

Clinical Study on Application of Xinrun Tongluo Method Based on the Theory of Collateral Diseases in Treating Androgenic Baldness of Blood Heat Wind Dryness Syndrome

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Abstract [Objectives] To explore the intervention effect of the representative formula of Xinrun Tongluo method, Liangxue Xiaofeng Powder, on the incidence of androgenic alopecia in the syndrome of blood heat and wind dryness. [Methods] A total of 72 patients with androgenic alopecia in Suzhou TCM Hospital Affiliated to Nanjing University of Chinese Medicine from October, 2022 to June, 2023 were randomly divided into a control group (36 cases, treated with Western medicine) and a treatment group (36 cases, treated with Chinese herbal formula + Western medicine). The short-term and long-term efficacy of the two groups of patients was compared. [Results] The hair microscopic signs and short-term and long-term efficacy of the treatment group were significantly better than those of the control group before and after treatment, with a statistically significant difference ($P < 0.05$). [Conclusions] The representative formula of Xinrun Tongluo method is Liangxue Xiaofeng Powder, which has better clinical efficacy as an auxiliary Western medicine in the treatment of androgenic alopecia patients with blood heat and wind dryness syndrome, and is worthy of further promotion and application in clinical practice.

Key words Xinrun Tongluo method, Androgenic alopecia, Syndrome of blood heat and wind dryness

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Androgenic alopecia (AGA), also known as seborrheic alopecia (SA), male/female pattern hair loss (MPHL/FPHL), is the most common type of progressive hair loss in clinical practice. Its clinical manifestations are greasy scalp, thinning hair, gradual increase in hair loss, and then formation of receding hairline, baldness or obvious thinning hair. The clinical incidence rate of AGA is high, which greatly affects the beauty and quality of life of patients. The current routine treatment for AGA has a long course of treatment, slow response, and certain adverse reactions^[1]. In this study, the representative formula of Xinrun Tongluo method, Liangxue Xiaofeng Powder, is used as an auxiliary treatment for AGA, with good therapeutic effect. The following is the report.

Materials and Methods

Case source and grouping

The research subjects were selected from the dermatology outpatient department of Suzhou Traditional Chinese Medicine Hospital from October 2022 to June 2023. A total of 80 patients with clinical diagnosis of AGA and traditional Chinese medicine differ-

entiation of blood heat and wind dryness syndrome (72 cases were finally enrolled) were classified by dermatologists using the BASP (basic and specific) grading method^[2], which was divided into mild to moderate, moderate, and severe levels. 72 patients were divided into a treatment group and a control group according to the order of their visits, with 36 patients in each group. This study was conducted after being approved by the hospital ethics committee. All the cases met the diagnostic criteria of prediabetes, and the general data of the two groups before treatment were comparable ($P > 0.05$).

Diagnostic criteria

The diagnostic criteria comply with the AGA diagnostic criteria in the *Chinese Guidelines for the Diagnosis and Treatment of Androgenic Baldness*^[3]; The syndrome differentiation of traditional Chinese medicine is the syndrome of blood heat, wind dryness, referring to the Chinese medicine industry standard of the China, the *Standard for the Diagnosis and Efficacy of Diseases in Traditional Chinese Medicine* (ZY/T001.1-941995)^[4], the hair loss is more, the hair volume is reduced, the hair is dry and white, and the head is hot and itchy; dry mouth and dry throat, yellow urine; symptoms such as redness, yellowish or dry tongue coating, and pulse count are identified by three traditional Chinese medicine practitioners, and at least two are identified as damp heat type before being included in the group.

Inclusion and exclusion criteria

Inclusion criteria (i) Compliance with AGA diagnostic criteria; (ii) No AGA drugs such as finasteride, Spironolactone and cyproterone were taken 2 months before the visit; (iii) No external use of Minoxidil and other preparations in the past month; (iv) Patients with traditional Chinese medicine syndrome differentiation of blood heat and wind dryness^[5].

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Exclusion criteria (i) Patients with severe systemic diseases, severe allergic diseases, or malignant tumors; (ii) Complicated with head Skin infection; (iii) Those who do not follow medical advice^[6].

Treatment plans

(i) Treatment group: Xinrun Tongluo method was used to prepare 200 mL traditional Chinese medicine decoction (Inulae Flos 15 g, Persicae Semen 10 g, Drying Rehmannia Root 15 g, Chrysanthemi Flos 15 g, Angelicae Sinensis Radix 10 g, Tribuli Fructus 10 g, Schizonepetae Herba 10 g, Saposhnikoviae Radix 10 g, Salviae Miltiorrhizae Radix Et Rhizoma 15 g) according to the decoction process of traditional Chinese medicine pharmacy of Suzhou TCM Hospital Affiliated to Nanjing University of Chinese Medicine, orally, 100 ml/time. Applied 5% minoxidil tincture (Product name: Mandi, specification: 60 ml/box, lot 20220437) to scalp, 1 ml/time, twice a day. (ii) Control group: Only 5% minoxidil tincture was applied to scalp, 1 ml/ time, twice a day. The treatment cycle of all groups was 3 months.

Determination of indicators

Monitored and recorded the condition and symptom scores of hair follicles and hair trunks under hair microscopy before and after treatment in each group, as well as during a follow-up visit after 3 months. Before and after treatment, the IDS 1100 hair microscope (ILLUCO Company, South Korea) was used to observe the changes in hair microscopic signs^[7]. The location was selected at the Baihui acupoint on the top of the head, and the hair condition under the microscope was observed and photographed. The measurement indicators under the microscope included the number of hair (excluding vellus hair), the number of thinning hair, the number of vellus hair, and the presence or absence of local hairlessness, yellow spot sign, and brown hair circumference sign. Two dermatologists who did not participate in the treatment and were qualified for hair microscopy diagnosis were blinded to observe and evaluate the photos before and after treatment.

Table 1 Comparison of general information between two groups of androgen induced baldness patients with blood heat and wind dryness syndrome

Group	Number of cases	Gender		Age		Classification		
		Male	Female	Age (xsd)	Mild to moderate	Moderate	Severe	
Treatment group	36	25	11	31.4 ± 3.6	19	14	3	
Control group	36	26	10	32.3 ± 4.2	21	12	3	

In the treatment group, Liangxue Xiaofeng Powder + 5% Minoxidil tincture was applied externally; the control group was treated with 5% Minoxidil tincture.

Comparison of trichoscopy signs before and after treatment between the two groups

Before treatment, there was no significant difference in Trichoscopy signs between the two groups ($P > 0.05$). After treatment, the most clinically significant ">20% hair diameter thinning" was improved in both the treatment group and the control group ($P < 0.001$), and the treatment group was better than the control group ($P < 0.05$), as shown in Table 2.

Comparison of short-term efficacy between two groups of patients

After treatment, the total effective rates of the treatment group and the control group were 94.4% and 75.0%, respectively, and

Efficacy criteria

At the end of treatment and at a follow-up visit of 3 months after treatment, the efficacy of the three groups of patients was evaluated. Recovery: The hair stops shedding and there are no clinical symptoms such as itching, oil, or scales. More than 80% of the skin lesions have new hair growth; Significant effect: Clinical symptoms such as itching, greasiness, and scales are significantly reduced, and over 60% of the skin lesions have new hair growth; effective: partial relief of clinical symptoms such as itching, greasiness, and scales, with over 30% of new hair growing at the skin lesion; in effective: clinical symptoms such as itching, greasy, and scales have not improved and there is no new growth. Among them, the total effective rate = [(number of cured cases + number of significantly improved cases + number of effective cases)/total number of cases] × 100%. Total effective rate = [(number of cured cases + number of effective cases)/total cases] × 100%^[8].

Statistical analysis

SPSS 18.0 statistical software was used for data analysis, and the measurement data conforming to Normal distribution were expressed by mean ± standard deviation ($\bar{x} \pm s$) and *t*-test; Count data comparison using χ^2 test. $P < 0.05$ indicates a statistically significant difference.

Results and analysis

Comparison of general data between the two groups

After excluding the cases of hair loss (4 patients lost interviews, 4 patients with drug allergy), there was no significant difference in gender, age, and hair loss severity between the two groups ($\chi^2 = 0.064$, $P = 0.972$), and the general data of the two groups before treatment were comparable ($P > 0.05$), as shown in Table 1.

the total effective rates were 50.0% and 30.5%, respectively. through χ^2 tests, total effective rate of the treatment group ($\chi^2 = 10.516$, $P = 0.015$) and total recovery rate ($\chi^2 = 4.567$, $P = 0.033$) were better than the control group in terms of total effective rate and total effective recovery rate, as shown in Table 3.

Comparison of long-term efficacy between two groups of patients

The treatment group and the control group were followed up 3 months after the completion of treatment. The total effective rates of the treatment group and the control group were 86.1% and 58.3%, respectively, and the total effective rates were 38.9% and 22.2%, respectively. Through χ^2 tests, total effective rate of

the treatment group ($\chi^2 = 7.866, P = 0.005$) and total recovery rate ($\chi^2 = 4.496, P = 0.034$) were better than the control group in

terms of total effective rate and total effective recovery rate, as shown in Table 4.

Table 2 Comparison of hair microscopic signs between two groups of androgenic baldness patients with blood heat and wind dryness syndrome before and after treatment (cases)

Group	Number of cases	>20% hair diameter thinning	Increased vellus hair	Local hirsutism	Yellow dot sign	Brown peritrichal sign
Treatment group	36					
Before treatment		33 [#]	17	18	17	17
After treatment		15	23	22	23	24
Control group	36					
Before treatment		34	18	17	16	18
After treatment		21 [#]	22	22	19	22

Compared with that before treatment, [#] $P < 0.05$; and compared with Control group after treatment, * $P < 0.05$.

Table 3 Comparison of short-term therapeutic effects between two groups of androgenic alopecia patients with blood heat wind dryness syndrome

Group	Number of cases	Recovery [cases (%)]	Significant effect [cases (%)]	Effective [cases (%)]	Invalid [cases (%)]	Total effective rate//%	Total healing rate//%
Treatment group	36	5 (13.9)	13 (36.1)	16 (44.4)	2 (5.6)	94.4 *	50.0 *
Control group	36	4 (11.1)	7 (19.4)	16 (44.4)	9 (25.0)	75.0	30.5

Compared with control group after treatment, * $P < 0.05$.

Table 4 Comparison of long-term therapeutic effects between two groups of androgenic alopecia patients with blood heat wind dryness syndrome

Group	Number of cases	Recovery [cases (%)]	Significant effect [cases (%)]	Effective [cases (%)]	Invalid [cases (%)]	Total effective rate//%	Total healing rate//%
Treatment group	36	5 (13.9)	9 (25.0)	17 (47.2)	5 (13.9)	86.1 *	38.9 *
Control group	36	3 (8.3)	5 (13.9)	13 (36.1)	15 (41.7)	58.3	22.2

Compared with control group after treatment, * $P < 0.05$.

Comparison of adverse reactions and lost follow-up cases between two groups of patients

In the control group, 7 patients (19.4%) experienced scalp itching and obvious dandruff increase after using 5% Minoxidil tincture; 5 patients continued to use the tincture, and the adverse reaction symptoms were alleviated without affecting follow-up treatment; 3 patients stopped treatment and withdrew from the queue. The adverse reaction symptoms subsided after the drug was stopped, and another patient lost the follow-up; no patients in the treatment group had any adverse reactions, and 2 patients were lost to follow-up; 2 patients experienced abdominal distension and diarrhea after taking traditional Chinese medicine decoction, and requested to discontinue treatment and withdraw from the queue. After discontinuing the medication, the adverse reaction symptoms subsided. During the course of this study, all subjects had no serious adverse reactions before and after treatment, and there were no abnormal changes in blood, urine and stool routines, liver and kidney functions and general vital signs.

Discussion

AGA is a kind of hair loss that gradually aggravates. At present, the incidence of AGA is young and popular. Both men and women have a high incidence rate (21.3% for men and 6.0% for women), which seriously affects the beauty of patients, increasing their mental pressure and reducing their quality of life. At present, the clinical treatment of AGA includes oral finasteride, Spironolactone, external application of Minoxidil tincture, surgical hair transplantation and other means, but there are respectively short-

comings such as limited use for men, easy to affect women's menstruation, local scalp irritation and surgical trauma, and there are also problems such as lack of effective alternative treatment scheme and easy relapse in the treatment process^[9].

AGA belongs to the category of "hair decay and hair loss" and "hair decay and tinea" in traditional Chinese medicine. The etiology and pathogenesis of AGA are mostly "deficiency and excess" or "deficiency and excess", and the "excess" part is mostly caused by dampness and heat in the spleen and stomach, or by overeating fatty and sweet products, causing abnormal spleen and stomach movement, spleen loss of movement, stomach loss of nourishment, accumulation of water and moisture, and heat accumulation, resulting in dampness and heat rising to the top, corroding hair roots, stasis blocking hair orifices, and causing sticky and greasy hair to fall off; Damp heat blockage also leads to poor scalp qi and blood flow, and blood cannot ascend to the hair roots, resulting in greasy and unstable hair, no regeneration, and gradually thinning hair^[10].

Wumen Liangxue Xiaofeng Powder was created by dermatologists in Suzhou TCM Hospital Affiliated to Nanjing University of Chinese Medicine based on the "collateral disease theory" of the Wumen School of Medicine. In clinical practice, it is used to cool blood, clear heat, dispel wind, and moisten dryness, with the addition of Xinrun Tongluo Method. The medicine is Liangxue Xiaofeng Powder, with the addition of Inulae Flos and Persicae Semen. This is the Xinrun Tongluo method, which was founded and developed by Ye Tianshi under the inspiration of *Synopsis of the Golden Chamber Xuanfuhua Decoction*. Inulae Flos has the function of reducing qi and phlegm, promoting blood circulation and

resolving blood stasis. On this basis, Persicae Semen was added, with a pungent and moist taste. Spicy taste can promote the movement of pungent fragrance, promote qi circulation, eliminate blood stasis, and unblock collaterals; Schizonepetae Herba can nourish blood, replenish liver dryness, and not only unblock collaterals but also harm yin and blood. Drying Rehmannia Root, Codonopsis Radix, Angelicae Sinensis Radix cool blood and moisten dryness; Schizonepetae Herba and Saposhnikovia Radix have effects of wind dissipation; Paeoniae Radix Alba can dispel wind and relieve itching, to realize clinically effective treatment for androgenic alopecia with blood heat and wind dryness syndrome^[11].

In this study, the effect of supplementing Western medicine with Liangxue Xiaofeng Powder on AGA is obvious and suitable for promotion. However, due to the limitations of time, manpower, equipment and other reasons, its use method still stays in the traditional Chinese medicine formulation. Although its compatibility and prescription have been explained and the initial clinical efficacy has been compared, the specific effective ingredients and mechanism of its drug compatibility have not been deeply explored, which needs to be gradually improved in future studies.

References

- [1] LOLLI F, PALLOTTI F, ROSSI A, *et al.* Androgenetic alopecia: A review[J]. *Endocrine*, 2017, 57(1): 9–17.
- [2] CHOI GS, SIM WY, KANG H, *et al.* Long-term effectiveness and safety of dutasteride versus finasteride in patients with male androgenic alopecia in South Korea: A multicentre chart review study[J]. *Annals of Derma-*

tology, 2022, 34(5): 349–359.

- [3] ZHOU C, ZHANG JZ. Interpretation of Chinese androgen alopecia by BASP classification method [J]. *Dermatology and Venereal Diseases*, 2016, 38(5): 325–327. (in Chinese).
- [4] LI GR. The standard of TCM diagnosis and curative effect[J]. *Standardized Information*, 1995(2): 5. (in Chinese).
- [5] ADIL A, GODWIN M. The effectiveness of treatments for androgenetic alopecia: A systematic review and meta-analysis[J]. *Journal of the American Academy of Dermatology*, 2017, 77(1): 136–141.
- [6] SACEDA-CORRALO D, MOUSTAFA F, MORENO-ARRONES Ó, *et al.* Mesotherapy with dutasteride for androgenetic alopecia: A retrospective study in real clinical practice [J]. *Journal of Drugs in Dermatology*, 2022, 21(7): 742–747.
- [7] QIU Y, ZHOU X, FU S, *et al.* Systematic review and meta-analysis of the association between metabolic syndrome and androgenetic alopecia [J]. *Acta Dermato-Venerologica*, 2022, 102: adv00645.
- [8] MELO DF, SACEDA-CORRALO D, TOSTI A, *et al.* Frontal edema due to mesotherapy for androgenetic alopecia: A case series[J]. *Dermatology and Therapy*, 2022, 35(2): e15247.
- [9] HEYMANN WR. The inflammatory component of androgenetic alopecia [J]. *Journal of the American Academy of Dermatology*, 2022, 86(2): 301–302.
- [10] QU SH, ZHAO JP, QU TG, *et al.* Dermatoscopic image characteristics of androgenic alopecia in patients with different TCM syndroms [J]. *World of Chinese Medicine*, 2019, 14(1): 209–213, 219. (in Chinese).
- [11] REN Y, SUN W, DUAN XX, *et al.* Discussion on the collaterals disease of Women Medicine[J]. *Journal of Changchun University of Chinese Medicine*, 2022, 38(12): 1307–1310. (in Chinese).

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detailed rules for the implementation of traditional preparation filing management, guiding principles of research technology, *etc.* Hospitals should seize the opportunity to continuously develop and advance traditional Chinese medicine preparations in hospitals and lay a solid foundation for the development of new drugs.

References

- [1] The National People's Congress. The Drug Administration Law of the People's Republic of China. (2019–8–26) (in Chinese).
- [2] China Food and Drug Administration. Announcement of China Food and Drug Administration on the implementation of filing management for traditional Chinese medicine preparations prepared by traditional processes in medical institutions. (2018–02–12) (in Chinese).
- [3] Chinese Pharmacopoeia Commission. Chinese pharmacopoeia (Four parts of the 2020 edition) [M]. Beijing: China Medical Science Press [S]. Beijing: China Medical Science Press, 2020. (in Chinese).

- [4] Guizhou Medical Products Administration. Notice of Guizhou Medical Products Administration on printing and distributing the detailed rules for the administration of filing traditional Chinese medicine preparations prepared by traditional processes in medical institutions in Guizhou Province (Trial). (2019–04–01) (in Chinese).
- [5] YANG CM. Design of traditional Chinese medicine compound preparations based on clinical value and inheritance innovation [J]. *Chinese Traditional and Herbal Drugs*, 2019, 50(17): 3997–4002. (in Chinese).
- [6] China Food and Drug Administration. Administrative measures for the registration of preparations in medical institutions (Trial). (2005–06–22) (in Chinese).
- [7] Guizhou Medical Products Administration. Guiding principles for research technology of traditional Chinese medicine preparations prepared by traditional processes in medical institutions in Guizhou Province (Trial). (2022–07–01) (in Chinese).
- [8] The National People's Congress. The Law of People's Republic of China (PRC) on Traditional Chinese Medicine. (2016–12–25) (in Chinese).

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