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Summaries of Nursing Care-Related Systematic Reviews from the Cochrane Library

Acupuncture and related interventions for smoking cessation

Question

To what extent are acupuncture and related interventions, laser therapy and electrostimulation helpful with smoking cessation as compared to other interventions, sham interventions or no interventions?

Relevance to nursing care

Smoking has been linked to many diseases including cancer and heart disease. Several studies have suggested that acupuncture has high rates of success in reducing the symptoms of nicotine withdrawal. However, these studies were uncontrolled and success rates could be attributed to a placebo effect. Controlled studies of acupuncture have not had consistent findings and reported limited or no success with smoking cessation and withdrawal symptoms. The research of acupuncture is further complicated by the different approaches: Traditional Chinese Acupuncture (TCA) whereby needles are inserted into particular locations of the body where they can correct disturbances of force (qi) and Western Medical Acupuncture (WMA) whereby needles can be inserted anywhere in the body because the effect is believed to be obtained by generally stimulating nerves or connective tissue. This makes it difficult for research as no site on the body can then be used as a control. Acupuncture needles can be stimulated by hand or electrically (electroacupuncture). Other non-needle treatments involve electrodes placed behind the ear (neuroelectrical therapy), low-level laser therapy (laser acupuncture) and using pressure alone (acupressure). Nurses counsel patients to stop smoking due to the health risks and must be aware of the interventions that are successful for smoking cessation.

Study characteristics

This summary is based on a Cochrane review[1] containing 34 randomised controlled trials of which two were by the same author and were parallel studies and two were reported separately. One study was published in Italian, five in French, two in Chinese and the remainder in English. Three were in abstract form only. One study was excluded because the data were not consistent and could not be interpreted, which brought the total studies reviewed to 33. Any randomised controlled trials comparing acupuncture, acupressure, laser therapy or electrostimulation with either no intervention, or a sham form of the intervention, or another intervention, for smoking cessation was considered for inclusion.

Four studies evaluated electrical stimulus as compared to sham or no stimulus (842 participants): two studies described the participants as 'smokers' without noting the amount of cigarettes smoked; one study noted greater than 10 cigarettes a day and one study noted greater than 20 cigarettes a day for more than a year.

Three studies evaluated laser therapy as compared to fake or sham laser therapy (1072 participants) with all describing the participants as 'smokers'. Five studies specified ear or auricle acupuncture (348 participants) with one study describing the participants as 'smokers', one as smokers greater than 1 year of smoking, one as participants smoking 20–40 cigarettes for greater than 10 years, one as smoking 10–30 cigarettes a day for greater than 5 years and one as smoking 15–50 cigarettes a day. Of these five studies, three added behavioural therapy or advice on smoking cessation and three used body acupuncture.

Six studies compared facial acupuncture to sham or no acupuncture (2512 participants) with two studies describing the participants as 'smokers', one study as smoking greater than 5 cigarettes a day, and two studies describing participants as smoking greater than 10 cigarettes a day. Two of the studies also added nicotine or placebo gum to the interventions studies with one having a locked cigarette case that was controlled by a time switch.

Twelve studies stated the intervention was acupuncture at an active lung site (site unspecified) with 1400 participants. Of these 12 studies, 6 described the participants as 'smokers', 1 as smoking greater than 1 cigarette a day, 2 as smoking greater than 10 cigarettes a day, 2 as smoking greater than 15 cigarettes a day, 2 as greater than 20

cigarettes a day and 1 as smoking greater than 50 a week. All 12 studies stated using acupuncture or sham/inactive acupuncture as the intervention with three also adding counselling to the intervention and one comparing acupuncture to medical therapy (medications). Three studies evaluated acupressure as compared to advice or no acupressure (279 participants) with all describing the participants as smoking greater than 10 cigarettes a day.

All participants were adults over the age of 18 years with only two studies specifying the number of males and females in the study (105 males, 27 females). The studies were published between 1977 and 2009.

The primary outcomes of interest were:

- To ascertain if acupuncture, acupressure, laser therapy and electrostimulation are more effective than waiting list/no intervention for smoking cessation
- Any specific effect in smoking cessation beyond placebo effects

A secondary outcome was to explore whether any particular acupuncture approach is more effective than any other.

Of the 33 studies, 8 used carbon monoxide levels, 1 used serum cotinine levels, 1 used serum cotinine and thiocyanate levels, 1 used urine cotinine and 1 used urine sulfocyanide levels to validate smoking cessation of the participants. All others used patient self-reports. All studies used a TCA approach regarding the location of stimulation as significant and regarding non-acupuncture points as a control intervention. Data were analysed by time at 6 months (early) and 6–12 months (late) using fixed effect meta-analysis as appropriate.

The risk of bias analysis performed in this review indicated concerns with: allocation concealment, blinding, incomplete outcome data and random sequence generation. Furthermore, the data were analysed by comparing: acupuncture/waiting list or no intervention, acupuncture/sham acupuncture, acupuncture/other interventions, comparison between two different types of acupuncture, acupressure/waiting list or no intervention, acupressure/sham acupressure, laser therapy/sham laser therapy and electrostimulation/sham electrostimulation. The studies were not judged to be free from bias.

The results indicated that there is no evidence that acupuncture is better than other interventions (psychological interventions or just waiting). Compared with sham acupuncture, the fixed-effect risk ratio (RR) for the short-term effect of acupuncture was 1.18 (95% confidence interval 1.03 to 1.34) and for the long-term effect was 1.05 (CI 0.82 to 1.35).

The 12 studies that measured the short-term outcome of acupuncture compared with sham acupuncture (excluding the four studies with active points in the control group) combine to give an overall positive result (RR 1.18, 95% CI 1.03 to 1.34) with moderate heterogeneity ($I^2 = 40\%$). A subgroup analysis was not conducted due to bias.

The six studies with late (6 to 12 months) outcomes do not show any relative effect of acupuncture compared with sham (RR 1.05, 95% CI 0.82 to 1.35) with little evidence of heterogeneity ($I^2 = 20\%$).

Acupuncture was less effective than nicotine replacement therapy (NRT) both in the short term (RR 0.76, CI 0.59, 0.98) and in the long term (RR0.64, CI 0.42 to 0.98) with no heterogeneity.

Acupuncture showed no difference of effect from counselling and psychological approaches (three studies) at either the short or long-term time point.

There was no evidence that acupuncture is superior to waiting list or to psychological interventions in the short- or long-term.

The evidence on acupressure and laser stimulation was insufficient and could not be combined. Two reports of studies comparing laser with sham laser showed considerable heterogeneity in their results ($I^2 = 97\%$) due, at least partly, to diversity in the participants and dose of laser.

The evidence suggested that electrostimulation is not superior to sham electrostimulation either in the short term (RR 1.17, 95% CI 0.89 to 1.54) or the long term (RR 0.87, 95% CI 0.61 to 1.23).

Implications for nursing care

This review revealed that there is no evidence to support acupuncture or related interventions as being successful in causing smoking cessation and diminishing the symptoms related to nicotine withdrawal. No recommendations for the use of acupuncture for smoking cessation based on this review can be made. Evidence-based interventions that have been proven to be helpful in smoking cessation should be suggested instead, such as NRT.

Implications for research

Further research is needed using well-designed studies that measure the levels of toxic substances to evaluate the success of the intervention. The studies completed so far are too varied, with several not validating the claims that the participants stopped smoking for greater than the length of the treatment.

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Reference

1. White AR, Rampes H, Liu JP *et al.* Acupuncture and related intervention for smoking cessation. *Cochrane Database Syst Rev* 2011; (1). Art. No.: CD000009. DOI: 10.1002/14651858.CD000009.pub3.