

Efficacy of Acupuncture for the Treatment of Primary Dysmenorrhea

Dubravko Habek^a Jasna Čerkez Habek^b Mirna Bobić-Vuković^a
Bojana Vujić^a

^aClinical Department of Gynecology and Obstetrics, and ^bClinical Department of Internal Medicine, Clinical Hospital, Osijek, Croatia

Key Words

Primary dysmenorrhea · Acupuncture

Abstract

Objective: The aim of this study was to evaluate the effect of acupuncture (AP) in the treatment of primary dysmenorrhea (PD). **Methods:** A clinical prospective, placebo-controlled trial included 57 women with PD. Of these, 30 were treated with manual AP points: Du 20 (Baihui), bilateral Li 4 (Hegu), Ren 3 (Zhongji), Ren 4 (Guanyuan), Ren 6 (Qihai), bilateral Gb 34 (Yanglingquan), bilateral Ub 23 (Shenshu), bilateral Lp 6 (Sanyinjiao) and auriculoacupuncture points (Shenmen); 27 women were treated with placebo AP. AP treatments were considered successful if PD did not occur any more, medication of PD became unnecessary or PD symptoms did not occur for 2 years after the AP treatment. **Results:** The occurrence of PD in nulliparae was statistically relevant ($p < 0.001$). Statistically relevant was also the decrease in medication in women to whom AP had been applied ($p < 0.0001$), which was not the case in the placebo group ($p > 0.5$). **Conclusions:** The success rate of AP for the treatment of PD symptoms within 1 year after the AP treatment is 93.3% in the first group and 3.7% in the placebo group.

Copyright © 2003 S. Karger AG, Basel

Schlüsselwörter

Primäre Dysmenorrhö · Akupunktur

Die Wirksamkeit der Akupunktur in der Behandlung der primären Dysmenorrhö

Ziel: Das Ziel dieser Studie war die Beurteilung der Wirkung von Akupunktur (AP) in der Behandlung der primären Dysmenorrhö (PD). **Methode:** Eine klinische, prospektive, placebokontrollierte Studie umfasste 57 Frauen mit PD. Davon wurden 30 mittels manueller AP-Punkten behandelt: Du 20 (Baihui), bilateraler Li 4 (Hegu), Ren 3 (Zhongji), Ren 4 (Guanyuan), Ren 6 (Qihai), bilateraler Gb 34 (Yanglingquan), bilateraler Ub 23 (Shenshu), bilateraler Lp 6 (Sanyinjiao) und Ohrakupunkturpunkte (Shenmen); 27 Frauen wurden mit Place-

bo behandelt. Die AP-Behandlungen wurden als wirkungsvoll betrachtet, wenn die PD nicht mehr auftrat, wenn eine medikamentöse Behandlung von PD nicht mehr nötig war oder wenn die Symptome der PD in den nächsten 2 Jahren nach der AP-Behandlung nicht mehr auftraten. **Ergebnisse:** Die Inzidenz von PD in Nulliparae war statistisch relevant ($p < 0,001$). Ebenso war die Reduzierung der medikamentösen Behandlung bei Frauen, bei denen AP angewendet wurde, statistisch relevant ($p < 0,0001$), was in der Placebogruppe nicht der Fall war ($p > 0,5$). **Schlussfolgerung:** Die Erfolgsrate der AP in der Behandlung von PD-Symptomen im Jahr nach der AP-Behandlung ist 93,3% in der ersten Gruppe und 3,7% in der Placebogruppe.

Efficacité d'un traitement par acupuncture au cours des dysménorrhées primaires

Objectif: Le but de cette étude était d'évaluer l'efficacité d'un traitement par acupuncture (AP) au cours des dysménorrhées primaires (DP). **Méthodes:** Dans une étude clinique contrôlée prospective versus placebo, 57 femmes avec DP ont été incluses. Parmi elles, 30 femmes ont été traitées avec des points manuels d'AP: Du 20 (Baihui), Li 4 bilatéral (Hegu), Ren 3 (Zhongji), Ren 4 (Guanyuan), Ren 6 (Qihai), Gb 34 bilatéral (Yanglingquan), Ub 23 bilatéral (Shenshu), Lp 6 bilatéral (Sanyinjiao) et des points d'auriculoacupuncture (Shenmen); 27 femmes ont été traitées par AP placebo. Les critères d'évaluation de l'efficacité des traitements par AP étaient: l'absence de récurrence de DP, l'inutilité de recours à un traitement médicamenteux ou l'absence de récurrence de la symptomatologie 2 ans après la fin du traitement. **Résultats:** Il existe une survenue statistiquement plus importante de DP chez les femmes nullipares ($p < 0,001$). De même, la diminution du traitement médicamenteux chez les femmes traitées par AP était statistiquement significative ($p < 0,0001$) tandis que dans le groupe placebo ce n'était pas le cas ($p > 0,5$). **Conclusion:** Le taux de succès du traitement par AP des symptômes de la DP a été de 93,3% pour le premier groupe et de 3,7% pour le groupe placebo 1 an après traitement par AP.

Introduction

Dysmenorrhea, or painful menstruation, is the most common gynecologic complaint of young women. The prevalence of dysmenorrhea among females aged 10–20 years ranged from 43 to 72%. Primary dysmenorrhea versus algomenorrhea (PD) is defined as pelvic cramping pain occurring just before or during menstruation, in the absence of other diseases such as endometriosis. The first dysmenorrheic symptoms typically develop 1–3 years following menarche in girls with established ovulatory menstrual cycles. The pelvic cramping may radiate to the back and along the inner aspects of the thighs and is accompanied by one or more systemic symptoms in greater than 50% of patients, including nausea and vomiting, fatigue, lower backache, diarrhea and headache, and psychosomatic symptoms (anxiety, depression). Rarely, the severity of pain may cause syncope and collapse [1–3].

Women with PD have an increased production of endometrial prostaglandin ($\text{PgF}_{2\alpha}$), resulting in increased uterine tone and stronger, more frequent uterine contractions [3].

Direct measurement of prostaglandins in the endometrium and jet washings of the uterus have also shown increased concentrations in dysmenorrheic women as compared to those who do not experience painful menses [4].

Nonsteroidal anti-inflammatory medications (NSAIDs: ibuprofen, ketoprofen, naproxen, diclofenac, piroxicam, meclofenamate, flurbiprofen) are the mainstay of treatment, with the addition of oral contraceptive pills when necessary. The nonpharmacologic treatment of PD includes acupuncture (AP), transcutaneous electrical nerve stimulation and psychotherapy [5–8].

The aim of this study was to evaluate the effect of AP in the treatment of PD.

Material and Methods

A clinical prospective, placebo-controlled trial included 57 women with PD in the Department of Gynecology and Obstetrics of the Health Center Bjelovar and the Clinical Department of Obstetrics and Gynecology, Clinical Hospital Osijek, Croatia. 30 women were treated with manual AP points: Du 20 (Baihui), bilateral Li 4 (Hegu), Ren 3 (Zhongji), Ren 4 (Guanyuan), Ren 6 (Qihai), bilateral Gb 34 (Yanglingquan), bilateral Lp 6 (Sanyinjiao), bilateral Ub 23 (Shenshu) and auriculoacupuncture points (Shenmen) [9]. Traditional Chinese medicine AP describes two types of dysmenorrheic etiology: Shi (excess) and Xu (deficiency). Dysmenorrhea of the Xu type is caused by insufficiency of Qi and blood and dysfunction of the Chong and Ren channels. All women were of the Xu type with lower abdominal pain at the late stages of menstruation or postmenstruation, mild but persistent pain responding to warmth and pressure, and scanty menstrual flow which was pinkish in color [10]. 27 women were treated with placebo – superficial intracutaneous AP without any 'de qi' effect (colored skin and local and general sensation after acupuncture

Table 1. Successful AP in the treatment of PD (n = 57)

	Acupuncture treatment	Placebo acupuncture
Number of cases	30	27
Mean age, years	20 ± 3.6	20 ± 4.1
Number of children		
0	28	25
1	2	2
Need for medicamentous therapy		
NSAIDs	1	20
Oral contraceptives	1	6
Adverse effects		
Subcutaneous hematoma	–	1
Local pain	1	–
Success rate, %	93.3	3.7

stimulation of the acupoint), inserting the same type of needles at points on the lateral thighs and arms that were not on the classically described meridians [5].

During the initial orientation and interview, each woman completed a patient history form containing questions about demography, medical and gynecologic history, psychological makeup and prior treatment by AP. All women agreed to this treatment voluntarily after they had been acquainted with the functioning mechanism, indications, contraindications and side effects of the AP. The points were located by anatomic palpation according to their classical descriptions. AP treatment was done by a gynecologist inserting thin solid sterilized stainless-steel needles until the local de qi effect was obtained.

The AP treatment was conducted in sessions for 3 consecutive days before the expected menstruation, in the course of 3 consecutive cycles, with a duration of 30 min a day. AP treatments were considered successful if PD did not occur any more, medication of PD became unnecessary or PD symptoms did not occur for 2 years after the AP treatment.

Statistical testing of frequency data was carried out by MANOVA, and probability values <0.05 were considered significant.

Results

The mean age of the women suffering from PD and included in the study was 20 ± 3.6 years (first group) and 20 ± 4.1 years (placebo group). There were 28 women (first group) and 25 women (second group) who had not had a baby or a miscarriage, and 2 women each (first and second group) had 1 child (table 1). The occurrence of PD was statistically relevant in nulliparae ($p < 0.001$).

After 3 AP treatments, 1 woman from the first group and 20 women from the second (placebo) group felt a need to take an NSAID (naproxen), while oral contraceptives were prescribed for 6 women from the second group and 1 woman from the first group. The decrease in the medication in women to whom AP had been applied was

statistically significant ($p < 0.0001$), which was not the case in the placebo group ($p > 0.5$).

The success rate of AP in treating PD symptoms 2 years after the AP treatment is 93.3% in the first group and 3.7% in the second group (table 1).

Discussion and Conclusion

Traditional Chinese medicine AP has not been used very often during pregnancy, labor and at delivery. AP was modified in Europe to use during pregnancy and labor and various gynecologic disorders, including amenorrhea, dysmenorrhea, menorrhagia and infertility [11–13].

AP is a specialized sensory stimulation via the sensory neural pathways. Therefore to understand its action we have to analyze the neuroanatomy, neurophysiology and neuropharmacology, aided with a knowledge of neuroendocrinology and the chemoarchitecture of the brain. Inserting 1 or more needles at particular points of the body activates neural pathways on three different levels, provoking local, regional and general reactions. AP is characterized by alpha rhythms of the electroencephalogram, by relaxed wakefulness, by analgesia and by the pervasion of virtually the entire body [14].

We can explain the action of AP in acute and chronic pain syndromes, allergies, in addiction and psychosomatic disorders by the role of central neurotransmitters and the modulatory systems that are activated by acupoints (opioid, nonopioid and central sympathetic inhibitory mechanisms). The transmitter or 'information' substances for which research data have established a connection with AP include α - and β -endorphins, leu- and met-enkephalins, dynorphin A and B, substance P, serotonin, noradrenaline, dopamine, epinephrine, acetylcholine, adrenocorticotrophic hormone, glycine, glutamic acid, the prostaglandins and cyclic AMP and GMP [15].

PD is very frequent in ovulating women; it can even become a disease. In some cases, but not always, it is preceded by premenstrual tensions. PD involves the entire organism and the psyche of the suffering woman. The problem is its cyclic repetition and everlasting expectation of pain [16]. Tsenov [17] studied the effect of treating primary and secondary dysmenorrhea by AP. He concluded that the effect of AP treatment on dysmenorrhea depended on the kind of dysmenorrhea. PD has been well influenced, while secondary dysmenorrhea has been influenced satisfactorily. Helms [5] has recently reported that 10 of 11 subjects treated with AP for relief of PD showed an improvement in symptoms, compared with 4 of 11 women with placebo AP. In addition to decreasing cramping pain, AP resulted in an amelioration of the extragenital symptoms of nausea, headache and back-

ache, and of the premenstrual symptoms of fluid retention and breast tenderness.

Following examination of 100 dysmenorrheic women (aged 14–45 years) and symptom collection, Bondi and Albo [18] tested 40 patients by AP and auriculo-AP. Before a short introduction to the etiology of dysmenorrhea, the authors explain the AP therapy given to 20 patients treated before with other therapies without success and 20 untreated patients describing the clinical cases and the different results.

Marić [19] reported 32 patients with PD treated with AP. A relief of dysmenorrheic pain was already evidenced after the first menstruation. A year after the completed therapy there was a full disappearance of dysmenorrheic pain in 93 and a partial one in 7 cases.

It is known that any acupoint has two parts: the superficial and the deep. We tried to prick very lightly to avoid that superficial part of the acupoint, but we know that we must have provoked some acupuncture effects, as the success rate in the placebo group was 3.7%.

In our sample, the efficacy of AP in treating PD 2 years after the therapy amounts to 93.3%. AP was found to have positive effects on psychosomatic equilibrium and proved the neuroendocrine modulation of the neurotransmitters serotonin, noradrenaline and prostaglandin, which influence the incidence of PD symptoms and are probably the foundation for AP treatment. We recommend AP as an optional method for the treatment of PD symptoms to the women who choose this kind of treatment and who have no additional indication for medication.

References

- 1 Dawood MY: Etiology and treatment of dysmenorrhea. *Semin Reprod Endocrinol* 1985;3: 283–286.
- 2 Boddén-Heidrich R, Busch M, Kuppers V, Beckmann MW, Rechenberger I, Bender HG: Chronische Unterbauschmerzen und chronische Vulvodynie als multifaktorielle psychosomatische Krankheitsbilder: Ergebnisse einer psychometrischen und klinischen Studie unter besonderer Berücksichtigung der muskuloskeletalen Erkrankungen. *Zentralbl Gynäkol* 1999;121:389–394.
- 3 Coco AS: Primary dysmenorrhea. *Am Fam Physician* 1999;60:489–490.
- 4 Halbert DR, Demers LM, Fontana J, Jones DED: Prostaglandin levels in endometrial jet wash specimens in patients with dysmenorrhea before and after indomethacin therapy. *Prostaglandins* 1975;19:1047–1050.
- 5 Helms JM: Acupuncture for the management of primary dysmenorrhea. *Obstet Gynecol* 1981;69:51–53.
- 6 Dawood MY, Ramos: Transcutaneous electrical nerve stimulation (TENS) for the treatment of primary dysmenorrhea: A randomized crossover comparison with placebo TENS and ibuprofen. *Obstet Gynecol* 1990;75:656–661.
- 7 Denna DR, Gerrard M: Behavioral treatments of primary dysmenorrhea: A review. *Behav Res Ther* 1981;13:303–305.
- 8 Kaplan B, Rabinerson D, Pardo J, Krieser RU, Neri A: Transcutaneous electrical nerve stimulation (TENS) as a pain relief device in obstetrics and gynecology. *Clin Exp Obstet Gynecol* 1997;24:123–127.
- 9 Xue K, Lu X (eds): *Essentials of Chinese Acupuncture*. Beijing, Foreign Languages Press, 1993, pp 105–297.
- 10 Hillenbrandt N, Focks C, Bodenschatz LI, Geiger W: Praktische Therapie nach westlich orientierter Diagnose: Dysmenorrhö; in Focks C, Hillenbrandt N (eds): *Leitfaden Traditionelle Chinesische Medizin*. 2. vollständig überarbeitete Auflage. München, Urban & Fischer, 2000, pp 880–883.
- 11 Römer A, Weigel M, Zieger W: *Akupunktur-therapie in Geburtshilfe und Frauenheilkunde*. Stuttgart, Hippocrates, 1998, pp 53–67.
- 12 Habek D: Acupuncture: Clinical use in gynaecology, obstetrics and reproductive medicine. *Gynecol Perinatol* 2001;10:138–144.
- 13 Habek D, Čerkez Habek J, Barbir A: Using acupuncture to treat premenstrual syndrome. *Arch Gynecol Obstet* 2002;267:23–26.
- 14 Hui KKS, Liu J, Makris N, Gollub R, Chen AJW, Moore CL, Kennedy DN, Rosen BR, Kwong KK: Functional MRI evidence that acupuncture modulates the limbic system and subcortical gray structures of the human brain. *Hum Brain Mapp* 2000;9:13–16.
- 15 Tempfer C, Zeisler H, Heinzl H, Hefler L, Husslein P, Kainz C: Influence of acupuncture on maternal serum levels of interleukin-8, prostaglandin F2alpha, and beta-endorphin: A matched pair study. *Obstet Gynecol* 1998;92: 245–249.
- 16 Ludwig H: Dysmenorrhoe. *Ther Umsch* 1996; 53:431–433.
- 17 Tsenov D: The effect of acupuncture in dysmenorrhea. *Akush Ginekol* 1996;35:24–28.
- 18 Bondi N, Albo R: Dysmenorrhea: Acupuncture treatment of 40 cases coming to our attention – Clinical note. *Minerva Med* 1981;72 1981: 2227–2229.
- 19 Marić R: Acupuncture treatment of primary dysmenorrhea. *Jugosl Ginekol Opstet* 1984;24: 104–106.