

Ear Acupuncture in Treating Trismus-Syndrome: A Case Report

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Abstract

Trismus is a disease that is associated by muscle spasms in the jaw muscles, pain, and inability to open the mouth. Trismus is a Sympathomimetic effect of chronic use of methamphetamine. This study was carried out aimed to evaluate the efficacy of ear acupuncture on the pain and mouth opening in chronic methamphetamine-dependent patient. We report a case of 31-year-old young man with Trismus syndrome consequence of chronic use of methamphetamine with severe mouth pain. We applied ear acupuncture for three weeks to ameliorate pain and hopefully improve his functional ability to Mouth opening. Results were analyzed by generalized estimating equations (GEE) models. The primary outcome showed that Ear Acupuncture has not a significant effect on reducing the frequency of urine test during treatment. Also secondary outcome showed that there was not a significant reduction in pain index and mouth opening. According to the failure in the production of tyrosine Hydroxylase as a precursor to produce dopamine in chronic methamphetamine users and the role of dopaminergic system in the modulation of orals facial pain, the effectiveness of acupuncture could be in jeopardy.

Keywords: Ear Acupuncture; Trismus; Methamphetamine; Case reports; Tyrosine hydroxylase

Introduction

Trismus is a Sympathomimetic effect of chronic use of methamphetamine. Ear Acupuncture (EA) is a specific type of acupuncture and is an evidence-based approach.^[1] The point selection is sympathetic, Shen Men, liver, kidney and lung [Figure 1].

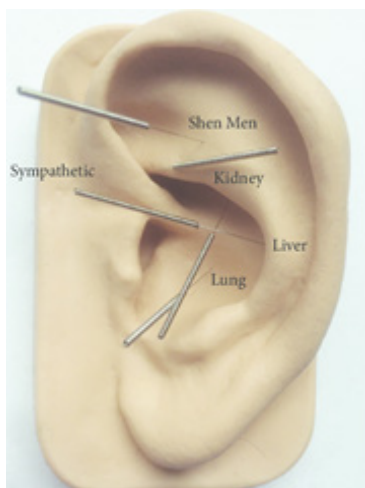


Figure 1: Acupuncture points according to the NADA protocol.

Several studies have suggested that acupuncture ameliorates the effects of Methamphetamine abuse.^[2] However, some studies have provided contradictory results:^[3] therapeutic effects of acupuncture on drug addiction are unclear, but, changes in the dopaminergic system and consequently modulation of pain can limit the effectiveness of acupuncture.^[4] The present study aims to examine the effectiveness of Ear Acupuncture on the

Pain scale and mouth opening in chronic methamphetamine-dependent patient.

Case Presentation

The patient was a 31-year-old young man who was treated due to tooth pain. With a continuous history of methamphetamine abuse during a period of 2 year with the amount of >0.4 g per day. Patients have three basic symptoms including: 1) dry mouth; 2) clenching and 3) pain in the temporomandibular joint. EA was performed three times a week for a period of three weeks (nine sessions) and the duration of each session was 30-45 minutes before lunch. EA in both ears was performed using stainless steel disposable needles (0.25+13 mm) with a depth of 2-3 mm and through manual stimulation method. Also, in this study, Visual Analog Scale (VAS), digital calipers and methamphetamine urine tests by immunochromatography method with the threshold of 300 ng/ml were used. The data were analyzed by GEE Through IBM SPSS Statistics Version 20 (IBM Corp., Armonk, NY, USA). Statistical significance was accepted at the level of $p < 0.05$. In this study, the informed consent was obtained and the Whole process was carried out based on the latest version of the Declaration of Helsinki. Primary outcome showed that there was no significant decrease

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in methamphetamine of urine ($P>0.05$). Secondary outcome showed that acupuncture was not significantly effective on pain index (A mean of 53.67 ± 4.12 vs. a mean of 52.67 ± 2.87 , $p>0.05$). There was not also an increase in mouth opening (A mean of 27.95 ± 0.73 vs. a mean of 27.75 ± 0.66 , $p>0.05$).

Discussion

This study was the first study to treat Trismus caused by methamphetamine use that was done with the aim of evaluating the effectiveness of ear acupuncture and reflection of the side effects due to using stimulants in effectiveness of the treatment. Primary outcome showed that EA treatment had no significant effect on the extent of methamphetamine use. Secondary outcomes of the study showed that EA had not a significant effect on reducing pain and mouth opening. Lack of effectiveness of acupuncture can be explained from 3 dimensions in the present study. The first cause is hormonal changes caused by methamphetamine use, the second factor is the difference in topography of the stimulation and the third one is the way of applying stimulation on the effectiveness of the treatment. Acupuncture has a modulating effect on pain signals through the release of endorphins, serotonin and dopamine.^[5] This is while dopaminergic system and specifically levels of tyrosine hydroxylase as a precursor of dopamine under the influence of methamphetamine use is experiencing dramatic changes. It seems that dopaminergic system can play a role in central pain modulation.^[4] In contrast to our findings, in the study of Ferreira et al.,^[6] EA has been reported effective in the treatment of Trismus in a patient with cancer. In this study, a symptom of Trismus is consequences of chronic methamphetamine abuse that can affect the outcome of treatment compared with cancer differently.

A part of the results of the present study showed that acupuncture has not had a significant effect on the amount of usage. In this regard, in case of the place and the kind of the stimulus, some differences were reported in the effectiveness of acupuncture in the field of addiction. In the present study, ear acupuncture was used in the form of manual stimulation, this is while a systematic study on the effectiveness of acupuncture on dependent to stimulants show that among different types of stimulus position,

body points, and among types of stimulation machines, electroacupuncture are of the most research justifications in clinical studies in sample of dependent patients.^[7]

Conclusion

The results of this study showed that EA was not effective in reducing pain, increasing the range of mouth opening and decreasing the rate of methamphetamine use. These findings, in addition to expressing hormonal, neurophysiologic and topographical differences, show the effectiveness of different types of stimulation and can be helpful in prospective of planning complementary treatments in the field of addiction.

Conflict of Interest

All authors disclose that there was no conflict of interest.

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