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ACUPRESSURE AS METHOD FOR REDUCING HEAD PAIN IN TENSION TYPE HEADACHE: CASE REPORT

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Abstract

Background: Acupressure is a method that can reduce or eliminate headaches without using drugs. It works by stimulating certain points through pressure / massage on the surface of the body by using fingers or blunt objects for fitness purposes or to relieve pain in tension headaches. Tension type headache (TTH) is the most common headache that tends to be considered not serious because it causes mild symptoms in some cases. TTH is a pain that is felt in the back of the head (occipitalis) and in the front (frontalis) which is tense due to the permanent contraction of the muscles of the scalp, forehead and neck accompanied by extracranial vasoconstriction that can persist for a certain period of time. Benefits of acupressure can calm the nerves caused by discomforts such as tension which is common in tension headache.
Summary of case: A 37-year-old woman presented with headaches that is described as being tied to a rope around her head and heavy in the neck area since a week ago. She is diagnosed with tension type headaches and received doctor's treatment. However, headaches are still felt sometimes when she has a lot of thoughts. Acupressure through suppression and massage has been done as a non-pharmacological treatment to reduce the patient's headache at the acupressure point for one week in 10 minutes each session, showing a decrease in pain intensity through VAS (Visual Analogue Scale) decreased pain rate from 6 to 2 after acupressure. She experienced an improvement and decreased intensity of headache attacks after undergoing acupressure.
Conclusion: Acupressure can be an alternative and complementary therapy to reduce the intensity and frequency of tension type headache attacks

Keyword : Acupressure, tension type headache, complementary therapy.

INTRODUCTION

Tension type headache (TTH) is the most common headache in the world which tends to be considered as non-serious because it causes mild symptoms in some cases (1,2). TTH is pain that is felt in the back of the head (occipitalis) and on the front (frontalis) which can persist for a certain period of time (2,3). The role of psychological factors especially anxiety has been one of the causes of TTH (6,19). TTH causes bilateral headaches which can become chronic and diffuse and are caused by muscle tension in the neck and back (pericranial) which can reduce productivity in daily life (6,20). TTH is a headache that feels like pressure or tension in and around the head.2 Tension headache due to permanent contractions of the scalp, forehead, and neck muscles followed by extracranial vasoconstriction (18,19,20). Pain is characterized by a sense of tight band around the head and tenderness in the occipitocervical area (2,18). Etiology of tension type headache comes from isometric contractions of muscles in the head and neck.18 Activation of myofacial trigger points also causes tension-type headaches (3,9,18). The choice of TTH management through pharmacological or non-pharmacological therapy (5,12,16). Pharmacological therapy is considered a major intervention although increasing the frequency of attacks increases the risk of drug abuse (4,5,6,13,15). Thus, non-pharmacological management for therapy specifically in the management of primary headaches has the goal of reducing drug consumption, its side effects, and interactions with other drugs used for comorbidity (1,5,7,16). Each acupressure point has a special effect on certain body systems or organs (5,6,23). Gently stimulating and massaging these points will provide changes in body physiology and will affect the mental and emotional state through the relaxing effect of acupressure (5,8). Manual pressure at the trigger point has also been suggested to reduce trigger point pain through increased threshold pain in patients with tension headaches (5,6,16). Acupressure therapy techniques, increasing blood flow to tissues, can also reduce the activity of trigger points that cause pain in TTH (5,11). The principle of acupressure is derived from eastern medicine, which is known as the flow of vital energy in the body (5,6).

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Table 1. Acupressure Points to the Intervened Acupressure Method

Acupressure Point (5,6)	Traditional Use (5,23)	Location (5,6)	Muscles / Nerves Involved (5,6,23)	Acupressure Method (5,6,23)
***Feng Chi* (GB-20)**	Treat headaches	Located by feeling for the mastoid (ear) bone and following the groove back to where the neck muscles attach to the skull.	Occipital nerve and associated with neck and nape Subcutaneous Nerves = Occipital Nerves Deep Layer Nerves = Radial Nerves	Press the point below the concave of the skull using both thumbs.
***He Gu* (L1-4)**	Relieve stress, pain in the face area, headache	In the hand (triangle of flesh), between the thumb and index finger.	Superficial branches of the radial nerve and the inner palm muscles of the ulnar nerve. Connects with the cervico-spinal nerve and the autonomic nervous system in the neck.	Press the area between the index finger & thumb. The area in the middle of the hand, between the first and second metacarpal bones. Press firmly and stably while pinching it.
***Tai Yang* (EX-HN5)**	Reduces headaches and fatigue	In the temporal area, between the outer end of the eyebrow and the lateral canthus of the eye.	Trigeminal nerve division associated with ophthalmic and maxillary areas, temporal regions of facial nerve related to facial and head muscles (Example: mm. temporalis, mm. orbicularis oculi)	Hold hands by linking fingers. Then use your thumb to press to the point of the skull
***Jian Jing* (GB-21)**	Reduces headaches and stress	Located on the ends of both shoulders.	Subcutaneous Nerve = Axillary Nerve Branch Inner Nerve Layer = Radial Nerves	Apply downward pressure on these two points using the index finger or thumb.

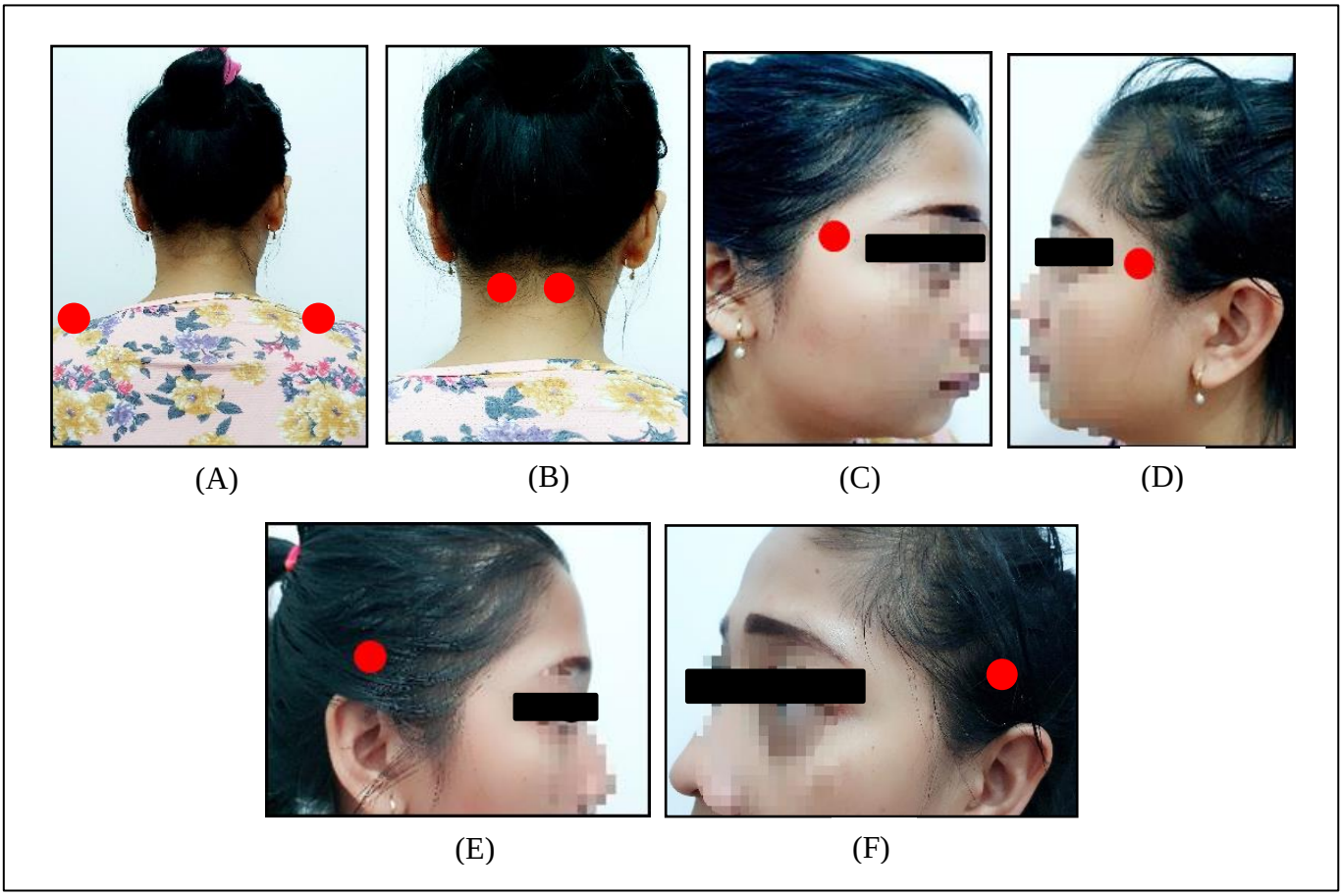

Figure 1. Acupressure Points on the Face and Neck (A) Jian Jing Point (GB-21) and Trapezius muscle, (B) Feng Chi Point (GB-20) and Occipital Muscles, (C) Tai Yang Point (EX-HN5) right side, (D) Tai Yang Point (EX-HN5) left side, (E) Left Temporalis Muscle, (F) Right Temporalis Muscle.

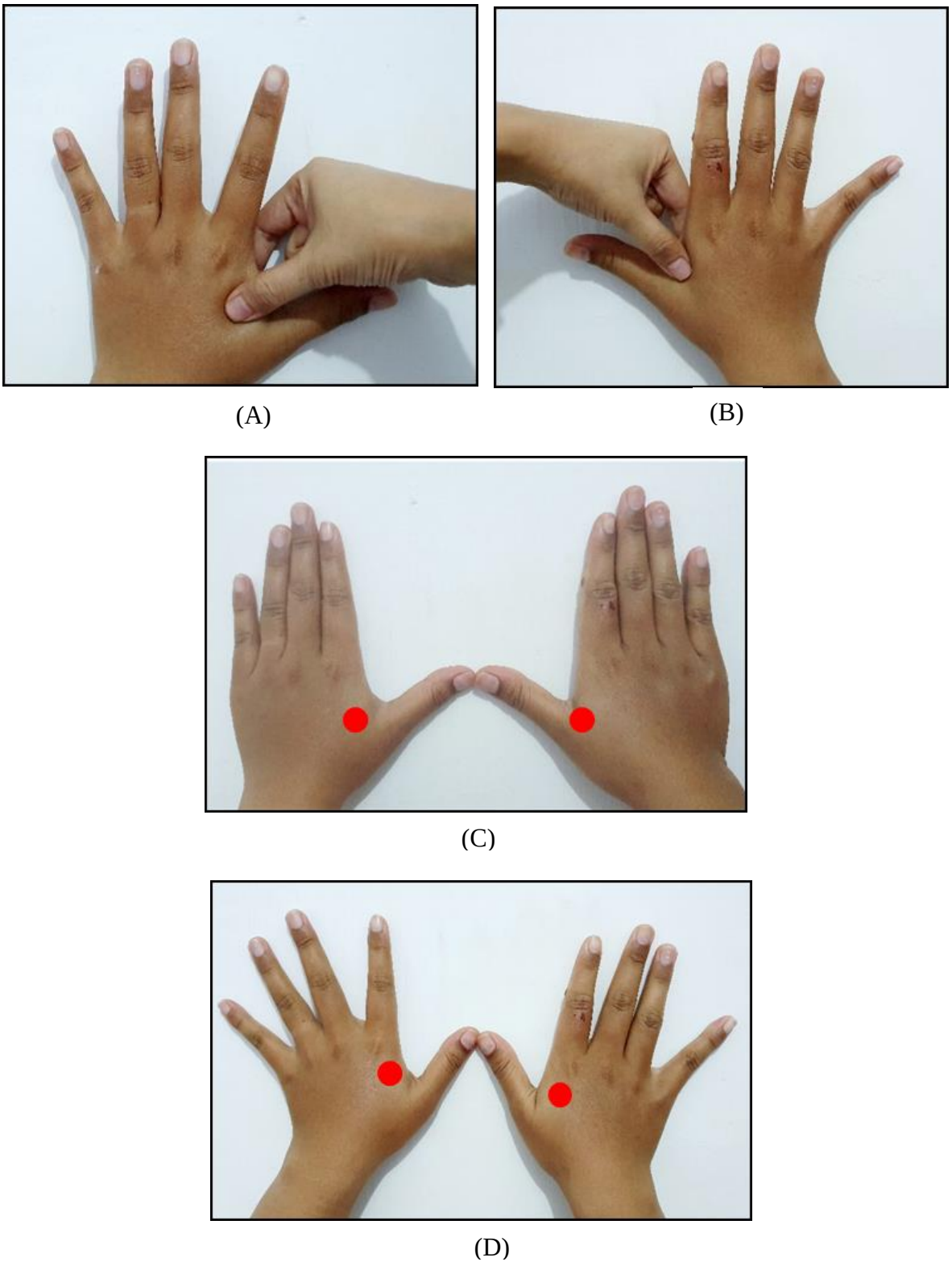

Figure 2. Acupressure Point in the Hand (A) Acupressure method of He Gu point (L-14) right hand by pressing the area between the index finger & thumb, (B) Acupressure Method of He Gu point (L-14) left hand by pressing the area between fingers index & thumb, (C) & (D) He Gu point (L-14) right and left hand.

The meridian points (accupoints) that can be found throughout the body, close to the surface of the skin and connected to each other through tissues that are complex of meridians (6,11). This accupoint is a sensitive point and has a certain effect located along the acupuncture meridians (5). There are currently more than 360 accupoints in the whole body meridian.17 Acupressure is one of the methods that is straightforward, inexpensive and can be done by everyone because it requires only hands in conducting therapy (10).

The aim of this case report is to explain the effect of acupressure and beneficial effect on the intensity of pain associated with tension type headaches. The measurement period is 7 days with a duration of 10 minutes per given acupressure session. Measurement of pain intensity using the VAS Score (Visual Analogue Scale).

CASE DESCRIPTION

A 37-year-old woman, proportional height and weight, went to doctor with complaints of headaches with characteristics of being tied to a rope around the right and left head and heaviness in the neck area since a week ago. She described headaches that are experienced suddenly, lasts about 15-20 minutes for each attack, not throbbing, not accompanied by nausea and vomiting. The complaint is experienced when the patient has a lot of thoughts, especially in the office, although the headache does not increase with physical activity. There are no other abnormalities. The patient has no history of other diseases and no history of drug allergy. Previously, patient routinely took pain medication received from doctors, but the complaint she experienced continued even though sometimes the headaches felt were reduced after taking the drug. Patients admitted that she was often anxious about family problems she experienced and the demands of the office that made the intensity of the headaches she experienced increase. Normal laboratory result. Patient had checked by a psychologist with psychological analysis: tend to be introverted, lack of confidence, easily hesitated / doubtful and tend to be less stable in dealing with problems before receiving support from the closest person, easily swayed by doubt. Patients are also difficult to socialize with the surrounding environment, and difficult to adapt to the new environment. From the results of psychological examination found internal conflicts, among others: thoughts on the entrepreneurial confection / production of baby clothes with various problems, especially when marketing feels quite/difficult, patients are eager to increase entrepreneurial production but are still felt a lot of obstacle, there are conflicts in daily life, namely feel uncomfortable facing the commotion that happens to her children.

INTERVENTION

The measurement period is done for 7 days with a duration of 10 minutes each acupressure therapy is given. Measurement of pain intensity using VAS Score (Visual Analog Scale). Acupressure is performed by neurologists and general practitioners. There is no special preparation before acupressure therapy. Acupressure performed at the acupressure points at 4 trigger points of Feng Chi (GB-20), He Gu (L1-4), Tai Yang (EX-HN5), and Jian Jing (GB-21) associated with the following muscles: trapezius, occipital and temporalis.

OUTCOME MEASURES

Pain severity was assessed with a Visual Analogue Scale (VAS) with a score of 0-10. Patient was asked to describe the intensity of headaches that were felt before and after acupressure therapy each session. If the intensity of pain is better, in the range from the left end of the line showing "0 = no pain" to the right which shows "10 = worst pain imaginable". During therapy the patient continues to take painkillers given by the neurologist at the same dose. VAS is used to assess the severity of TTH pain in two separate conditions: before acupressure is performed and after acupressure is given. Suppression is done with the fingertips. Suppression at the beginning should be done gently, then gradually the strength of the suppression is added to feel a mild sensation, but not painful.

RESULT

Acupressure is done for 7 days, one session every day, with a duration of about 10 minutes each session. On the first day, before the acupressure method was performed the patient felt the intensity of pain 6 = moderate pain, where the patient whimpered and complained of the headache area after acupressure VAS Score was 2 = mild pain. On the second, third day, the intensity of the patient's pain before acupressure 5 = moderate pain and the intensity of the headache reduced to 2 on the VAS Score, the patient expressed optimism about progress after the first massage even though the patient felt headache still occasionally appeared. The intensity of pain before acupressure in session 5 experienced changes from 4 to 2 on the VAS Score, the patient felt more comfortable and felt more sleep. On day 6, a decrease in VAS points of 3 to 2 was seen in the decrease in pain intensity felt by the patient. The patient stated that she felt much better a few days after the sixth session, she rode her bicycle for the first time in several years and drove it every day for a short trip. She reported pain such as the twisting of a rope on her head and did not feel any complaints in the nape of the neck. On the last day of acupressure, the pain intensity compared to the first day was 6 = moderate pain, showing a significant decrease to 2 = mild pain on the VAS Score. The patient feels a decrease in the pain of the headache that is felt, the patient feels regained his enthusiasm for life, an increase in productivity at work, in feeling more relaxed in household affairs.

Table 2. Session, Duration and VAS Score Before and After Acupressure

Session	Duration	VAS *Score* (*Visual Analogue Scale*)	
		Before Acupressure	After Acupressure
I (Day 1)	10 minutes	6	2
II (Day 2)	10 minutes	5	2
III (Day 3)	10 minutes	5	2
IV (Day 4)	10 minutes	5	2
V (Day 5)	10 minutes	4	2
VI (Day 6)	10 minutes	3	2
VII (Day 7)	10 minutes	3	2

Tension type headache is a headache that is often associated with psychological stress psychopathology disorders, especially anxiety and depression (19,20). Among psychic illnesses, anxiety and depression are more often associated with TTH.20 Some individuals with TTH come with anxiety to depression.19, 21 In addition to stress, patients who have anxiety and depression, can experience decreased levels of serotonin, and noradrenaline in the brain (6,12,19). Serotonin and nor-adrenaline are neurotransmitters that play a role in the process of pain or depression, which regulate interest (mood) (5,6). Serotonin is degraded by the action of enzymatic monoamine oxidase and is excreted in urine in the form of 5-hydroxyindoleacetic acid. When serotonin levels in the brain decrease vasoconstriction occurs in blood vessels and causes an active pain threshold (19).

Stress factors that occur continuously can cause an increase in glutamate through NMDA. The occurrence of TTH is also often associated with psychopathological stress disorders such as anxiety and depression. Stress activates the nuclear factor k-light-chain (NFkB) which triggers the transcription of inducible nitric oxide synthase (iNOS) and COX enzyme, namely cyclooxygenase-2 (COX-2). In intracranial blood vessels iNOS and COX-2 play a role in the process of pain through vasodilation and oxidative changes. Under normal circumstances, stress activates the adrenal axis glucocorticoid system, which is known to increase glutaminergic excitation in the central nervous system (CNS). Then by increasing the glutamate, activating the N-methyl-D-aspartate (NMDA) receptor through the second-messenger channel. Increased nitric oxide causes nitrosative damage and vasodilation of blood vessels that occur in the intracranial, duramater, and other structures such as the superior sagittal sinus. Headaches that are triggered by stress factors take place continuously and for a long time, can cause TTH through a central sensitization process (3,5,6,16,19,20).

Acupressure is a complementary treatment that uses fingers and puts pressure to stimulate trigger points in the human body (14). This noninvasive therapy was originally developed from traditional Chinese medicine, which focuses on balancing Yin and Yang and maintaining vital organ function through blood and energy (Chi) circulation in the body.22 Recommendations from the guidelines of the European Federation of Neurological Societies indicate that the use of non-pharmacological therapies has fewer side effects than pharmacological therapies (17,22).

In this case, the patient felt a significant change from the first day to the 7th day with acupressure. The patient feels regained enthusiasm because headaches are felt to be greatly reduced. The patient's sleep quality gets better. Even though the patient still takes medicine from the doctor to reduce pain with the same dose during acupressure therapy, the patient feels a big change after getting acupressure therapy. According to the patient, before doing acupressure therapy

The better effect of acupressure treatment is associated with a four-step treatment process: 1. Using a trigger point to find the etiological cause of the disease; 2. Reducing pain in tissues; 3. Reducing focal damage with the required pressure; and 4. Assist the holistic healing process. Headaches are better treated when etiological causes are found and eliminated.

Finding etiological causes by trigger points is an important step towards the success of treatment (11,17).

Acupressure can calm and reduce psychological stress by increasing endogenous morphine hormones such as endorphins and dynorphins while reducing stress hormone levels such as the hormones cortisol, norepinephrine and dopamine, also can increase serotonin, a neurohormone that regulates behavior in terms of emotions, acts to overcome anger, and appetite eat. Those who are low in serotonin often have trouble sleeping and tend to suffer from depression and obsessive-compulsive disorder. Acupressure therapy by applying pressure on soft muscle tissue to relieve pain especially tension type headache is a further example of acupressure techniques that provide a number of benefits.

CONCLUSION

Acupressure as a non-pharmacological treatment has an effect in reducing pain associated with headache in TTH through VAS (Visual Analogue Scale).

Acupressure can be an alternative and complementary therapy to reduce the intensity and frequency of tension type headache attacks.

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CONFLICT OF INTEREST

There is no conflict of interest in this research.

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