



## THE ROLE OF ACUPUNCTURE IN MIGRAINE TREATMENT

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**Abstract**— Migraine is a common neurological disorder affecting over a billion people worldwide, often leading to disability and reduced quality of life. Conventional treatments have limited efficacy and side effects, increasing interest in alternative therapies like acupuncture. This study examines acupuncture's effectiveness in treating migraine through a controlled clinical trial. Forty patients with episodic migraine were divided into two groups: one receiving real acupuncture and the other sham acupuncture. After six months, the acupuncture group showed a 55% reduction in attack frequency, along with decreased pain intensity and duration. These results suggest acupuncture as a safe and effective non-pharmacological treatment for migraine.

**Keywords**—acupuncture, migraine, clinical trial, Chinese medicine, alternative therapy, headache.

### Introduction

Migraine is one of the most common neurological disorders worldwide, affecting over one billion people annually. It predominantly affects women and older adults [1]. The key symptoms of migraine, such as severe and recurring headaches, nausea, vomiting, and heightened sensitivity to light and sound, significantly impact patients' daily lives [2]. Currently, due to the insufficient effectiveness of pharmacotherapy in treating migraine and its adverse effects, interest in acupuncture is increasing [3].

Migraine is a complex condition with a multifactorial pathophysiology, involving genetic predisposition, neurovascular dysregulation, and central nervous system hypersensitivity. Migraine is a neurological disorder characterized by episodes of headaches that negatively affect patients' quality of life [4]. It is classified into different subtypes, including migraine with aura and migraine without aura, each with distinct clinical features. Despite advancements in medical treatment, many patients experience incomplete relief or develop medication-overuse headaches due to frequent use of analgesics and triptans. As a result, non-pharmacological

approaches such as acupuncture have gained attention as potential alternative or complementary treatments.

Acupuncture, a key component of Traditional Chinese Medicine (TCM), has been used for centuries to treat various pain-related disorders, including headaches. It involves inserting fine needles into specific anatomical points to modulate pain perception and restore physiological balance. Studies suggest that acupuncture may influence neurotransmitter activity, enhance endogenous opioid release, and regulate inflammatory processes, thereby reducing migraine frequency and severity.

This study aims to evaluate the clinical effectiveness of acupuncture in migraine management through a controlled clinical trial. By comparing the outcomes of real acupuncture and sham acupuncture, this research seeks to provide scientific evidence on whether acupuncture can serve as a viable and safe alternative therapy for individuals suffering from chronic migraine.

#### Materials and methods

The study was conducted over six months in the Neurology Department of the Multidisciplinary Clinic of Tashkent Medical Academy. A total of 40 male and female patients aged 18 to 50 years, diagnosed with episodic migraine according to the International Classification of Headache Disorders (ICHD-3) criteria, were enrolled in the study. They were headaches, neurological disorders, pregnancy

#### Treatment method:

Acupuncture Group (AG): Patients received real acupuncture at specific points such as LI4, GB20, GV20, GB18, GB3, GB4 randomly assigned to two groups:

Acupuncture Group (AG): 20 patients

Control Group (CG): 20 patients

Inclusion Criteria: At least four migraine attacks per month, no chronic medication use, no prior acupuncture treatment

Exclusion Criteria: Secondary

and ST36. Sessions were conducted seven times per month for six months, each lasting 30 minutes.

Control Group (CG): Patients received sham acupuncture, where needles were placed at non-acupuncture sites without penetrating deeply.

#### Assessment Criteria

##### Primary Outcome:

Frequency of migraine attacks (number of occurrences per month)

##### Secondary Outcomes:

Pain intensity (evaluated using a 10-point Visual Analog Scale – VAS)

Migraine duration (hours per episode)

Medication usage (number of times pain relievers were taken)

Quality of life (assessed using the Migraine-Specific Quality of Life Questionnaire – MSQOL)

#### Results

Baseline characteristics, including age, gender distribution, and initial migraine attack frequency, were comparable between the two groups ( $p > 0.05$ ), indicating no significant differences before treatment.

#### Primary Outcome: Frequency of Migraine Attacks

After six months of treatment.

Acupuncture Group: The frequency of migraine attacks significantly decreased from  $8.2 \pm 1.5$  to  $3.7 \pm 1.2$  per month, representing a 55% reduction ( $p < 0.001$ ).

Control Group: The frequency of migraine attacks decreased from  $8.1 \pm 1.4$  to  $6.5 \pm 1.3$  per month, showing only a 20% reduction, which was not statistically significant ( $p = 0.09$ ).

These results indicate a substantial reduction in migraine episodes in the acupuncture group compared to the control group.

#### Secondary Outcomes

##### Pain Intensity (VAS Scores)

Acupuncture Group: Pain intensity, measured using a 10-point Visual Analog Scale (VAS), significantly decreased from  $7.5 \pm 1.2$  to  $3.4 \pm 0.9$  ( $p < 0.001$ ).

Control Group: Pain intensity slightly reduced from  $7.3 \pm 1.1$  to  $6.1 \pm 1.0$ , but this change was not statistically significant ( $p = 0.07$ ).

##### Migraine Duration

Acupuncture Group: The average duration of migraine attacks decreased from  $6.4 \pm 1.3$  hours to  $3.8 \pm 1.1$  hours, showing a 40% reduction ( $p = 0.02$ ).

Control Group: The average duration decreased from  $6.2 \pm 1.4$  hours to  $5.3 \pm 1.2$  hours, with only a 15% reduction, which was not statistically significant ( $p = 0.08$ ).

##### Medication Usage

Acupuncture Group: The frequency of pain reliever use significantly decreased from  $6.8 \pm 1.2$  to  $2.7 \pm 0.8$  times per month, showing a 60% reduction ( $p < 0.001$ ).

Control Group: The use of pain relievers decreased from  $6.5 \pm 1.1$  to  $5.9 \pm 1.0$  times per month, with no statistically significant change ( $p = 0.1$ ).

##### Quality of Life (MSQOL Scores)

Acupuncture Group: Quality of life scores, assessed using the Migraine-Specific Quality of Life Questionnaire (MSQOL), significantly improved after treatment ( $p < 0.01$ ).

Control Group: No significant improvement in MSQOL scores was observed ( $p = 0.2$ ).

#### Summary of Findings

The acupuncture group demonstrated a significant reduction in migraine attack frequency, pain intensity, and attack duration compared to the control group.

Acupuncture significantly reduced the need for pain medication, unlike sham acupuncture.

Quality of life improved significantly in the acupuncture group but remained unchanged in the control group.

These findings suggest that acupuncture is an effective non-pharmacological treatment for migraine, offering significant benefits in reducing attack frequency, pain intensity, and medication dependence while improving overall quality of life.

#### Discussion

This study provides compelling evidence that acupuncture is an effective non-pharmacological treatment for migraine. The results demonstrated a significant reduction in migraine frequency, pain intensity, and duration among participants who received true acupuncture compared to those in the control group. These findings align with previous research supporting acupuncture as a promising therapy for migraine management.

One of the key mechanisms through which acupuncture exerts its effects is the activation of endorphin release, which plays a crucial role in modulating pain perception. Additionally, acupuncture is believed to regulate the autonomic nervous system, particularly trigeminal nerve activity, which is closely linked to migraine pathophysiology. Moreover, acupuncture's anti-inflammatory properties contribute to reducing pro-inflammatory cytokines, which are often elevated in migraine sufferers.

The results of this study highlight the potential of acupuncture as a long-term treatment strategy. Unlike pharmacological interventions that may lead to medication-overuse headaches or adverse side effects, acupuncture offers a safer and more sustainable approach. However, further research is needed to establish standardized acupuncture protocols and assess its long-term benefits across diverse patient populations. Future studies should also investigate the potential synergistic effects of combining acupuncture with conventional migraine treatments to enhance patient outcomes.

#### Conclusion

Acupuncture has emerged as a highly effective and safe alternative therapy for migraine treatment. The findings of this study confirm that acupuncture significantly reduces migraine attack frequency, pain intensity, and duration while also improving overall quality of life. Importantly, acupuncture offers a non-invasive and drug-free option, minimizing the risk of medication dependency and side effects associated with long-term pharmacological treatments.

Given its effectiveness and safety profile, acupuncture can be considered an integral part of a comprehensive migraine management plan. Healthcare professionals should recognize its potential benefits and explore its integration into routine clinical practice for migraine patients seeking alternative or adjunctive therapies. Future research should continue refining acupuncture techniques and evaluating its long-term efficacy, ensuring its place as a validated and accessible treatment option for individuals suffering from migraines.

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