

The Effectiveness of Combined Chinese Herbal Medicine and Acupuncture in the Treatment of Atopic Dermatitis

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Abstract

Background: Patients with atopic dermatitis increasingly use complementary medicine.

Objective: The objective of this study was to assess the effectiveness of the combination of Chinese herbal medicine and acupuncture for the treatment of atopic dermatitis.

Methods: Twenty (20) patients between the ages of 13 and 48 who had mild-to-severe atopic dermatitis were given a combined treatment of acupuncture and Chinese herbal medicine and were followed prospectively. The patients received acupuncture treatment twice a week and the Chinese herbal formula 3 times daily for a total of 12 weeks. Assessments were performed before treatment, and at weeks 3, 6, 9, and 12 of treatment. The primary outcomes were defined as the changes in the Eczema Area and Severity Index (EASI), Dermatology Life Quality Index (DLQI), and patient assessment of itch measured on a visual analogue scale (VAS).

Results: After 12 weeks of treatment, an improvement in EASI was noted in 100% of patients, when compared with the baseline. The mean EASI fell from 4.99 to 1.81; the median percentage of decrease was 63.5%. Moreover, 78.8% of patients experienced a reduction in DLQI and VAS, as compared with the baseline. The mean DLQI decreased from 12.5 to 7.6 at the end of treatment, with 39.1% improvement. Mean VAS decreased from 6.8 to 3.7, with 44.7% improvement. No adverse effects were observed.

Conclusions: The results of this study suggest that the combination of acupuncture and Chinese herbal medicine have a beneficial effect on patients with atopic dermatitis and may offer better results than Chinese herbal medicine alone.

Introduction

Atopic dermatitis is a common, inflammatory skin disease that typically runs a chronic course of exacerbation and remission, with intense itching being the predominant symptom leading to damaging excoriations, erosions, and lichenification of the skin.¹ The disease has a significant impact on quality of life and can constitute a considerable burden to the patient and society.^{2,3} Although a steady increase in disease prevalence has been observed in most industrialized countries in the last 3 decades,^{4,5} no curative treatment has been found yet. The application of emollients and topical steroids with their local and systemic potential side-effects

has been the standard choice of treatment in disease flares for more than 40 years.

In the past 20 years, there has been a significant increase in the use of complementary medicine among patients with chronic inflammatory dermatoses.^{6,7} According to Johnston et al., the leading reason for turning to complementary medicine (57% of patients) was due to failure of conventional therapy.⁸

Acupuncture and Chinese herbal medicine (CHM), the major components of classical Chinese medicine, have been used for centuries to treat diseases in China.⁹ Traditional Chinese Medicine (TCM) refers to the treatments based on the same principles given since the middle of the last century.

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Diagnosis is made by careful history, observing posture, and the appearance of the skin, hair, and eyes. Special attention is paid to the quality of pulse and the appearance of the tongue. It uses a holistic approach that focuses on maintaining a balance of body, mind, and environment, with treatment individualized and different from person to person, even if, according to Western medicine, each person appears to be suffering from the same illness.¹⁰

A number of randomized, controlled studies have demonstrated the efficacy of CHM in treating atopic dermatitis.^{11–14} For methodological reasons, in all these studies one standard concoction was given to all patients in the treated group, which contradicted the individualization idea of TCM. A smaller number of uncontrolled studies have found acupuncture to be beneficial as well.¹⁵ To improve efficacy, acupuncture and CHM are often administered together in TCM, although no study has investigated the efficacy of a combination of these two treatments in atopic dermatitis. In this prospective study, we investigated the effectiveness of individualized TCM therapy, comprising acupuncture and CHM, in patients with atopic dermatitis. To our knowledge, this has never before been assessed.

Methods

Setting

The study was planned, supervised, and analyzed in the Dermatology Department, Sheba Medical Center, Israel. Patients were treated from March to August 2007 in an outpatient Complementary Medicine Clinic, by a Chinese medical practitioner (DP) who specializes in TCM. The effectiveness of the treatment was assessed by 2 dermatologists (FS, MS) in the dermatology outpatient clinics. Approval was obtained from the local ethics committee, and all patients gave written informed consent before entering the trial. The patients were free to withdraw from the study at any time.

Patients

Patients were recruited by local newspaper advertisements and the newspapers' Internet websites. The inclusion criteria were patients aged between 12 and 65 years with mild to severe atopic dermatitis. The diagnosis of atopic dermatitis was based on the criteria defined by Hanifin and Rajka.¹⁶ The main exclusion criteria for this trial were (1) treatment with phototherapy, oral or intravenous immunosuppressive agents or corticosteroids in the preceding 4 weeks before the recruitment; (2) treatment with acupuncture and/or CHM in the previous 3 months; (3) pregnancy; and (4) severe physical or mental illness. During the study, patients were asked to continue any medication they might be taking for concomitant diseases and were allowed to continue any pre-existing treatment of their symptoms as needed (with the exception of those mentioned above).

Outcome measures

The primary outcomes were defined as the reduction in the Eczema Area and Severity Index (EASI),¹⁷ Dermatology Life Quality Index (DLQI),¹⁸ and patient assessment of itch at the end of treatment. The EASI is a validated composite score having a maximum value of 72 that is calculated from

scores assigned to 4 of the individual signs of atopic dermatitis (erythema, induration/papulation, excoriation, and lichenification) combined with the percent of body surface area affected in the head and neck, upper limbs, trunk, and lower limbs. Severity of itch as assessed by the patient was based on marks made on a 10-cm visual analog scale (VAS),¹⁹ on which 0 cm was "no itch," and 10 cm was "worst itch imaginable." Secondary outcomes were the assessment of antihistamine and topical steroid use in the last 4 weeks of the trial, compared with 3 months before recruitment.

Study schedule and design

This is a prospective clinical study, which lasted for a 12-week period of treatment. During the first visit, inclusion and exclusion criteria were checked, and patients were informed about the concept of the study. EASI, DLQI, and VAS were assessed by a physician during the first visit and at weeks 3, 6, 9, and 12. As some of the patients had moderate and severe disease, it was not ethical to discontinue the patient's routine drugs during the study, which mainly included emollients, bath oils, topical corticosteroids, and oral systemic antihistamines. The amount and strength of topical corticosteroids and oral antihistamines used was also recorded at each visit. Moreover, patients were monitored for any adverse events or worsening of symptoms at each visit.

Treatment protocol

Each patient received twice-a-week treatment with acupuncture sessions (a total of 24 sessions); each session lasted 35 minutes (while the needles were left on the patient for 20 minutes). CHM was to be taken as a concentrated herbal powder (1:5), 3 g in 50 mL boiled water, 3 times daily, parallel to acupuncture treatment. Every patient received a formula tailored to his or her individual TCM diagnosis from a list of 39 herbs. At each visit, the patient has been assessed by the Chinese medical practitioner, and the formula and points of acupuncture were changed according to the patient's clinical status, based on the principles of TCM.

The most important herbs used in this study were *Dictamnus dasycarpus* (Faxinella; Bai Xiab Pi), *Lonicera japonica* (Lonicera flower; Jin Yin Hua), *Paonia suffruticosa* (Moutan; Mu Dan Pi), *Polygonum multiflorum* (Polygonum stem; Ye Jiao Teng), *Rehmannia glutinosa* (Rehmannia raw; Sheng Di Huang), and *Sophora angustifolia* (Sophora Root; Ku Shen). All herbs used were manufactured by Kaiser Pharmaceutical Co. Ltd. Taiwan/USA with a very high standard of quality (ISO 9001:2000, pharmaceutical-grade cGMP Certification by TGA Australia), and imported from China by a single Israeli TCM herbal medicine import company (Zen Herbs Co. Ltd.). A research assistant distributed the trial medications to the patients monthly.

Statistical analysis

All data in this paper are presented either as mean $\pm$ standard deviation or as frequencies. Comparisons of continuous variables (EASI, DLQI, and VAS) between the pretreatment assessment and at the end of the follow-up period were performed using the Student's *t* test. All comparisons were made two-tailed, and *p*-values < 0.05 were considered to be statistically significant.

TABLE 1. SUBJECTS' BASELINE CHARACTERISTICS

Subjects enrolled	20
Age (years)	24.8 ± 7.3
Sex	
Female	15 (75%)
Male	5 (25%)
EASI	4.9 ± 4.7
DLQI	12.5 ± 7.2
VAS	6.8 ± 2.3
Baseline EASI (score-range)	
8	17 (85%)
8–15	2 (10%)
15	1 (5%)
Overall duration of AD	16.4 ± 8.1
Routine medications in three	
Month's prerecruitment period	
Topical CS	14 (70%)
Systemic CS	5 (25%)
Oral Antihistamine	11 (55%)
Calcineurin inhibitors	3 (15%)

EASI, Eczema Area and Severity Index; DLQI, Dermatology Life Quality Index; VAS, visual analogue scale; AD, atopic dermatitis; CS, corticosteroids.

Results

Twenty (20) patients were recruited to the study; the mean age was 24.8 years, range 13–41 years; there were 5 men and 15 women (Table 1). Eighteen (18) of them completed the study. One (1) dropped out due to personal reasons, and 1 was excluded after corneal transplantation surgery due to keratoconus with need of systemic corticosteroid therapy. After 12 weeks of therapy, all patients experienced a significant reduction in EASI, with the mean EASI decreasing from 4.99 ± 4.7 to 1.81 ± 2.5 ($p = 0.0003$) when compared with the baseline (Fig. 1). The median percentage of decrease was $63.5\% \pm 26.7$, with 65% and 45% of patients having at least 50% and 75% improvement in EASI, respectively. Moreover, 78.8% (14/18) of patients experienced a reduction in DLQI and VAS, when compared with the baseline (responsive

group). The mean DLQI was decreased from 12.5 ± 7.2 to 7.6 ± 4.2 (Fig. 2) at the end of treatment, with 39.1% improvement ($p = 0.0009$). Mean VAS decreased as well, from 6.8 ± 2.3 to 3.7 ± 2 , with 44.7% improvement ($p = 0.00008$) (Fig. 3). The improvement in the mean EASI in the responsive subgroup was 70.6%, significantly higher than the unresponsive group 38.9% ($p = 0.03$).

Concurrently with a decrease in all three primary outcomes, the use of medium and highly potent topical corticosteroid was significantly reduced for 66% of patients in the 3-month prerecruitment period to 27% in the last month of treatment period ($p = 0.001$). The systemic antihistamine use also decreased significantly, from 61% to 22% of patients ($p = 0.004$).

The CHM was well tolerated with no adverse events reported by patients. Of the 4 patients who were treated with systemic corticosteroids in the 3-month prerecruitment period, none used them during the treatment period.

Discussion

CHM and acupuncture have been used in China since 100 BC. Over the years, the efficacy of CHM has been demonstrated in many controlled, uncontrolled, and follow-up studies.^{11–14,20–23} In 2005, the efficacy of this treatment has been assessed by the Cochrane Collaboration in a large review²⁴ including four randomized controlled trials meeting the inclusion criteria.^{11–13,23} The trials randomized 159 participants aged from 1 to 60 years; three of the trials were randomized placebo controlled and the fourth was open-label design comparing the same Chinese herbal mix in herbal and freeze-dried preparation. Three (3) of these four trials have revealed better clinical results in the CHM group compared to placebo. For methodological reasons, all these studies have used a standard herbal mix for all patients. This standardization, however, contradicts Chinese medical philosophy and may have affected the efficacy.²⁵ CHM and acupuncture are frequently used concurrently to manage many clinical conditions in Chinese medicine, especially allergic rhinitis,^{26–28} and it is generally assumed that the combined approach may generate a better clinical outcome.²⁹ Yet

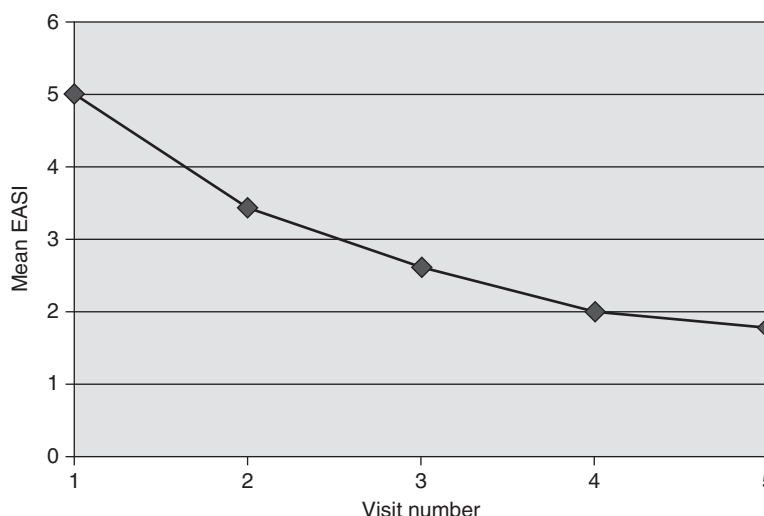


FIG. 1. Improvement from baseline in the Eczema Area and Severity Index (EASI).

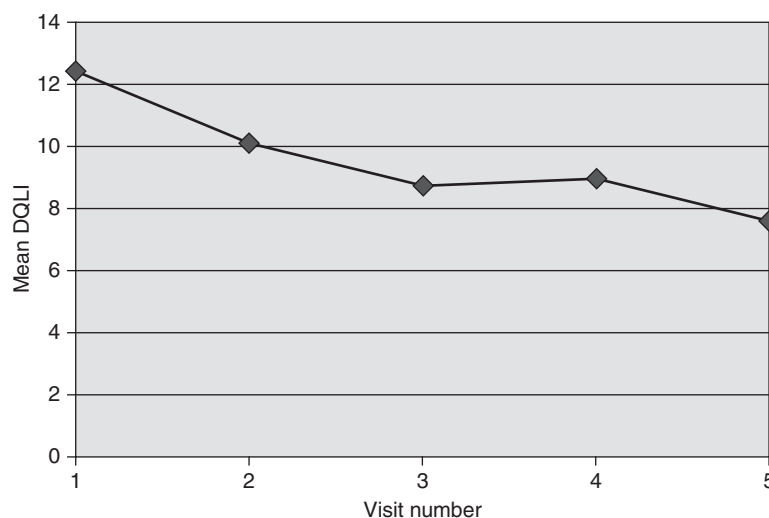


FIG. 2. Improvement from baseline in Dermatology Life Quality Index (DLQI).

this assumption remains to be scientifically tested in atopic dermatitis.

Due to the contradictory results of previous studies and the lack of trials assessing the effect of true Chinese medicine in atopic dermatitis, the present study was conducted. For each patient, treatment was individualized according to TCM diagnostic methods and combined CHM with acupuncture therapy. To the best of our knowledge, this is the first clinical study to investigate the effectiveness of combined acupuncture therapy with CHM in patients with atopic dermatitis. The study is also unique in showing the effectiveness of treatment in all aspects of the disease, using three clinical tools—EASI, VAS, and DLQI—concurrently with the assessment of systemic antihistamine and topical corticosteroid use. Although we did not include a control group due to methodological difficulties including tailoring the treatment for each patient, each patient in this study has been his or her own control, by assessing his or her clinical parameters before and after the treatment period.

In general, the current study is in accordance with the previous reports that demonstrated effectiveness of CHM in atopic dermatitis.^{12–14,21,22} Specifically, we have shown that after 3 months of treatment, a statistically significant improvement was observed in all primary outcomes when compared with the baseline, with the mean EASI, DLQI, and VAS decreasing by 63.5%, 39.1%, and 44.7%, respectively. Concurrently, a significant reduction of 39% has been observed in the consumption of both topical corticosteroids and oral antihistamines. A recently published double-blind controlled study assessing the efficacy of CHM for treatment of atopic dermatitis with comparable 12 weeks of treatment¹⁴ has shown a 14.7% reduction in the clinical score and a 30% reduction in DLQI. The higher percentages observed in our study may be attributed to maximizing the effect of TCM by adding acupuncture therapy and individualizing the CHM.

Several studies have tried to clarify the mode of action of CHM in atopic dermatitis. Latchman et al. postulated that CHM's clinical efficacy was due to its ability to intercept and

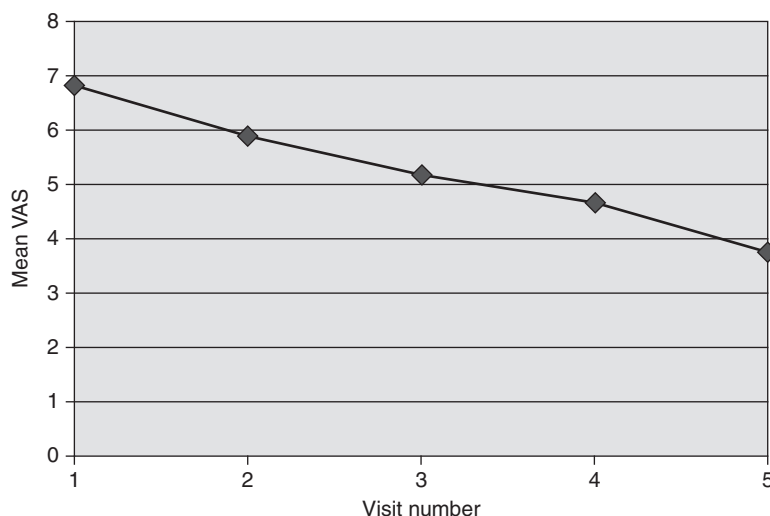


FIG. 3. Improvement from baseline in Visual Analog Scale (VAS).

reduce many immunological pathways responsible for the pathogenesis of atopic dermatitis.³⁰ They found that the ability of interleukin-4 to induce the low-affinity receptors for immunoglobulin E (CD23) on peripheral monocytes from treated patients was significantly diminished. Moreover, both the soluble interleukin (IL)-2 receptor and the soluble vascular cell adhesion molecules, which are raised in the serum of atopic patients, were lower following treatment. Another study has shown that clinical improvement in atopic dermatitis was associated with downregulation of CD23 on cutaneous antigen-presenting cells.³¹ The anti-inflammatory effect of acupuncture has been investigated in many inflammatory diseases, including asthma, rhinitis, inflammatory bowel disease, rheumatoid arthritis, epicondylitis, complex regional pain syndrome type 1, and vasculitis. It has been hypothesized that the ascribed immunosuppressive action occurs by acupuncture-controlled release of neuropeptides from nerve endings and that the subsequent vasodilative and anti-inflammatory effects occur through calcitonin gene-related peptide.³² Acupuncture also appears to modulate the immune system, by causing shifts in lymphocyte subpopulations toward an increased number of CD3⁺ and CD4⁺ cells, and by modulating the cytokine patterns toward a decrease of IL-6 and IL-10 and an increase of IL-8.³³ Although acupuncture is often mentioned as an optional treatment in atopic dermatitis, it has been poorly assessed in clinical trials.

One cannot ignore that our study has several potential limitations, including a relatively small number of patients and the lack of a follow-up period after cessation of the combined treatment, and as previously mentioned lack of control group. Although a statistically significant improvement has been noted in all clinical parameters, this positive effect of combined treatment should be addressed by larger studies in the future with a follow-up period to assess the clinical effect of stopping these interventions. It should be emphasized that atopic dermatitis is a chronic disease with a relapsing and remitting course, influenced by many factors, making it difficult to assess the efficacy of various treatments and their long-term effect. In this study, approximately 20% (4 patients) of the patients were recruited in the period from March to May; therefore, in this group some of the clinical improvement could be attributed to the seasonal variation;³⁴ however, even after extraction of this group, all the clinical parameters were still statistically significant. There is no doubt that the placebo phenomenon and the fact that a patient was involved in the trial and was reviewed regularly have resulted in subjective improvement in the disease severity. This effect could not be assessed in this study methodologically due to the individualizing of treatment for each patient. Furthermore, atopic dermatitis is a distressing disease commonly affecting very young children. Our study included only children over 12 years, thus representing only a subset of the population suffering from atopic dermatitis.

Conclusions

This is the first clinical study using acupuncture plus a Chinese herbal remedy administered according to TCM diagnostic principles in patients with atopic dermatitis. We found that this treatment was efficacious in improving the mean EASI, DLQI, and VAS after 12 weeks of treatment. We

conclude that acupuncture plus Chinese herbal formulations have a beneficial effect on patients with atopic dermatitis and may offer better results than CHM alone. Despite all the methodological difficulties, our findings support the inclusion of TCM in the treatment arsenal for atopic dermatitis. Although double-blind controlled studies are difficult to conduct when treatment is individualized to each patient, such studies should be performed in the future.

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