

## Effects of feet reflexology versus segmental massage in reducing pain and its intensity, frequency and duration of the attacks in females with migraine: a pilot study

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### Abstract

**OBJECTIVE:** To evaluate the effects of feet reflexology versus segmental massage in reducing pain and its intensity, frequency and duration of the attacks in females suffering from migraine.

**METHODS:** Forty eight females aged 33-58, suffering from migraine for 2 to 10 years were included in this study from November 2013 to November 2015. The study protocol was carried out in Department of Chronic Diseases at the Regional Hospital in Zywiec. In the reflexology group (RG) the patients received a series of 10 treatments 2 times per week; in the segmental massage group (SMG) the patients received a series of 15 treatments 3 times per week. Pain during migraine attacks was assessed using the visual analog scale (VAS), and headache features such as intensity (IA), frequency (FA) and duration (DA) of attacks were assessed before the treatment, just after the treatment, 3 months after the treatment.

**RESULTS:** All variables (VAS, IA, FA and DA) decreased within RG and SMG 3 months after the treatment in compare with the baseline values, and the differences were statistically significant. The differences between groups were also statistically significant.

**CONCLUSION:** Feet reflexology and segmental massage provide a safe alternative for the pharmacological treatment of migraine. The patients with migraine obtain significant health benefits with feet reflexology.

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**Keywords:** Migraine disorders; Massage; Visual analog scale; Pilot projects

### INTRODUCTION

Migraine headache is an intermittent disorder with an unpredictable course. Migraine is typically characterized as a neurovascular disorder of recurring, throbbing headaches, often associated with aura, nausea, vomiting, photophobia, phonophobia, fatigue and enhanced irritability. Both pericranial muscle tenderness (muscle allodynia) and cutaneous allodynia (scalp allodynia) have also been described during migraine attacks. Nociceptive inputs of myofascial origin have been postulated to play a role in migraine pathogenesis.<sup>1-4</sup> Migraine affects 11%-16% of the population. It is the 19th most prevalent disease, over 90% of migraineurs report some level of functional impairment that causes disability. Its peak prevalence occurs in those aged between 25 and 55 years and therefore affects a high percentage of adults in the productive phase of their lives.<sup>5-10</sup>

To this day, no cure exists for migraine. Although the pharmacotherapies provide some relief, they are associated with adverse events such as low blood pressure, nausea, depression, drowsiness, and rarely renal damage. For this reason the alternative to the pharmacotherapies are complementary therapies for migraine. Having researched the specialist journals, we found that there is lack of the research on the effects of feet reflexology and segmental massage in treatment of people suffering from migraine. Therefore, every new report from that field can extend our knowledge of how to effectively reduce the symptoms of migraine attacks. In view of the above, the aim of this study was evaluation of the effects of feet reflexology versus segmental massage in headache relieving, relapse preventing and reducing migraine attacks in females.

## MATERIALS AND METHODS

### *Subjects*

Forty eight females aged 33-58, suffering from migraine for 2 to 10 years were included in this study lasting from November 2013 to November 2015. The study protocol was carried out in Regional Hospital in Zywiec at the Department of Chronic Diseases.

### *Inclusion criteria*

The patients who met the following criteria were included: (a) age > 18 years; (b) diagnosis of idiopathic headache (migraine without aura - MO, migraine with aura - MA, tension-type headache - TTH) according to the original criteria of the International Headache Society classification;<sup>11</sup> (c) from 1 to 4 or more migraine attacks per month during the last 3 months and during the baseline period (4 weeks before enrollment); (d) the start of headache before the age of 50; (e) no prophylactic headache medicine, no acupuncture treatment or massage during the last 3 months; (f) no record of long-term analgesics consumption.

### *Exclusion criteria*

The following patients were excluded: (a) headache caused by organic disorders, such as subarachnoid hemorrhage, cerebral hemorrhage, cerebral embolism, cerebral thrombosis, vascular malformation, arteritis, kidney stone or gallbladder, heart rate reduction, neoplasm etc.; (b) epilepsy; (c) psychosis; (d) pregnant at risk; (e) foot diseases; (f) alcohol or drug abuse.

### *Randomization and blinding methods*

Eight patients met exclusion criteria. The remaining 40 patients were divided on 1:1 ratio using a simple random number table into two treatment groups: feet reflexology ( $n = 20$ ) and segmental massage ( $n = 20$ ). Randomization was done before the first treatment. The participants and researchers responsible for analyzing the data were blinded to the type of treatment pro-

cedure. After the experiment all participants were informed that they had received treatment with feet reflexology or segmental massage. Finally 40 participants completed the study and they were analyzed. The baseline characteristics of females are shown in Table 1. This study was designed in accordance with the rules for human experimental studies and approved by the Bioethical Committee of the Holycross College in Kielce and Regional Hospital in Zywiec. This study also conformed to the principles of the Declaration of Helsinki. All participants signed informed consent forms prior to participation.

### *Treatments*

In the reflexology group (RG) the patients received a series of 10 treatments 2 times per week. The reflexology time did not exceed 30 min. First, the treatment was administered to the left foot and then the right foot (15 min each). During the treatments, the patients did not receive any other medications. Conducting reflexology, first of all, the relaxation technique was used from the footstalk toward the sole (plantar surfaces) at the beginning of the session. Then, four major plantar reflexology points (solar plexus, pituitary, heart and liver) were put under pressure using the thumbs. The other reflexology areas of the plantar surface of the foot were also massaged and finally intervention was put to an end with massaging the solar plexus.

In the segmental massage group (SMG) the patients received a series of 15 treatments 3 times per week. The treatment time did not exceed 20 min. During the treatments, the patients did not receive any other medications. First, evaluated reflex changes in vary between tissues. Conducting segmental massage, first 4-6 treatments carried out superficially, gradually increase the power of massage to the patient feel and to the "maximal points" (painful). Was performed in sequence: (a) spine massage; (b) back massage on both sides; (c) shoulder blade area massage on both sides; (d) muscles trapezius and nape of the neck massage; (e) muscles pectoralis major massage; (f) muscles sternocleidomastoideus massage; (g) occiput massage and finally (h) head massage.

### *Outcome measures*

The study consisted of consecutive phases: before the treatment, just after the treatment, 3 months after the treatment. Pain during migraine attacks was assessed using the VAS, which is a 10-centimeters line which left and right sides correspond to no pain (0) and unbearable pain (10). The participants marked the scale to indicate their current level of pain. The value in centimeters was recorded for analysis.

The differences in pain during the period starting from the study before the treatment up to the last study 3 months after it were categorized on the five level in VAS: worsening in VAS, no change in visual analog scale (VAS), reducing 1-3 in VAS = slight improve-

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