

Effectiveness of Acupuncture for Tinnitus in Doubt

Review Questions Research Methods of Previous Studies

By Editorial Staff

Tinnitus is a common condition that produces a constant buzzing or ringing in the ears. It can be caused by a variety of ear disorders, excessive noise, or some cardiovascular conditions such as anemia and aneurysm. Persistent tinnitus can lead to loss of sleep, an inability to concentrate or, in extreme circumstances, psychological distress.

Although acupuncture has been used to treat tinnitus for hundreds of years in Asia, much controversy remains as to its effectiveness and long-term success rate. In a systematic review of several randomized controlled studies for acupuncture and tinnitus, investigators from the University of Exeter in England found "an embarrassing lack of research" on the subject and concluded that such therapy "has not been demonstrated to be efficacious as a treatment for tinnitus."

Six randomized controlled studies (Axelsson, et al.; Furugard, et al.; Hansen, et al.; Marks, et al.; Podoshin, et al.; and Vilholm, et al.) were reviewed in the report, which appeared in the April issue of the *Archives of Otolaryngology-Head and Neck Surgery*.¹ A total of 185 subjects were examined in the studies, 112 of whom received acupuncture. Four studies used a crossover design;² three studies obtained a Jadad quality score of three or greater.³

Two studies (Podoshin⁴ and Furugard⁵) appeared to support acupuncture's use in treating tinnitus. In the Podoshin study, 60 patients were randomly divided and received one of five types of treatment. Improvement was seen in 30% of patients receiving acupuncture compared to 10% of those taking an antihistamine (cinnarizine) or placebo cinnarizine, and 0% of those receiving placebo biofeedback. The greatest percentage of improvement (50%), however, was seen in patients who received real biofeedback.

In the Furugard study, 22 subjects were treated with acupuncture and physiotherapy using a crossover design. Scientists used a visual analog scale to measure the degree of loudness, annoyance and awareness of tinnitus before and after treatment, along with a test called the Nottingham Health Profile (NHP), to evaluate the effects of treatment. Patients experienced "immediate, significant relief" in terms of loudness and annoyance after receiving acupuncture, and 45% of patients rated themselves as "greatly improved" by acupuncture as compared to 16% for physiotherapy. However, more patients rated themselves as "improved" using physiotherapy (84%) compared to acupuncture (55%). In addition, annoyance and NHP scores had returned to pretreatment levels at a one-year followup.

The other four studies⁶⁻⁹ found no significant difference between acupuncture and placebo in the treatment of tinnitus. In two crossover studies, some patients actually reported greater initial relief of symptoms from sham acupuncture than genuine acupuncture. In another study, a significant number of patients reported less troublesome tinnitus after receiving acupuncture, but those findings could not be confirmed by visual analog scales, and the general conclusion of the study was negative.

Researchers Cast Dispersions on Validity of Studies

In their review, the investigators were surprised at the dearth of randomized controlled trials they were able to locate. Despite conducting extensive literature searches on four comprehensive health databases, including Medline and CISCOR, only 36 references containing "acupuncture" and "tinnitus" were found. Of those, only six met the criteria for inclusion in the review, amounting to what the investigators called "an embarrassing lack of research activity."

A number of problems were found in the studies the research team examined. For instance, they noted that in the two open studies in which those administering treatment knew whether they were providing real or sham acupuncture, patients were more likely to report relief from tinnitus. However, in the four studies in which neither the administrator nor patient knew the type of treatment being given, no significant differences were found between acupuncture and a placebo.

"This suggests that any benefit that acupuncture may have on an individual patient with tinnitus is caused by non-specific effects such as expectation, suggestion, therapeutic relationship, etc., rather than a specific effect of needling," the researchers wrote.

Among the other design flaws noted:

Only three studies obtained a Jadad score of three or greater. One study received a two; the other studies each scored a one. Moreover, the three studies that ranked highest in terms of quality all fared negatively toward acupuncture.

The types of acupuncture used and the areas of treatment were not always the same for each study. Two studies used electroacupuncture; the rest used manual acupuncture. One study applied needles to the head, hand and legs of patients; another used points only on the head and around the ear; and another employed acupoints on the foot, based on the personality of the patient.

In two of the trials, the researchers involved did not provide a description of the statistical methods they used to evaluate the results of treatment.

None of the authors quoted from classical references or pilot studies to validate the points used or the procedures for choosing individualized acupoints.

Only one study (Furugard) employed a method of following up with patients longer than one month.

Based on their review of the studies, the investigators concluded:

"The belief that acupuncture is a specifically effective treatment for chronic tinnitus is not based on the evidence of rigorous randomized controlled trials. Further research on this subject seems to be warranted but should be conducted according to the highest methodological standards."

While there is clear evidence that acupuncture is efficacious in providing pain relief and treating certain conditions such as nausea, many of its effects have yet to be fully explained within the framework of the Western system of medicine. Moreover, many of the conditions it is used to treat - in this instance, tinnitus - have yet to be validated using rigorous, controlled methods. While there is a wealth of anecdotal evidence showing that acupuncture may indeed be an effective way of treating tinnitus, it will not be recognized as such by consumers and health insurers until appropriate scientific studies have been conducted.

References

1. Park J, White A, Ernst E. Efficacy of acupuncture as a treatment for tinnitus. A systematic review. *Arch Otolaryngol Head Neck Surg* April 2000;126:489-92.

2. A crossover design is a type of clinical trial in which patients receive, in sequence, the treatment (or the control) and then, after a specified time, switch to the control (or treatment). In this design, patients serve as their own controls. Randomization is used to determine the order in which a patient receives the treatment and control.
3. The Jadad method is used to measure the validity of clinical trials. Studies are awarded one point each in the categories of randomization, blinding, and description of withdrawals and dropouts. Additional points can be awarded or deducted based on the types of randomization and blinding used. The maximum possible score is five points.
4. Podoshin L, Ben-David Y, Fradis M, Gerstel R, Felner H. Idiopathic subjective tinnitus treated by biofeedback, acupuncture and drug therapy. *Ear Nose Throat J* 1991;70:284-289.
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6. Hansen PE, Hansen JH, Bentzen O. Acupuncture treatment of chronic unilateral tinnitus: a double-blind crossover trial. *Clin Otolaryngol* 1982;7:325-329.
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8. Axelsson A, et al. Acupuncture in the management of tinnitus: a placebo-controlled study. *Audiology* 1994;33:351-360.
9. Vilholm OJ, et al. Effect of traditional Chinese acupuncture on severe tinnitus: a double-blind, placebo-controlled, clinical investigation with open therapeutic control. *Br J Audiol* 1998;32:197-204.



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