and duration of acupuncture differed as did the length of treatment. The sample sizes were small in both studies. Comparison of these two studies typify the problems in summarising substance abuse acupuncture research in general. The treatments are not comparable, the study design, analysis and sample sizes differ in significant ways. The methodological inadequacies make it difficult to interpret the results which are thought to be inconclusive when considered in meta analysis.
References


Terms and conditions

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## Table 1  Drug misuse and acupuncture: the evidence for effectiveness

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<td>No control</td>
<td>12 mths</td>
<td>Withdrawal symptoms Urine analysis</td>
<td>Relief of withdrawal symptoms 51% drug free (A)</td>
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<td>2</td>
<td>Avants, Margolin et al 1995 (Cocaine)</td>
<td>40</td>
<td>Ear acupuncture (A) + 1 body site 6 week course</td>
<td>Placebo (C)</td>
<td>6 wks</td>
<td>Retention Abstinence Urine analysis</td>
<td>80% (A) vs 70% (C) completed treatment 44% (A) vs 29% (C) abstinence 66% (A) vs 70% (C) positive urines at end of study 0.73 (A) vs 1.77 (C) mean craving score</td>
</tr>
<tr>
<td>3</td>
<td>Lipton et al 1994 (Cocaine)</td>
<td>150</td>
<td>Ear acupuncture (A) Sham points (C)</td>
<td>1 mth</td>
<td>Urine analysis</td>
<td>a) Acupuncture group at 2 wk significantly lower cocaine metabolic levels b) No significant difference at follow-up</td>
<td>Treatment retention similar for both groups</td>
</tr>
<tr>
<td>4</td>
<td>Konefal et al 1995 (Various substances)</td>
<td>98</td>
<td>Ear acupuncture (A): 5 point vs 1 point. Ear and body acupuncture. 16 wk programme x 2 visits per wk</td>
<td>1 needle (ear) (C)</td>
<td>16 wks</td>
<td>Urine analysis</td>
<td>Significant difference between single needle and 5 needle protocols. Males responded better than females. No difference between (A) and (C)</td>
</tr>
<tr>
<td>5</td>
<td>Otto et al 1998 (Cocaine)</td>
<td>36</td>
<td>Ear acupuncture (A) 12 wk programme</td>
<td>Sham points (C)</td>
<td>12 mths</td>
<td>Craving Treatment retention</td>
<td>No reduction in craving High drop out rate – only 4 completed whole course</td>
</tr>
<tr>
<td>6</td>
<td>Bullock et al 1999 a) 236 b) 202 (Cocaine)</td>
<td>236 b) 202</td>
<td>Ear acupuncture (A) 8 wks (28 times) Sham points (C) Standard control</td>
<td>Craving assessment Urine analysis Addiction Severity Index SF36 Beck Depression Inventory</td>
<td>Craving: a) (A) significantly worse than (C) b) No differences between 3 dosage regimes</td>
<td>P = 0.007 NS</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Wen &amp; Teo 1975 (Heroin)</td>
<td>35</td>
<td>Ear Acupuncture (A) Methadone (M)</td>
<td>12 months</td>
<td>Drug abstinence</td>
<td>51% (A) 29% (M) free of drugs at 1 year</td>
<td>None provided</td>
</tr>
</tbody>
</table>

The table presents studies investigating the effectiveness of acupuncture in treating drug misuse. Each study is identified by its method, sample size, control, follow-up period, and outcome measures, along with the results and statistical significance of the findings.
<table>
<thead>
<tr>
<th>STUDY</th>
<th>SAMPLE SIZE</th>
<th>METHOD</th>
<th>CONTROL</th>
<th>FOLLOW UP</th>
<th>OUTCOME MEASURES</th>
<th>RESULTS</th>
<th>STATS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Man and Chuang 1980 (Opiates)</td>
<td>35</td>
<td>Electro-ear acupuncture (A) Daily treatment for one month</td>
<td>Methadone (M)</td>
<td>Discontinued</td>
<td>Urine analysis Withdrawal symptoms Craving</td>
<td>Only 3 patients in each group completed the study 83% drop out</td>
<td>No analysis</td>
</tr>
<tr>
<td>Newmeyer et al 1984 (Heroin)</td>
<td>132</td>
<td>Electro-acupuncture (A) Electro-acupuncture &amp; medication</td>
<td>Medication (M)</td>
<td>6 mths</td>
<td>Urine analysis</td>
<td>38% (A) 48% (M) heroin positive urine after 10 treatments 24% (A) 36% (M) positive urine at 6 months</td>
<td>Not provided</td>
</tr>
<tr>
<td>Geijer 1987 (Opiates)</td>
<td>65</td>
<td>Acupuncture (A) Medication (M) No placebo control</td>
<td>Unknown</td>
<td>Withdrawal symptoms Reduction in drug use</td>
<td>Reduction in withdrawal symptoms in acupuncture group 98% (A) 35% (C)</td>
<td>P&lt;0.05</td>
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</tr>
<tr>
<td>Clark 1990 (Opiates)</td>
<td>84</td>
<td>Ear acupuncture (A) Medication (M)</td>
<td>90 days</td>
<td>Urine analysis.</td>
<td>31% (A) 14% (M) drug free urines at follow-up 53% (A) 53% (M) with + ve urines and heroin present</td>
<td>NS</td>
<td></td>
</tr>
<tr>
<td>Washburn et al 1993 (Heroin)</td>
<td>100</td>
<td>Ear acupuncture (A) Sham points (C)</td>
<td>3 wks</td>
<td>No. of days attended</td>
<td>4.2 (A) 2.1 (C) days attended No. of days in treatment</td>
<td>16 (A) 4(C) no. of days staying in treatment over 3 wks</td>
<td>NS</td>
</tr>
<tr>
<td>Gurevich et al 1996 (Combined substance abuse)</td>
<td>77</td>
<td>Ear acupuncture (A) (&gt;5 treatments) No ear acupuncture – refused offer or had &lt;4 treatments (C)</td>
<td>No ear acupuncture – refused offer or had &lt;4 treatments (C)</td>
<td>12mths</td>
<td>Continuation of treatment Compliance with treatment Discharge rate Acceptance of staff’s discharge recommendations Remained in FU for at least 4 mths Average inpatient stay Immediate relapse</td>
<td>75% (A) 20% (C) 2% (A) 40% (C) 58% (A) 26% (C) 77% (A) 37% (C) 22days(A) 16days (C) 19% (A) 27% (C)</td>
<td>NS = (statistically) nonsignificant</td>
</tr>
</tbody>
</table>

*A acupuncture  M methadone  C control
## Table 2  Smoking cessation and acupuncture: the evidence for effectiveness

<table>
<thead>
<tr>
<th>STUDY</th>
<th>SAMPLE SIZE</th>
<th>METHOD</th>
<th>CONTROL</th>
<th>FOLLOW UP</th>
<th>OUTCOME MEASURES</th>
<th>RESULTS</th>
<th>STATS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lacroix &amp; Besancon 1977</td>
<td>117</td>
<td>Facial acupuncture (A) 1 per wk x 3 wks</td>
<td>Sham points (C)</td>
<td>3 wks</td>
<td>Abstinence</td>
<td>74% (A) 29% (C) immediate cessation</td>
</tr>
<tr>
<td>2</td>
<td>Gilbey 1977</td>
<td>92</td>
<td>Ear acupuncture with press needle (self stimulated) (A)</td>
<td>Sham points – press needle (C)</td>
<td>3 mths</td>
<td>Smoking cessation</td>
<td>36% (A) 33% (C) immediate 20% (A) 15% (C) at follow up</td>
</tr>
<tr>
<td>3</td>
<td>Parker &amp; Mok 1977</td>
<td>41</td>
<td>Electro-acupuncture (A) Press needle (A) 2 per wk x 3 wks</td>
<td>Sham electro-acupuncture (C) Sham acupuncture (C)</td>
<td>6 wks</td>
<td>Decrease in cigarette smoking</td>
<td>Ear acupuncture 18% (A) 8% (C) Press needle 30% (A) 20% (C)</td>
</tr>
<tr>
<td>4</td>
<td>Tan &amp; Huang 1978</td>
<td>104</td>
<td>Laser acupuncture (A) 3 per wk x 2 wks</td>
<td>Laser probe near skin (C)</td>
<td>None</td>
<td>Decrease in cigarette smoking</td>
<td>75-100% reduction in smoking in acupuncture group</td>
</tr>
<tr>
<td>5</td>
<td>MacHovec &amp; Man 1978</td>
<td>58</td>
<td>Sutured plastic bead at acupuncture site (A) Single treatment</td>
<td>Hypnosis Group hypnosis Sham points (C)</td>
<td>6 mths</td>
<td>Abstinence Improvement</td>
<td>25% (A) 0% (C) 75% (A) 25% (C)</td>
</tr>
<tr>
<td>6</td>
<td>Lagrue et al 1980</td>
<td>154</td>
<td>Facial acupuncture (A) 1 per wk x 2 wks</td>
<td>Sham points (C)</td>
<td>None</td>
<td>Abstinence</td>
<td>Reduction in smoking</td>
</tr>
<tr>
<td>7</td>
<td>Lamontagne et al 1980</td>
<td>75</td>
<td>Ear acupuncture (A) 1 per wk x 2 wks</td>
<td>Acupuncture for relaxation (C)</td>
<td>6 mths</td>
<td>Reduction in smoking</td>
<td>29% (A) 36% (C) immediate cessation 8% (A) 16% (C) at follow up</td>
</tr>
<tr>
<td>8</td>
<td>Martin &amp; Waite 1981</td>
<td>260</td>
<td>Indwelling ear needles + electro-acupuncture (A) 1 treatment</td>
<td>Sham ear points (C)</td>
<td>6 mths</td>
<td>Abstinence and reduction</td>
<td>16% (A) 27% (C) immediate cessation 12% (A) 10% (C) at follow up</td>
</tr>
<tr>
<td>9</td>
<td>Steiner et al 1982</td>
<td>32</td>
<td>Ear and body acupuncture (A) 2 per wk x 2 wks</td>
<td>Sham acupuncture (C)</td>
<td>4 wks</td>
<td>Abstinence Decrease in desire to smoke</td>
<td>Immediate cessation: 9% (A) 9% (C) 80% (A) 50% (C)</td>
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<tr>
<td>10</td>
<td>Cottraux et al 1983</td>
<td>558</td>
<td>Facial acupuncture (A) 3 per wk x 1 wk</td>
<td>Behaviour therapy Untreated control (C) Placebo capsule x 3</td>
<td>12 mths</td>
<td>Abstinence</td>
<td>21% (A) 8% (C) at 2 wks 16% (A) 7% (C) at follow up</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>STUDY</th>
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<tbody>
<tr>
<td>11 Labadie</td>
<td>130</td>
<td>Ear and whole body acupuncture (A) 1 treatment (possibly more)</td>
<td>Drugs (tranquillisers, detox agents) (C)</td>
<td>12 mths</td>
<td>Cessation at follow up Reduction in smoking</td>
<td>32% (A) 31% (C) 16% (A) 11% (C)</td>
<td>NS</td>
</tr>
<tr>
<td>12 Gillams et al 1984</td>
<td>81</td>
<td>Press needle + group therapy (A) 1 per wk x 4 wks</td>
<td>Press needle in wrong point + group therapy (C)</td>
<td>3 mths</td>
<td>Abstinence</td>
<td>32% (A) 30% (C) immediate cessation 18% (A) 15% (C) at follow up</td>
<td>NS</td>
</tr>
<tr>
<td>13 Vandevenne et al 1985</td>
<td>200</td>
<td>Face and body points (A) 4 treatments over 3 wks</td>
<td>Sham points (C)</td>
<td>1 yr</td>
<td>Abstinence</td>
<td>37% (A) 33% (C) immediate cessation 20% (A) 15% (C) at follow up</td>
<td>NS</td>
</tr>
<tr>
<td>14 Clavel et al 1985</td>
<td>651</td>
<td>Facial acupuncture (A) 1 treatment only Nicotine gum (G) 3 treatments over 3 wks</td>
<td>Sham points (C) + Group therapy</td>
<td>13mths</td>
<td>Cessation rate Carbon monoxide</td>
<td>19% (A) 22% (G) 8% (C) at 1 mth 8%(A) 12% (G) 3% (C) at 13 mths</td>
<td>P=0.0001  P=0.002</td>
</tr>
<tr>
<td>15 Clavel and Paoletti 1990</td>
<td>996</td>
<td>Acupuncture (A) Nicotine gum (G) 3 treatments over 1 mth</td>
<td>Sham points (C) Placebo gum (C)</td>
<td>1 mth</td>
<td>Cessation rate</td>
<td>22% (A) 23% (C) 26% (G) 19% (C)</td>
<td>NS</td>
</tr>
<tr>
<td>16 Leung 1991</td>
<td>95</td>
<td>Press needles (A)</td>
<td>Behavioural therapy (B) Control group (C)</td>
<td>6mths</td>
<td>Abstinence Daily consumption</td>
<td>16% (A) 33% (B) 4% (C) 2% (A) 35% (B) 90% (C)</td>
<td>P&lt;0.001  P&lt;0.001</td>
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<tr>
<td>17 He et al 1997</td>
<td>46</td>
<td>Specific acupuncture points - body, ear + ear pressure (A) 2 per wk x 3 wks</td>
<td>Sham points (C)</td>
<td>Serum cotinine/thiocyanate Taste/desire Smoking cessation</td>
<td>Both reduced Worse/less 31% (A) 0% (C)</td>
<td>P&lt;0.001 &lt;.05/&lt;.001 P&lt;0.002</td>
<td></td>
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<tr>
<td>18 White et al 1998</td>
<td>76</td>
<td>Electro-ear acupuncture (A) on days 1, 3 and 7</td>
<td>Sham points (C)</td>
<td>Cessation Reduction in withdrawal symptoms</td>
<td>No difference (A) and (C) at 9 mths</td>
<td>NS</td>
<td></td>
</tr>
<tr>
<td>19 Waite &amp; Clough 1998</td>
<td>78</td>
<td>Electro-acupuncture + ear seeds (A) 2 wks</td>
<td>Placebo site + ear seeds (C)</td>
<td>6 mths</td>
<td>Smoking cessation</td>
<td>12.5% (A) 0% (C) ceased smoking at 6 mths</td>
<td>P=0.055</td>
</tr>
</tbody>
</table>

*A acupuncture  C control  G gum  B behavioural therapy

NS = (statistically) non-significant
<table>
<thead>
<tr>
<th>STUDY</th>
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<th>METHOD</th>
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<th>RESULTS</th>
<th>STATISTICAL SIGNIFICANCE</th>
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</thead>
<tbody>
<tr>
<td>Bullock et al 1987</td>
<td>54</td>
<td>Acupuncture 2½ mth period</td>
<td>Sham points</td>
<td>2½ mths</td>
<td>Programme attendance</td>
<td>Fewer self reported drinking episodes and reduction in “desire to drink” in acupuncture group. Reduction in admissions to local detox unit.</td>
<td>P&lt;0.05</td>
</tr>
<tr>
<td>Bullock et al 1989</td>
<td>80</td>
<td>Acupuncture 2months (A) Sham points (C)</td>
<td>6 mths</td>
<td>Number of completed treatment programmes</td>
<td>More completions: 21/40 (A) 1/40 (C) self reported</td>
<td>Less need for alcohol: 22 (A) 10(C)</td>
<td>P&lt;0.01</td>
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<tr>
<td></td>
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<td></td>
<td></td>
<td>Number feeling indifferent to alcohol at 6 mths</td>
<td></td>
<td>P&lt;0.01</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Number of drinking episodes at 6 mths</td>
<td>Fewer drinking: 100 (A) 241 (C)</td>
<td>P&lt;0.01</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Number abstinent at 6 mths</td>
<td>Greater abstinence: 12 (A) 4(C)</td>
<td>P&lt;0.05</td>
<td></td>
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<tr>
<td></td>
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<td></td>
<td>Admissions to detox unit</td>
<td>Fewer admissions: 0.69 (A) 1.56 (C)</td>
<td>P&lt;0.05</td>
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<td></td>
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<td>Job applications made</td>
<td></td>
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<tr>
<td>Worner 1992</td>
<td>56</td>
<td>Acupuncture (body and ear) 3mths (A) Transdermal stimulation Standard care (C)</td>
<td>6mths</td>
<td>Treatment retention</td>
<td>Figures not reported</td>
<td>NS</td>
<td></td>
</tr>
<tr>
<td>Rampes et al 1997</td>
<td>59</td>
<td>Electro-acupuncture (A) 6 treatments, 1 per week Sham points (AS) Standard care (C)</td>
<td>6 mths</td>
<td>Craving for alcohol</td>
<td>Wk 8: reduced 60% (A) 54% (AS)</td>
<td>NS</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Severity of alcohol dependence questionnaire</td>
<td>Increased 44% (C)</td>
<td>NS</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Mean cell volume and glutamyl transferase</td>
<td>Reduced anxiety scores for (A) at week 8, not at week 24</td>
<td>NS</td>
<td></td>
</tr>
</tbody>
</table>

* A acupuncture   AS sham acupuncture   C control   NS = (statistically) non-significant