



RESEARCH ARTICLE



Evaluation of the Effectiveness of Acupuncture Therapy by Verbal Pain Scale in Patients with Abdominal Pain of Familial Mediterranean Fever

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Abstract

In this study, we evaluated the effectiveness of acupuncture therapy based on Verbal Pain Scale (VPS) scores in familial Mediterranean fever (FMF) patients admitted to the emergency department with attacks of abdominal pain. This observational study was conducted in Erzurum Regional Training and Research Hospital between August 2014 and December 2014. Twenty patients admitted to the emergency department with FMF attacks were included in the study. Acupuncture therapy was applied to three points including LI4 (Hegu), ST25 (Tianshu), and Ren12 (Zhongwan). The VPS test was applied to the patients before and after the treatment. Average VPS scores were found to be 8.45 ± 0.75 before the treatment and 2.10 ± 0.85 after the treatment. The difference of the VPS scores before and after treatment was statistically significant ($p = 0.001$). To our knowledge, this is the first study evaluating the effectiveness of acupuncture therapy in the treatment of FMF attacks. Our results suggest that acupuncture therapy can be used as an effective treatment method in patients with FMF attacks.

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1. Introduction

Familial Mediterranean fever (FMF) is an autosomal recessive inflammatory disease characterized by recurrent episodes of high fever, peritonitis, pleuritis, and arthritis [1]. Clinical symptoms of FMF usually improve within 48 hours. Ninety percent of the patients admitted to the emergency department can present with fever and abdominal pain. Erythrocyte sedimentation rate, C-reactive protein, fibrinogen, and leukocyte levels increase during these episodes. There are several hypotheses on the pathogenesis of the disease. According to one theory, the enzyme that inactivates chemotactic factors in serosal fluid is deficient in FMF patients. This deficiency initiates the inflammatory process following complement activation through C5a [2,3]. Colchicine is used for prevention of attacks and inhibiting amyloid formation in these patients [4].

The analgesic effect of acupuncture has been suggested to be associated with gate control and/or neuro-hormonal mechanisms [5]. Stimulation of acupuncture points by low-frequency current has been shown to induce analgesia in human and animal experiments. Insertion of acupuncture needles leads to release of endogenous opioids, which have been known to improve pain control by stimulating pain receptors [6,7]. In addition, acupuncture has been thought to augment the immune system by regulating immune modulation [8,9]. The acupuncture point LI4 (Hegu) is considered to be the most important point to apply acupuncture for every type of pain. In addition to LI4, the acupuncture point ST25 (Thianshu) has been reported to be effective in regulating bowel movements [10], while Ren12 (Zhongwan) is claimed to inhibit gastric motility [11].

The aim of this study was to evaluate the effectiveness of acupuncture therapy based on Verbal Pain Scale (VPS) scores in FMF patients admitted to the emergency department with attacks of abdominal pain.

2. Materials and Methods

This was an observational study. A total of 20 patients admitted to the emergency department of Erzurum Regional Training and Research Hospital between August and December 2014 with complaints of FMF attacks were included in this study. All the patients had been previously diagnosed with FMF. All the patients who were chosen for the study volunteered for acupuncture treatment. It is unknown whether the patients were treated with prednisone or not. The duration between the assessment before and after treatment was 30 minutes. Acupuncture therapy was applied on three selected points (LI4, ST25, and Ren12) during acute attack. The needles were inserted obliquely/perpendicularly about 1.5–2 cun in the ST25 and Ren12 points and 0.5–1 cun in the LI4 point, and left for 30 minutes. No moxa or manipulation was applied. VPS test, which includes numeric values between 1 and 10, was applied before and after the treatment.

Statistical analysis of data was performed using the statistical software package program PASW Statistics for Windows (version 16.0; SPSS Inc., Chicago, IL, USA). Chi-square test was used for comparisons of the ratios. A *t* test

for the independent samples and paired samples was used for comparing the averages.

3. Results

A total of 20 volunteers were included in the study; 14 (70%) were male and six (30%) were female volunteers. The average age of participants was 29.6 ± 6.08 years. The ages of the volunteers ranged from 19 years to 38 years. The number of patients receiving colchicine treatment was 13 (65%) and the remaining seven (35%) were not taking colchicine. The number of those admitted to the emergency department with complaints of abdominal pain was 13 (65%) and the number of those with abdominal pain and nausea was 7 (35%).

There was no statistically significant difference between pretreatment pain scale scores in terms of sex, complaints in the emergency department, and colchicine use. There was also no statistically significant difference between post-treatment pain scale scores in terms of sex, complaints in the emergency department, and colchicine use.

The average of Pain Scale Scores was 8.45 ± 0.75 before the treatment and 2.10 ± 0.85 after the treatment. VPS scores reduced in all of the patients. The reduction of VPS scores was statistically significant ($p = 0.001$; Table 1).

4. Discussion

We found a statistically significant reduction in VPS scores post-treatment when compared with pretreatment values. To our knowledge, there is no study evaluating the effectiveness of acupuncture in the treatment of FMF attacks in the literature. However, there are studies suggesting that acupuncture treatment plays a regulatory role in functional bowel disease by increasing parasympathetic activity in the gastrointestinal tract [12,13]. Complaints related to FMF are similar to those of inflammatory bowel syndrome (IBS). The promising results of the studies on acupuncture treatment in IBS, syndromes of which are similar to FMF, support our results [14,15]. In a study conducted with 11 IBS patients, acupuncture applied to the LI11, ST36, ST25, Ren3, and LI4 acupuncture points found that complaints of patients decreased significantly at the end of 12 sessions [16].

Our study results suggest that acupuncture can be effectively used for treatment of abdominal pain and inflammatory diseases. This is also the first study to evaluate the efficacy of acupuncture in the treatment of FMF attacks.

Based on our experience, we suggest that acupuncture is an effective treatment in patients with FMF attacks. However, further studies are needed to support our results.

Table 1 Comparison of VPS scores before and after treatment.

Assessment	<i>n</i>	Average	<i>t</i>	<i>p</i>
Pretreatment VPS	20	8.45 ± 0.75	27.30	0.001
Post-treatment VPS	20	2.10 ± 0.85		

VPS = Verbal Pain Scale.

4.1. Study limitations

The small number of the patients included in the study and lack of a control group are limitations of this study.

Disclosure statement

The authors declare that they have no conflicts of interest and no financial interests related to the material of this manuscript.

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