



Review

A meta-analysis of ear-acupuncture, ear-acupressure and auriculotherapy for cigarette smoking cessation



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ABSTRACT

Background: This systematic review evaluated the effects of ear acupuncture, ear acupressure and auriculotherapy for cigarette smoking cessation (SC) at end-of-treatment (EoT), three, six and 12 months follow-up.

Methods: Searches of six English and Chinese databases located 25 randomized controlled trials (3735 participants). Methodological quality was assessed using Cochrane Risk of Bias. Meta-analyses were conducted in two pools: 1. SC-specific ear acupuncture/acupressure or auriculotherapy (EAP/R) vs. non-specific/inactive control; and 2. SC-specific EAP/R vs. other SC-specific treatment. Sensitivity analyses were conducted based on the validity of interventions as SC-specific treatments or non-specific/inactive interventions; and the use of biochemical SC confirmation.

Results: Pool 1: the 12 valid SC-specific EAP/R interventions were superior to inactive EAP/R controls at EoT (RR = 1.77 [1.39, 2.25]), three months follow-up (RR = 1.54 [1.14, 2.08]), and six months follow-up (RR = 2.01, [1.23, 3.28]) but data were insufficient at 12 months. In Pool 2: there was no superiority or inferiority for EAP/R at EoT or at 3 and 6 month follow-ups compared to SC-specific behavioural therapy or SC-specific body acupuncture.

Conclusions: Pool 1 data appeared most consistent for studies of ear acupressure (EAPR) vs. non-specific EAPR controls, with confirmed SC rates at 3 months post-treatment of 20.0% for test groups vs. 7.5% for controls. In Pool 2 the EAP/R interventions appeared neither inferior nor superior to the behavioural interventions at 3 and 6 month follow-ups. However, meta-analysis results derived from relatively small-sized trials with no biochemical validation of SC in Pool 2. Larger, well-controlled studies using biochemical confirmation of SC are needed.

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Contents

1. Introduction	15
2. Methods	15
2.1. Search strategy	15
2.2. Study inclusion	16
2.3. Data extraction and assessment of risk of bias	16
2.4. Assessment of EAP/R interventions and controls	16
2.5. Data analysis	16
3. Results	17
3.1. Characteristics of included studies	17
3.2. Adverse events	17
3.3. Ear points used in treatment and control groups	17
3.4. Effects of interventions – meta-analysis of smoking cessation events	17
3.4.1. Pool 1: comparison of EAP/R with inactive control	17
3.4.2. Pool 2: comparison of EAP/R with other active therapies	19
4. Discussion	19
4.1. Comparison with other reviews	21
4.2. Limitations of this review	21
4.3. Implications for future trials	21
4.4. Implications for practice	22
5. Conclusions	22
Role of funding source	22
Authors' contributions	22
Conflict of interest	22
Acknowledgement	22
Appendix A. Supplementary data	22
References	22

1. Introduction

The effectiveness of acupuncture and related therapies for cigarette smoking cessation (SC) has not been established and the results of studies can appear contradictory. A systematic review of 33 randomized clinical trials (RCTs) of acupuncture, acupressure and related techniques for SC found an overall positive result when acupuncture was compared with sham acupuncture at end-of-treatment (EoT) but not at follow-up. The review authors reported that the results were inconclusive and recommended high quality trials (White et al., 2011). A more recent meta-analysis showed a significant effect of acupuncture point (acupoint) stimulation on SC rates and cigarette consumption at EoT and at 3- and 6-month follow-ups (Cheng et al., 2012) and a meta-analysis of 6 trials found a benefit for real acupuncture vs. sham acupuncture at longest follow-up (Tahiri et al., 2012).

These reviews included a variety of acupuncture methods in the test arms. Some studies used points on the ear, i.e., 'ear acupuncture' or 'auriculotherapy', some used points on other parts of the body, i.e., 'body acupuncture', while others used a combination of acupuncture types. In some studies, needles were used to pierce the skin, i.e., 'acupuncture', while others used 'acupressure' with beads attached to the points which were pressed to produce stimulation. Machines that emit laser light or electrical current were used in some studies. The control arms in some studies employed 'placebo' or 'sham' interventions designed to mimic the 'real' interventions while other studies compared acupuncture to no treatment or to interventions that the investigators considered likely to be effective for SC. This diversity of interventions and controls presents a challenge for reviewers and raises the issue of the meaningfulness of pooled data for clinicians who need to know whether or not the evidence supports acupuncture for SC. For researchers aiming to design controlled trials, there is the additional issue of how to design plausible 'sham' controls in acupuncture trials. This question has received considerable attention (Zhang et al., 2014) but it remains unclear which, if any, approach approximates an actual placebo.

Ear acupuncture (EAP), ear acupressure (EAPR) and other forms of auriculotherapy have been used for SC and nicotine withdrawal symptoms (Han, 2006; Li et al., 2009). The National Acupuncture Detoxification Association in the US uses ear acupuncture (EAP) for drug addictions (McLellan et al., 1993) and EAP is the most common form of acupuncture for various kinds of substance abuse in the US and the UK (D'alberto, 2004; Margolin, 2003).

The meta-analyses in this review focus on interventions for SC that use ear acupuncture or acupressure (EAP/R) or other types of auriculotherapy. To ensure the clinical relevance of the data, studies were assessed to determine whether the 'real' intervention was representative of SC treatments in the clinical literature. To improve the meaningfulness of meta-analyses, the 'sham' or 'placebo' control intervention was assessed to determine whether it was likely to have been truly inactive or non-specific for SC.

This review aims to evaluate the effects of EAP/R for SC to determine whether 'real' EAP/R is more effective than: (1) 'sham/placebo' EAP/R, no intervention, wait-list, or other 'inactive' control; (2) other SC therapies (medical or behavioural therapies or body acupuncture).

2. Methods

This review based its methods on the Cochrane Handbook for Systematic Reviews of Interventions 5.1.0 (Higgins and Green, 2011).

2.1. Search strategy

Six databases were searched from their inception to January 2013: Cochrane Central Register of Controlled Trials (CENTRAL) on The Cochrane Library (2013), PubMed (1996–2013), EMBASE (1998–2013), Scopus (2004–2013), Chinese VIP information (www.cqvip.com, 1989–2013) and China National Knowledge Infrastructure (www.cnki.net, 1988–2013). Search terms were grouped into three blocks: 1 – intervention (including acupuncture, auriculotherapy, acupressure, laser therapy, electrotherapy); 2 – clinical condition (including SC, nicotine withdrawal, quit smoking); and 3 – trial design (including clinical trial, random, control, placebo). Complete lists of search terms are available from the authors. Reference lists of review articles were checked for additional references.

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