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ORIGINAL ARTICLE

A Randomized Controlled Single-Blind Clinical Trial on 84 Outpatients with Psoriasis Vulgaris by Auricular Therapy Combined with Optimized Yinxieling Formula (银屑灵优化方)*

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ABSTRACT **Objective:** To explore the therapeutic effect of auricular therapy combined with optimized Yinxieling Formula (银屑灵优化方) on psoriasis vulgaris. **Methods:** A randomized controlled single-blind clinical trial on 84 outpatients with psoriasis vulgaris was conducted. The patients were randomized to a treatment group (43 cases treated by auricular therapy combined with optimized Yinxieling Formula) and a control group (41 cases treated by optimized Yinxieling Formula alone) according to a random number generated by SPSS 17.0 software. The treatment duration for both groups was 8 weeks. The therapeutic effect was comprehensively measured by the primary outcome measure [Psoriasis Area and Severity Index (PASI) reduction rate] and the secondary outcome measure [PASI, Visual Analogue Scale (VAS), Dermatology Life Quality Index (DLQI), Self-rating Depression Scale (SDS), and Self-rating Anxiety Scale (SAS)]. The outcomes of both groups were obtained and compared before and after the intervention. **Results:** The PASI reduction rate in the treatment group was 74.4% (32/43), which was higher than that in the control group (36.6%, 15/41, $P<0.01$). The PASI scores decreased in both groups after treatment and was lower in the treatment group compared with the control group ($P<0.01$). With stratified analysis, there were significant differences between the PASI scores in the following subgroups: age 18–30, baseline PASI>10 and stable stage ($P<0.05$). DLQI decreased in both groups on some categories after treatment, but there were no significant differences between the two groups in SDS, SAS and VAS ($P>0.05$). No obvious adverse reactions were found in either group. **Conclusion:** The therapeutic effect of auricular therapy combined with Optimized Yinxieling Formula was superior to Optimized Yinxieling Formula alone with no obvious adverse reaction.

KEYWORDS psoriasis vulgaris, auricular therapy, optimized Yinxieling Formula, efficacy

Psoriasis valguris is a chronic skin condition of autoimmune nature. Psoriasis affects population 2.6% in America,[1] 2.8% population of Faeroe Islands of Denmark,[2] and 0.47% population in China.[3] Because of the appearance of the skin, patients with severe psoriasis may have social embarrassment, occupational stress, emotional distress, and other personal issues. The exact cause of psoriasis is not fully understood. Because of its chronic recurrent nature, psoriasis is a challenge to treat. Currently, there is no Western medicine therapy available that is safe and has long lasting. In recent years, Chinese medicine (CM) including acupuncture have shown long lasting therapeutic effect on controlling this disease and with less side effects and toxicity.[4]

Yinxieling Formula (银屑灵) is a in-hospital preparation formulated by Professor XUAN Guo-wei, a well known dermatologist of CM in China.[5] Recently we have found a way to optimize the therapeutic effect of Yinxieling Formula and have proven its safety and therapeutic effect in a clinical study.[6]

Auricular therapy, a form of acupuncture, has shown therapeutic potential in the treatment of a range of conditions, such as pain,[7] psychological and physical discomfort associated with drug use, cocaine abuse,[8] anxiety,[9] simple obesity, insomnia and diabetes.[10] The literature also reported that auricular therapy is convenient and effective in treating psoriasis.[11] This study explored the therapeutic effect of the auricular therapy combined with optimized Yinxieling Formula (银

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屑灵优化方) in treating psoriasis valguris.

METHODS

Study Procedure

The study procedure is demonstrated as the flowchart in Figure 1.

Inclusion Criteria

The inclusion criteria were (1) in accordance with the diagnosis of psoriasis vulgaris referring to the "Clinical Guidelines of Psoriasis 2008" reported by the Chinese Medical Association,[12] (2) aged 18–65 years old, and (3) willing to sign a written informed consent.

Exclusion Criteria

Patients who met one of the following conditions were excluded: (1) those who were allergic to optimized Yinxieling Formula or the composition of it; (2) women who were pregnant or in lactation stage; (3) those who have been treated with steroid orally in the recent 2 weeks or with retinoid orally or steroid topically in the recent 1 week; (4) arthropathic, pustular, or erythrodermic psoriasis; (5) those with severe heart, cerebrovascular, liver, kidney, hematopoietic system, cancer, psychosis, and other diseases; and (6) those who were not suitable to this research.

Grouping

Eighty-four patients with psoriasis vulgaris from the Department of Dermatology, Guangdong Provincial Hospital of Traditional Chinese Medicine were recruited. Patients were given a random number along their sequence of visiting the hospital and were randomized to two groups. The randomized number was generated by a uniform distribution function with specified minimum 1 and maximum 84 using SPSS17.0 (SPSS Inc., Chicago, IL, USA). Patients with an odd random number were given optimized Yinxieling

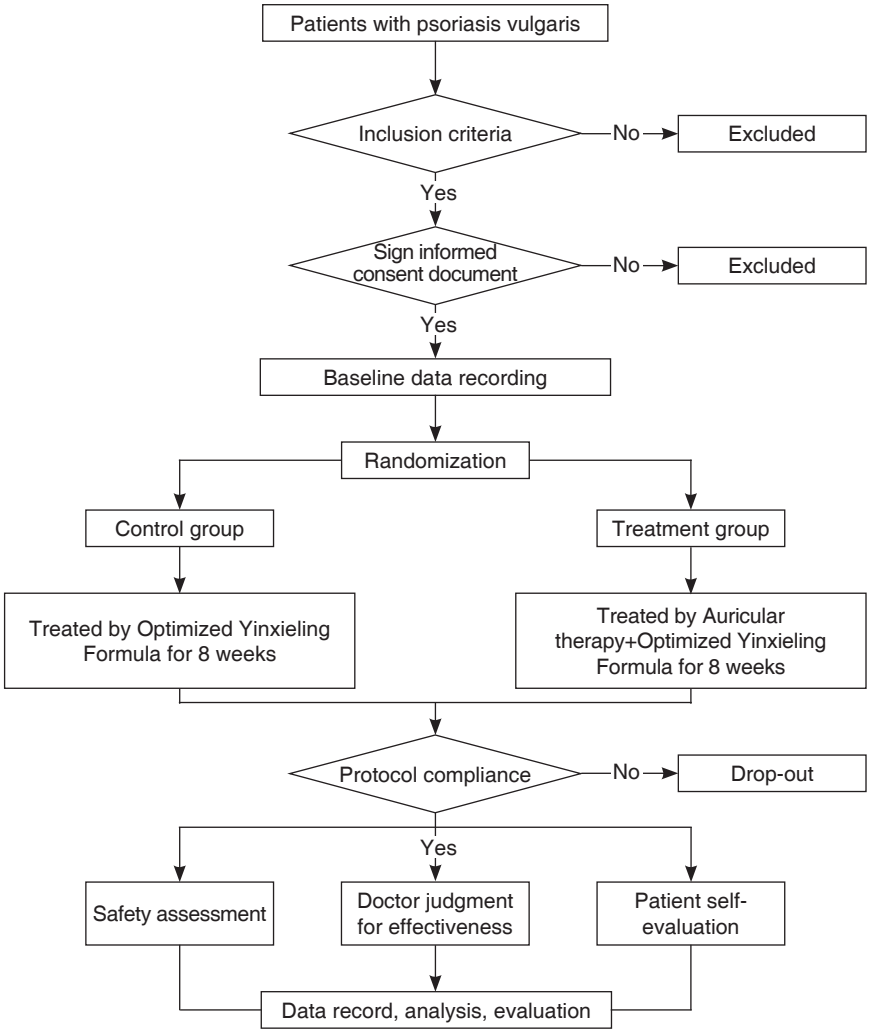

Figure 1. Patients' Progress Throughout the Study

Chin J Integr Med 2012 Mar;18(3):186-191

Formula (control group, 41 cases) and those with an even random number were given auricular therapy combined with optimized Yinxieling Formula (treatment group, 43 cases). The study protocol was reviewed and approved by the Ethics Committee of Guangdong Provincial Hospital of Traditional Chinese Medicine.

Treatment

Auricular therapy consisted of sticking-pressing and blood-letting puncture of the auricular points on the back of ear. (1) Method of auricular points sticking-pressing: the following auricular points were used (Figure 2): Lung (Fei, CO14), Liver (Gan, CO12), Shenmen (TF4), endocrine (CO18), and Pizhixia (AT4). After sterilization with 75% alcohol, *Vaccaria* seeds were stuck and fixed on the above auricular points, with each pressed individually for 1 min to induce stimulus until patients felt endurable heat and distending pain on auricles, and the pressing was repeated 4 times daily. Treatment was done on one ear and changed every the other week, totally for 8 weeks. (2) Method of blood-letting puncture on the back of ear: one of the varicose veins on the dorsal surface of the ear was chosen and sterilized by cotton ball with 75% alcohol. The vein was punctured perpendicularly with a No.7 syringe needle to a depth of 0.1–0.5 mm, then, the syring was withdraw to allow bleeding of 2–3 mL before bleeding was stopped using sterile cotton ball. The procedure is repeated weekly on one ear and changed the other next week, totally for 8 weeks.

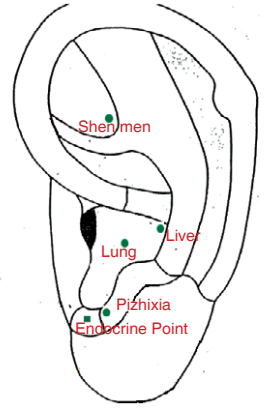

Figure 2. Ear Stimulation Points

Optimized Yinxieling Formula, composed of *Radix Paeoniae Rubra*, *Rhizoma Curcumae*, *sarcandra*, *Radix glycytthizae*, *Fructus Mume*, *Radix Arnebiae*, and *Rhizoma Smilacis Glabrae*, was decocted and packaged into vacuum packs by the Department of Manufacture Laboratory, Guangdong Provincial Hospital of Traditional Chinese Medicine (100 mL/pack). The decoction had been accredited by the Guangdong Provincial Laboratory for the Control of Drugs, China. Patients of the two groups were administered with Optimized Yinxieling Formula, one pack twice a day after meals. In addition, patients of the treatment group received auricular therapy every week, while those of the control group received Optimized Yinxieling Formula alone. The therapeutic duration for all patients was 8 weeks.

Measures and Outcome for Treatment Effect

At 0, 2, 4, 6, and 8 weeks after treatment, the blinded assessors evaluated the efficacy of treatment by recording Psoriasis Area and Severity Index (PASI),[13] Visual analogue scale (VAS, the VAS produce a itchy state reported from the patient's perspective)[14], Dermatology Life Quality Index (DLQI),[15] Self-rating Depression Scale (SDS) and Self-rating Anxiety Scale (SAS). Laboratory tests including complete blood count, urinalysis, hepatic and renal functions, and electrocardiogram were recorded at baseline and 8 weeks after treatment.

Standard for Efficacy Evaluation

The major efficacy evaluation index was PASI reduction rate (pre-treatment scores–post-treatment scores)/pre-treatment scores × 100%.[16] The standards for treatment effect are as follows: (1) markedly effective: PASI reduction rate ⩾ 75%; (2) effective: PASI reduction rate > 30% but < 75%; (3) ineffective: PASI reduction rate ⩾ 0% but < 30%; and (4) aggravated: PASI reduction rate < 0%.[17] Total efficacy rate=(markedly effective cases + effective cases)/total cases × 100%.

Statistical Analysis

Database was established with Epidata3.0. Data were processed by statistical analysis with SPSS17.0 software. First, continuous variables were tested of normality. The *t*-test was applied on measurement data which obey normal distribution between groups and between pre- and post treatment indices. Nonparametric rank sum test was applied on data which disobey normal distribution. Enumeration data were applied χ^2 test and ranked data were applied rank sum test. Repetitive measurement data were processed by repetitive measurement and analysis of variance. Two-tailed *P* values < 0.05 were considered to be statistically significant.

RESULTS

Baseline Characteristics of Patients

The baseline characteristics of patients in the two groups are listed in Table 1. There were no statistically significant differences in the baseline characteristics between the two groups (P>0.05).

Table 1. Baseline Characteristics of Patients in the Two Groups

Item	Control group (41 cases)	Treatment group (43 cases)	P value
Sex (Case, Male/Female)	33/8	28/15	0.114
Age (Year, $\bar{x}\pm s$)	38.98 ± 13.80	38.58 ± 13.13	0.894
BMI	22.79 ± 3.43	22.00 ± 3.16	0.283
Body height (cm, $\bar{x}\pm s$)	167.44 ± 6.38	166.91 ± 7.15	0.720
Weight (kg, $\bar{x}\pm s$)	64.24 ± 12.44	61.65 ± 11.66	0.327
Duration (Month, $\bar{x}\pm s$)	118.63 ± 89.51	136.79 ± 120.47	0.437
Relieving time in 1 year (Months, $\bar{x}\pm s$)	3.20 ± 2.05	3.67 ± 2.06	0.288
Family medical history (Case)	7	5	0.476
Type of syndrome (Case)			
Wind-heat syndrome	19	13	
Blood-stasis syndrome	17	22	0.299
Blood-dryness syndrome	5	8	
Stage (Case)			
Acute stage	4	6	
Stable stage	25	24	0.860
Paracmasis	12	13	
Allergic history (Case)	4	8	0.247

Note: BMI=weight (kg)/[body height (m)]^2

Comparison of PASI Reduction Rate

The total efficacy rate of the treatment group was 74.4% and was higher than the control group (36.6%, P<0.01). In addition, no aggravated cases were found among patients in the treatment group (Table 2). Figure 3 showed the representative clinical pictures from patients of the treatment group before and after treatment.

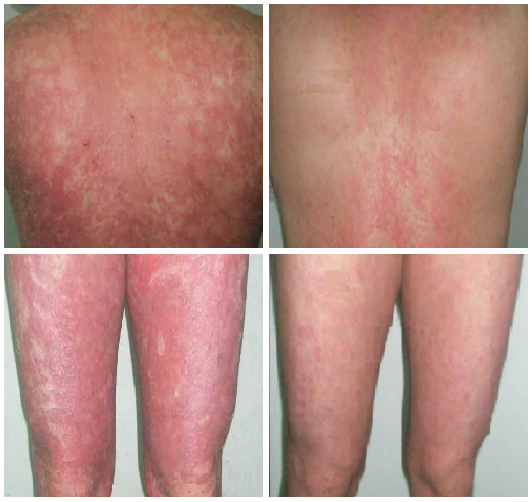

Figure 3. Representative Clinical Pictures of the Treatment Group before and after Treatment
Notes: left: before treatment; right: after treatment

Comparison of PASI Scores

After intervention, the PASI scores decreased in both groups compared with those before treatment (P<0.01). However, the decrement in the treatment group was more significant (P<0.01, Table 3). Compared with those in the control group with stratified analysis, the PASI scores significantly decreased after combined treatment in the following subgroups: age 18–30, PASI>10, and stable stage (P<0.05 or P<0.01, Table 4).

Comparison of DLQI Scores

After treatment, the DLQI scores decreased in

Table 2. Comparison of PASI Reduction Rate between the Two Groups [Case (%)]

Group	Case	Markedly effective	Effective	Ineffective	Aggravated	Total efficacy rate
Control	41	1 (2.4)	14 (34.1)	17 (41.5)	9 (22.0)	36.6%
Treatment	43	2 (4.7)	30 (69.8)	11 (25.6)	0	74.4%
P value				0.000		

Table 3. Comparison of PASI Scores between the Two Groups

Group	Case	Time	PASI Score		Z value	P value
			$\bar{x}\pm s$	M(Q)		
Control	41	Pre-treatment	11.45 ± 8.24	9.01 (13.2)	–2.749	0.006
		Post-treatment	9.03 ± 6.25	7.80 (9.00)		
Treatment	43	Pre-treatment	11.68 ± 6.01	11.50 (10.50)	–5.729	0.000
		Post-treatment	6.16 ± 3.60*	5.60 (5.70)		

Notes: M, median; Q, quartile range; *P<0.01, compared with the control group after treatment

Chin J Integr Med 2012 Mar;18(3):186-191

Table 4. Comparison of PASI Scores between the Two Groups after Treatment

Item	Control group		Treatment group		*Z* value	*P* value
	Case	$\bar{x} \pm s$	Case	$\bar{x} \pm s$		
Total	41	9.03 ± 6.25	43	6.16 ± 3.60	–1.823	0.068
Age (Year)						
18–	20	9.11 ± 5.76	19	5.14 ± 3.10	–2.058	0.040*
30–	9	5.09 ± 2.70	13	7.45 ± 4.20	–1.336	0.181
45–	12	11.86 ± 7.58	11	6.40 ± 3.45	–1.477	0.140
Pre-treatment PASI						
PASI ⩽ 10	21	5.26 ± 3.36	19	3.97 ± 2.40	–1.228	0.219
PASI>10	20	13.43 ± 5.74	24	8.00 ± 3.34	–3.118	0.002*
Stage						
Acute stage	19	10.83 ± 6.40	13	8.00 ± 3.60	–1.021	0.307
Stable stage	17	8.76 ± 6.02	22	4.89 ± 3.02	–2.294	0.022*
Paracmasis	5	3.46 ± 2.87	8	4.66 ± 2.10	–1.464	0.143

Note: *P<0.05, compared with the control group

both groups compared with those before treatment (P=0.034, P=0.062, Table 5). However, there was no significant difference in the DLQI scores between the two groups (t=0.505, P=0.615).

Table 5. Comparison of DLQI Scores between the Two Groups ($\bar{x} \pm s$)

Group	Case	Time	DLQI scores	*t* value	*P* value
Control	41	Pre-treat.	11.63 ± 6.04	2.196	0.034
		Post-treat.	9.85 ± 4.69		
Treatment	43	Pre-treat.	10.80 ± 6.05	1.919	0.062
		Post-treat.	9.30 ± 4.98		

Comparison on Scores of SDS, SAS, and VAS

There was no significant difference between the two groups in the scores of SDS, SAS, and VAS after treatment (P>0.05).

Adverse Reaction

No abnormalities were found after treatment in routine examinations on blood, urine, liver, and kidney functions as well as in the ECG. No obvious adverse reaction was observed in either group. There was isomorphic response (a few local erythrema) in 3 cases from the treatment group.

DISCUSSION

Auricular therapy is an adjunct to traditional acupuncture and it has developed into a distinct treatment modality of its own over the last 60 years. It is based on a set of anatomical maps superimposed onto the ear. Stimulating a point on the map is proposed to affect the gross anatomical organ associated with that point.[18] Studies have demonstrated that auricular therapy could dredge meridian, promote qi and blood circulation, so that can improve the blood flow.[19]. The auricular points in this research were those reported to be effective in treating psoriasis. According to modern research and CM, "Lung (Fei) governs skin and hair", in addition to treating respiratory-related disease, the auricular points Lung (CO14) also works on relieving itchiness skin disease. Gan (CO12) and Shenmen (TF4) work on regulating emotion and reducing stress, anxiety, and excessive sensitivity. Endocrine (CO18) and Pizhixia (AT4) could balance endocrine hormones, hypersensitivity, and rheumatism.[20,21]

Confirmed studies demonstrated that bloodletting therapy that activates blood circulation to remove blood stasis could improve microcirculation and induces vasodilatation.[22] Studies have suggested that blood-letting puncture on the back of ear for psoriasis has the effect of activating blood circulation to dissipate blood stasis.[23, 24] The blood-letting therapy was chosen based on many signs of blood stasis syndrome shown in patients with psoriasis, such as rough and scaly skin, stiff joints, and skin capillary distortion, as shown in a microcirculation examination, and some abnormal laboratory parameters such as increased whole-blood hyperviscosity, decreased erythrocyte deformation, and abnormal Na^+-K^+-ATPase activity in the erythrocyte membrane.[25]

This study showed that auricular therapy combined with optimized Yinxieling Formula was effictive in treating psoriasis vulgaris. The results also showed that the improvement of PASI reduction rate, PASI and DLQI scores in the treatment group was significantly superior to that observed in the control group, especially on the subgroup of patients with pre-treatment age 18–30, baseline PASI>10 and stable stage. SDS, SAS and VAS scores did not improve

significantly. This might be due to the fact that the therapy duration was not long enough to demonstrate any psychological changes.

There were few studies on treating psoriasis with acupuncture. One of the reasons might be the concern of the development of isomorphic response. In this study, the isomorphic response was observed in only 3 cases in the treatment group which consisted of only a few local areas of erythrema, well tolerated by these 3 individuals in the background of overall improvement of psoriasis. It revealed that auricular therapy combined with Optimized Yinxieling Formula is safe with no adverse reaction.

In summary, auricular therapy combined with optimized Yinxieling Formula is effective, safe, simple, and economical and could be applied easily. However, due to small sample size of short treating duration in the present study, the conclusion needs further confirmation by studies with larger sample size and longer treatmeat duration.

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