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A COMPARISON OF THE EFFICACY OF ACUPUNCTURE AND HYPNOTHERAPY IN PATIENTS WITH MIGRAINE

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Abstract: This study investigated the effect of acupuncture, hypnotherapy, and pharmacotherapy in migraine treatments among 90 patients. They were divided into 3 groups of 30 persons each. Group 1, Group 2, and Group 3 were treated with acupuncture, hypnotherapy, and pharmacotherapy, respectively. Changes in the visual analog scale (VAS) and Migraine Disability Assessment (MIDAS) scores from baseline were monitored. Reductions in the percentages of the VAS and MIDAS scores at the end of the third month were significantly higher in the acupuncture and hypnotherapy groups than those of the pharmacotherapy group ($p < .01$). Acupuncture and hypnotherapy can be developed as treatment options alone as an equivalent to conventional treatment.

Headache is a common pain condition that affects approximately half of the adult population in the world. Tension-type headaches, migraines, and cluster headaches are the most common types of headaches (Hainer & Matheson, 2013; Stovner et al., 2007).

Migraine is a chronic, paroxysmal, and neurovascular disease that begins at any age and decreases with age (Yücel, 2008). It affects approximately 10% of the adult population (Hainer & Matheson, 2013). Migraine can significantly affect quality of life, social functioning, and productivity (Mercante et al., 2007; Wang et al., 2016).

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The management of migraine headache is difficult. The general principle in migraine treatment is to prevent attacks. For the treatment of acute migraine attacks, drug groups—including nonsteroidal antiinflammatory drugs (NSAIDs), antiemetics, ergotamine derivatives, narcotic analgesics, and triptans—are used (Yücel, 2008).

In addition, some complementary and alternative therapies are used for migraine treatment. One of these methods used worldwide for migraine attacks is acupuncture (Du, Wang, Liu, & Liu, 2015). The available studies suggest that acupuncture may be effective in reducing migraines (Linde et al., 2016). The mechanisms by which acupuncture reduces pain are not yet fully known. The mechanisms are thought to be that acupuncture stimulates the pain control system by stimulating the neurons with the needle insertion at an acupuncture point. A series of events follow each other when an acupuncture needle is inserted at an acupuncture point. The stimulus first reaches the medulla spinalis, brain stem, and cortex. Subsequently, it stimulates the pain control system by stimulating neurons in the periaqueductal gray matter and periventricular area in the mesencephalon. As a result of the stimulation of the pain control system, beta endorphin, enkephalin, serotonin, and norepinephrine levels rise in the brain and plasma (Cabioglu, 2010). Through this effect, it is thought that acupuncture could be used for treatment of the pain syndrome.

Another method, hypnotherapy, is a complementary intervention used for therapeutic purposes in conditions including specific emotional, psychological, or physical problems (Colón & Avnet, 2014). As a complementary and alternative treatment modality categorized under “mind-body interactions,” hypnosis helps patients take responsibility for their own treatment with the guidance of a therapist (Set & Taştan, 2012). Hypnosis is a useful, important, and widely practiced complementary intervention in pain management (Colón & Avnet, 2014). Hypnotic suggestion may alleviate pain for the majority of persons, regardless of the type of pain they are experiencing (Montgomery, DuHamel, & Redd, 2000). Hypnotherapy is used in various headache situations (Ezra, Gotkine, Goldman, Adahan, & Ben-Hur, 2012; Kohen, 2011). It is a way to direct one’s attention to focus inward to achieve benefits including pain alleviation, and it works to prevent, reduce, or eliminate pain (Colón & Avnet, 2014; Steel, Frawley, Sibbritt, Broom, & Adams, 2016). It has virtually no side effects, does not cause adverse reactions, and is not expensive, as opposed to the prevalently applied medication treatments (Hammond, 2007).

Studies have shown that hypnotherapy may be effective in reducing migraines (Hammond, 2007; Milling, 2014; Spierings & Spierings, 2007). Results of the four prospective, controlled studies concluded that hypnosis is of benefit in the treatment of migraine headache (Spierings & Spierings, 2007). In a selective review of the literature, it was concluded that hypnosis is a well-established, efficacious, and

specific treatment for headaches (Hammond, 2007). In a controlled study conducted among patients who had suffered with migraines for a minimum of a year found that hypnotherapy was more effective than the medication treatment in terms of remission of migraines at 1-year follow-up (Anderson, Basker, & Dalton, 1975). Results of a comprehensive methodological review of 12 studies suggested that hypnotic activity was more effective than nontreatment to relieve migraine headache (Milling, 2014). However, there are not adequate studies comparing the effectiveness of hypnotherapy with alternative, nonhypnotic psychological interventions. Hypnotherapy may empirically fulfill the criteria for alleviation of the pain associated with migraine (Milling, 2014).

Clinicians treating headache may want to regard hypnosis as a beneficial treatment option, but there are few studies in the literature conducted on hypnotherapy for alleviating disability-related pain (Bowker & Dorstyn, 2016). In this area, further controlled and longitudinal research is needed (Bowker & Dorstyn, 2016).

In this study, we aimed to evaluate the results of acupuncture, hypnotherapy, and pharmacotherapy in migraine treatment.

MATERIAL AND METHODS

Study Design

This research was conducted as a comparative cohort trial during September 2015 through February 2016 at Ataturk University Research and Practice Center for Acupuncture and Complementary Medicine in Erzurum, Turkey.

Patients

Volunteers who were 18 years old or over and diagnosed with migraines at the neurology clinic participated in the study. Pregnant women, individuals with any disease requiring constant drug use other than migraines, and people aged of 65 years or older were excluded. The demographic characteristics of the patients were recorded. A total of 90 patients participated in this study.

The patients were divided into three groups of 30 each. In the study, patients in each group were recruited one by one based on their application dates. The participants were informed that only the treatment group would be included. None of the patients had information about the other two groups. Patients who did not volunteer to participate in a study group were not invited. Group 1 was treated with acupuncture alone, Group 2 was treated with hypnotherapy alone, and Group 3 was treated with pharmacotherapy alone.

During the first month of the study, six patients of the acupuncture group and three patients of the hypnotherapy group dropped out of

the study. In the acupuncture group, three patients quit because of the painful process, two quit because they did not see immediate results from the study, and one quit because she was not able to adjust to the treatment plan. In the hypnotherapy group, three patients quit the study because they did not see immediate results from the study. In place of these patients, the same number of new patients participated in the study. There were no patients who dropped out of the study during the second and third months.

The dropout rate was 10%. This could be due to making an interim assessment by the VAS and MIDAS at the end of the first month. Other reasons for the low dropout rate could be informing the patients about the treatment modalities, allowing sufficient time for patient meetings, and efficient communication skills of the researchers.

Research center personnel and the researcher conducting statistical analysis did not have the information about which participant was in which group, but data collection personnel and clinical staff were informed about the groups.

Interventions

Acupuncture Alone. Acupuncture was applied in Group 1 by a single certified acupuncturist. The patients had 10 acupuncture sessions; they occurred 3 days a week. Sterile, disposable, .20 × 13 mm (diameter × length) needles were used. The depth of insertion was 0.5 cun perpendicular to the localization points. The same acupuncture points at each session were selected, and the needles were retained for 30 minutes. The points selected were bilateral LI4, LU7, SI3, ST6, ST8, ST36, SP6, KI3, TE5, TE18, BL2, BL12, BL60, GB20, LR2, LR3, and Taiyang, and unilateral GV14, GV20, and Yintang points, also ear Shen Men, ear hypothalamus, and ear antidepressant points.

Hypnotherapy Alone. Group 2 was treated by a single certified hypnotherapist. The patients were included in 10 standardized hypnosis sessions that occurred 2 days a week. Each hypnosis session lasted for 45 minutes. For each induction, standardized outlines were used.

Hypnotic intervention was referred to as a “neurolinguistic approach.” In this technique, suggestions were made based on representation systems (visual, auditory, kinesthetic) of patients. A question was posed to the patients about something they already knew yet they needed to estimate, which was when their representation systems were designated (“Can you count how many windows there are in your home?”). Their eye movements were observed when they answered this question. The ones who thought while looking up were considered as visual, the ones who thought while looking at their ear line were considered as auditory, and the ones who thought while looking down

were considered as kinesthetic. Hypnosis was induced by an eye fixation or arm levitation technique based on standard procedures.

Then, suggestions according to the representation systems of patients were guided to deepening of induction and relaxation.

To the patients who had a visual representation system:

I want you to imagine yourself taking a walk in a verdant valley from the moment you closed your eyes. ... You feel more relaxed at each step ... see the yellow, green, blue, colorful flowers around and get relaxed. ... Relax as you get comfortable and get comfortable as you relax. ... And now, you are looking at the blue sky. ... Pure white clouds are like cotton balls and give you peace. ... As this peace increases even more within you, relax and go into a trance. ... That's okay ... very nice.

To the patients who had an auditory representation system:

I want you to find yourself listening to the sound of the waves at seashore from the moment you closed your eyes. ... You feel relaxed and get comfortable as the sound of the waves breaking at the shore reminds you the melody you like the best. ... As the waves continue to break the shore rhythmically ... you feel even deeper and deeper comfort. ... It will get deeper as you relax ... you will relax as it gets deeper ... and you will go into deeper and peaceful trance. ... That's okay ... very nice.

To the patients who had a kinesthetic representation system:

Feel yourself walking on the beach at the seashore ... from the moment you closed your eyes. ... Relax at each step you take ... and get deeper as you relax. ... You are not wearing shoes, socks, or slippers. ... As you walk barefoot ... on the sand, feel the heat of sand ... and as the sea waves break at your feet now and then ... feel the heat of the water. ... It makes you relaxed and comfortable. ... Relax ... relax and get deeper ... as the waves breaking at your feet take away the stress built up in your body. ... As you feel the heat of the sand on your feet, relax ... and as you relax, get comfortable. ... As this comfort increases, you feel peaceful ... and you experience even deeper relaxation. ... Feel and go into deeper trance. ... That's okay ... very nice.

During the first and second sessions, complete relaxation hypnosis was administered to all patients to achieve physical and mental relaxation. During the third session, hypnotherapy was performed using positive imagination techniques.

To the patients who had a visual representation system:

From this moment ... every beautiful thing you see is turning to positive energy in your body. ... Each cell in your body is just like a part of a power plant and gives you peace. ... Healthy and energetic cells are replacing all of your sickly cells and you are filled with

positive energy. ... Relax and get comfortable ... go into deeper and deeper trance.

To the patients who had an auditory representation system:

Each sound you hear is almost like healing electromagnetic voices and fluxes. ... As you feel it in your whole body ... each sound coming to your ears is almost like a cure to you... As each sound wave you hear continues to relax you like a healing sonar wave, relax. ... You are advancing toward a deeper and deeper trance.

To the patients who had a kinesthetic representation system:

As all of your senses feel where you are and relax you like psychotherapeutic suggestion patterns, you continue to get comfortable. ... All of your negative feelings are replaced by positive emotions from now on and get deeper ... deeper and feel.

The fourth session consisted of suggesting that patients can control their symptoms with their unconscious minds. ("You will feel that all of your cells that give you a headache are healed, starting from this day, and you will relax. ... You will prefer to get relaxed and go on with your life from where you left it as healthy rather than anxious and worried about where, when, and how your pain will start. ... And from now on ... your pains will be replaced by tranquility and your anxiety will be replaced with peace and comfort.")

During the fifth session, patients were instructed in self-hypnosis by the same hypnotherapist. Migraine headache control methods were taught to patients when pain attacks came or they felt them coming: The patients were given a suggestion that when they felt a migraine coming to make their right hand into a fist, then take a deep breath and relax their fist as they breathed out. After this anchor method was taught, participants were asked to close their eyes when the pain came or they felt it coming, and they were given a posthypnotic suggestion that they would feel themselves comfortable and peaceful when they applied this method.

During the sixth session, posthypnotic suggestions were provided. ("You will feel relaxed and much better from the moment you open your eyes. ... Whenever you feel yourself unwell and you close your eyes and take a deep breath and breathe out, you will feel like we are giving you therapy ... and you will relax and get comfortable ... and my voice will be with you whenever you want.")

Starting in the seventh session, there were also posthypnotic suggestions as well as suggestions for improving self-confidence, and hence 10 sessions were completed. ("You are someone whose mental state is well, who is successful and knows what you are doing. ... From this day on ... you will make more positive suggestions for your body and prove it one more time. ... You knew how

to cope with many negative incidents up until today ... and from this day on, you will cope with this disturbance as well ... because you have the capacity, mental competency, and tenacity to do all of these.”)

Pharmacotherapy Alone. Group 3 was treated with pharmacotherapy planned by the neurology clinic. The patients in this group were routinely administered with acetaminophen 650 or 1300 mg twice daily during the first 10 days. Subsequently, acetaminophen 650 or 1300 mg was administered for several days twice a day when patients had migraine headache.

Outcomes

The visual analog scale (VAS) and Migraine Disability Assessment (MIDAS) questionnaire were used to assess pain levels and disability due to migraine at the baseline and during the first and third months. The baseline measurements were made following group allocation.

The VAS is an instrument that measures a characteristic or an attitude that is believed to range across a continuum of values and cannot be directly and easily measured (Crichton, 2001). The VAS is a 100 mm (10 cm) line, anchored by word descriptors at each end. It is written on one end (0 point) that there is no pain, and very severe pain on the other end (10 points). The patient marks on the line the point that represents his or her current state—namely, the distance from where no pain ever occurred to the point where the patient had pain. The VAS score is determined by measuring the distance between the left end of the line and the point the patient marks (Crichton, 2001).

The MIDAS questionnaire consists of five disability-related questions covering the previous 3 months. Patients indicate the number of days lost to migraine headache in three domains. These domains are school or paid work; household work; and family, social, or leisure activities. In addition, they report the number of additional days with significant limitations of activity (defined as at least 50% reduced productivity) in the paid work and household work domains. The MIDAS score is the sum of the scores received in these five questions (Ertaş et al., 2004). The validity and reliability of the MIDAS questionnaire has been established (Ertaş et al., 2004; Gedikoglu et al., 2005).

These data collection tools were applied to all patients using the face-to-face interview method. The changes in the VAS and MIDAS scores were the main and secondary outcomes obtained in the study.

Statistical Analysis

The data were analyzed using the SPSS 18.0 statistical software package. Normal distribution was assessed by using the Kolmogorov-

Smirnov one-sample test. Numerical variables are expressed as mean $\pm$ SD. Repeated-measures ANOVA, one-way ANOVA, post hoc Tukey test, and chi square test were used for comparisons. The statistical significance was set at $p < .05$.

Ethical Considerations

This study was approved by the Local Ethics Committee of Ataturk University Medical Faculty in Erzurum (17.09.2015/12).

RESULTS

The mean age of the participants was 33.0 ± 6.9 years; 28.9% ($n = 26$) of the participants were male, and 71.1% ($n = 64$) were female. The baseline features of the participants are shown in [Table 1](#).

The VAS and MIDAS scores of all three groups decreased significantly ($p < .001$; see [Table 2](#) and [Figure 1](#)).

The percentage reduction in the VAS score varied significantly between the groups at the first and the third months ($p < .01$, [Table 3](#)). The percentage reduction in the VAS score at the first month in the acupuncture group was significantly higher than that of the pharmacotherapy group ($p = .002$). The percentage reduction in the VAS score at the third month in the acupuncture and hypnotherapy groups was significantly higher than that of the pharmacotherapy group ($p < .001$).

The percentage reduction in the MIDAS score at the first month was not significantly different between the groups ($p = .256$; see [Table 3](#)). The percentage reduction in the MIDAS score was significantly different between the groups at the third month ($p = .001$). The percentage reduction in the MIDAS score at the third month in the acupuncture and hypnotherapy groups was significantly higher than that of the pharmacotherapy group ($p = .007$ and $p = .002$, respectively).

DISCUSSION

In this study, the VAS and MIDAS scores of patients with migraine headache decreased significantly with acupuncture, hypnotherapy, and pharmacotherapy. We obtained better results with acupuncture and hypnotherapy when compared with pharmacotherapy. Acupuncture and hypnotherapy alone were effective for migraine headaches.

Acupuncture is often used for migraine treatment (Linde et al., 2016). A study indicated that acupuncture decreased the frequency and intensity of migraines, and the benefit had not subsided within 12 weeks after the final acupuncture session (Plank, Goodard, Pasierb, Simunich, & Croner, 2013). In our study, the VAS score in the acupuncture group decreased more in comparison to the pharmacotherapy group at the first and third months. There was no difference between the MIDAS scores of

Table 1
The Baseline Characteristics of the Participant Groups

	Acupuncture (<i>n</i> = 30)	Hypnotherapy (<i>n</i> = 30)	Pharmacotherapy (<i>n</i> = 30)	F, χ^2 *	<i>P</i>
Age (mean $\pm$ SD)	34.9 $\pm$ 8.1	31.4 $\pm$ 6.0	32.7 $\pm$ 6.3	1.937	.150
Gender [n/(%)]					
Male	10/(33.3)	7/(23.3)	9/(30.0)	.75	.685
Female	20/(66.7)	23/(76.7)	21/(70.0)	7*	
VAS score (mean $\pm$ SD)	8.6 $\pm$ 0.8	9.0 $\pm$ 0.5	9.1 $\pm$ 0.6	4.123	.019*
MIDAS score (mean $\pm$ SD)	13.4 $\pm$ 3.3	13.7 $\pm$ 3.4	13.6 $\pm$ 3.8	0.067	.936

Note: VAS = visual analog scale. MIDAS = Migraine Disability Assessment. The VAS score was significantly different between the acupuncture group and the pharmacotherapy group ($p = .018$).

Table 2
Variations in the VAS and MIDAS Scores in the Treatment Groups

	Acupuncture	Hypnotherapy	Pharmacotherapy
VAS score (mean ± SD)			
Baseline	8.6 ± 0.8	9.0 ± 0.6	9.1 ± 0.7
First month	4.9 ± 1.4	5.6 ± 1.2	6.4 ± 1.1
Third month	1.2 ± 1.0	1.2 ± 0.8	4.0 ± 1.6
F	429.142	867.996	187.869
p*	< .001	< .001	< .001
MIDAS score (mean ± SD)			
Baseline	13.4 ± 3.4	13.8 ± 3.4	13.6 ± 3.9
First month	7.7 ± 2.3	6.8 ± 2.2	7.6 ± 2.4
Third month	3.5 ± 1.9	3.3 ± 1.8	5.3 ± 1.4
F	95.335	96.230	90.380
p*	< .001	< .001	< .001

Note: VAS = visual analog scale. MIDAS = Migraine Disability Assessment. *The VAS and MIDAS scores in all groups decreased significantly between the baseline and first month, and between the first month and third month ($p < .001$).

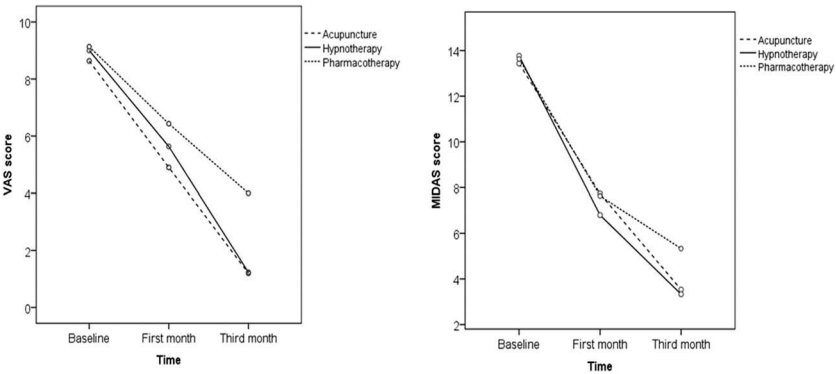


Figure 1. The variations in the VAS and MIDAS scores in the treatment groups. VAS: Visual analog scale. MIDAS: Migraine disability assessment.

the groups at the first month. At the third month, the MIDAS scores of the acupuncture group decreased more in comparison to the pharmacotherapy group. These findings may be related to the local effects of acupuncture and the fact that acupuncture is an invasive procedure.

The available evidence suggests that adding acupuncture to symptomatic treatment of attacks reduces the frequency of headaches (Linde

Table 3
Percentages of Variations in the VAS and MIDAS Scores in the Treatment Groups

	Reduction in the VAS scores (%)		Reduction in the MIDAS scores (%)	
	First month	Third month	First month	Third month
Acupuncture	42.8 ± 16.7	85.7 ± 11.6	39.3 ± 21.0	71.5 ± 18.0
Hypnotherapy	37.1 ± 14.0	86.2 ± 8.6	47.7 ± 20.8	73.5 ± 17.4
Pharmacotherapy	29.5 ± 11.7	56.3 ± 16.9	40.2 ± 22.4	57.9 ± 14.9
F	6.488	53.138	1.383	7.651
p	.002*	< .001**	.256	.001***

Note: VAS = visual analog scale. MIDAS = Migraine Disability Assessment. *The VAS scores at first month decreased significantly more in the acupuncture group in comparison to the pharmacotherapy group ($p = .002$). **The VAS score at third month decreased significantly more in the acupuncture and hypnotherapy groups in comparison to the pharmacotherapy group ($p < .001$). ***The MIDAS scores at the third month decreased significantly more in the acupuncture and hypnotherapy groups in comparison to the pharmacotherapy group ($p = .007$ and $p = .002$, respectively).

et al., 2016). Acupuncture can be considered as a treatment option for patients willing to undergo this procedure (Linde et al., 2016).

Pain is a serious health care problem, and there is growing evidence to support the use of hypnosis and cognitive-behavioral interventions for pain management (Elkins, Johnson, & Fisher, 2012). However, there were almost no studies conducted on the treatment of migraine by hypnotherapy during the last two decades. In our study, no difference was found between the VAS score of the hypnotherapy group and the VAS scores of the other groups at the first month. The VAS scores of the hypnotherapy group decreased more in comparison to the pharmacotherapy group at the third month. The MIDAS scores of the hypnotherapy group decreased more in comparison to the pharmacotherapy group at the third month. This result may be due to the positive impact on the emotional and psychological components of hypnotherapy and because the patients took more responsibility for the treatment.

Considering the side effects of pharmacotherapy, hypnotherapy and acupuncture may be more advantageous in the management of migraine headache in suitable patients.

Limitations of the Study

The main limitation of our study was that the follow-up time was short. If the study had been conducted for at least a year, the results would be more valuable.

An important limitation of the study was that concealment of treatment types from participants and data collection and clinical staff was not possible because of the treatment characteristics. Another weakness was that hypnotizability was not assessed. A third limitation was that the patients' demographical characteristics, including their education level and socioeconomic status, were not assessed. Additionally, the validity and reliability of the MIDAS questionnaire were not assessed in our study.

Strengths of the Study

There is only limited research conducted on hypnotherapy for the treatment of disability-related pain in the literature. In addition, acupuncture and hypnotherapy were used alone, not as adjunctive therapy in this study.

CONCLUSION

This study showed that acupuncture and hypnotherapy alone were effective for the treatment of migraine headaches. Acupuncture and hypnotherapy were more beneficial when compared to pharmacotherapy. These therapies can be developed as a treatment option alone as an equivalent to the conventional treatment for migraine headaches.

DISCLOSURE STATEMENT

The authors declare no conflict of interest.

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Ein Vergleich der Effizienz von Akupunktur und Hypnotherapie bei Migränepatienten

KENAN TASTAN, OZLEM OZER DISCI, UND TURAN SET

Abstract: Die Studie untersuchte den Effekt von Akupunktur, Hypnotherapie und Pharmakotherapie in der Migränebehandlung von 90 Patienten. Diese wurden in 3 Gruppen zu je 30 Personen eingeteilt. Gruppe 1, Gruppe 2 und Gruppe 3 wurden jeweils nur mit Akupunktur, beziehungsweise nur Hypnotherapie, beziehungsweise nur Pharmakotherapie behandelt. Die Veränderungen wurden in der Visuellen Analogskala (VAS) und dem Migraine Disability Assessment (MIDAS) in Bezug auf die Messbasis beobachtet. Die prozentualen Reduktionen in der VAS und dem MIDAS waren am Ende des dritten Monats signifikant höher in der Akupunktur- und der Hypnotherapie-Gruppe als in der Pharmakotherapie-Gruppe ($p < 0,01$). Akupunktur und Hypnotherapie können als alleinige Therapieoptionen äquivalent zur herkömmlichen Behandlung entwickelt werden.

STEPHANIE RIEGEL, M.D.

Une comparaison de l'efficacité de l'acupuncture et de l'hypnothérapie chez des patients atteints de migraine

KENAN TASTAN, OZLEM OZER DISCI, ET TURAN SET

Résumé: Les auteurs de cette étude ont examiné l'effet de l'acupuncture, de l'hypnothérapie et de la pharmacothérapie sur le traitement de la migraine chez

90 patients. Ceux-ci ont été divisés en 3 groupes de 30 personnes chacun. Le groupe 1, le groupe 2 et le groupe 3 ont été traités, respectivement, par acupuncture, hypnothérapie et pharmacothérapie. Les variations des scores de l'échelle analogique visuelle (SAV) et du questionnaire MIDAS (Migraine Disability Assessment) ont été observées par rapport à la ligne de base. La réduction des pourcentages des SAV et du questionnaire MIDAS à la fin du troisième mois était significativement plus importante au sein des groupes de l'acupuncture et de l'hypnothérapie qu'au sein du groupe de la pharmacothérapie ($p < 0,01$). L'acupuncture et l'hypnothérapie peuvent ainsi chacune devenir des options de traitement équivalentes à un traitement classique.

JOHANNE RAYNAULT

C. Tr. (STIBC)

Una comparación de la eficacia de la acupuntura y la hipnoterapia en pacientes con migraña.

KENAN TASTAN, OZLEM OZER DISCI, Y TURAN SET

Resumen: Este estudio investigó el efecto de la acupuntura, hipnoterapia y farmacoterapia para el tratamiento de migraña en 90 pacientes. Se dividieron en tres grupos de 30 personas cada uno. Los grupos 1, 2 y 3 fueron tratados con acupuntura, hipnoterapia y farmacoterapia respectivamente. Se monitorearon los cambios en la escala visual análoga (VAS por sus siglas en inglés) y la Evaluación de Discapacidad por Migraña (MIDAS por sus siglas en inglés) a partir de la línea basal. Al final del tercer mes se encontraron reducciones significativamente mayores en los porcentajes de las puntuaciones VAS y MIDAS para los grupos de acupuntura e hipnoterapia en comparación al grupo de farmacoterapia ($p < .01$). La acupuntura e hipnoterapia pueden desarrollarse como opciones de tratamiento por sí mismas como equivalentes al tratamiento convencional.

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