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Cooling blood detoxification decoction and nursing countermeasures in the treatment of acute psoriasis from the perspective of immune function and inflammatory factors

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Abstract: The present trial aimed to analyze the clinical efficacy of cooling blood detoxification decoction and nursing countermeasures in acute psoriasis from the perspective of immune function and inflammatory factors. Totally 120 patients with acute psoriasis presented to our hospital from January 2019 to January 2020 were randomized into group A and group B. Group B received routine treatment plus routine nursing, while group A received cooling blood detoxification decoction plus traditional Chinese medicine (TCM) care on the basis of the former group. Regarding the immune function indexes, the group A after treatment was superior to the group B; additionally, the inflammatory factors after treatment in group A was lower than group B; moreover, the PASI of group A at 6 weeks and 9 weeks after treatment was lower than group B; the QOL score of group A after treatment was superior to group B; the total number of effective treatment cases and nursing satisfaction were completely different when group A vs group B. Cooling blood detoxification decoction plus TCM nursing is a preferable technique for acute psoriasis to improve clinical symptoms, enhance immune function and diminish inflammatory factor levels, thereby optimizing the quality of life.

Keywords: Antidote, cooling blood medicine, acute psoriasis, immune function, inflammatory factor.

INTRODUCTION

Psoriasis is a common clinical disease, and the typical manifestations are red patches on their skin and covered with white scales, which directly affects functional and social well-being. At present, western medicine treatment is the mainstay for patients with psoriasis, but it lacks radical cure. Due to the repeated occurrence after stopping the drug, the overall effect is always considered undesirable (Dagan *et al.*, 2019; Ramanunny *et al.*, 2020; Sachinidis *et al.*, 2019). Chinese medicine refers to psoriasis as white scalp and believes that the disease is caused by the patient's blood heat. On account of this, Chinese medicine aimed at clearing away heat and detoxification, regulating the patient's body function and enhancing its immunity, so as to optimize the long-term curative effect. Since the slow onset of Chinese medicine treatment, patients will still be affected by the symptoms of psoriasis during the recovery period, so their special needs must be addressed by Chinese medical care. This trial is being conducted to assess the curative effect of cooling blood detoxification decoction supplemented by traditional Chinese medicine (TCM) nursing in the treatment of acute psoriasis.

MATERIALS AND METHODS

Participants

This trial was conducted on 120 patients with acute psoriasis admitted to our hospital in the time frame of January 2019 to January 2020, and equally randomized them into group A and group B. The baseline information of the two groups were homogenous (P>0.05). See table 1 for details.

Inclusion criteria

Eligibility criteria required individuals to have sufficient knowledge of the research process and signed the consent form; meet the diagnosis of acute psoriasis in the *Diagnosis and Efficacy Standards for Skin Diseases in Traditional Chinese Medicine* and *Dermatology and Venereology* (Dabholkar *et al.*, 2020; Lu *et al.*, 2014; Yang *et al.*, 2013); not take immune preparations recently; this study has been approved by the hospital ethics committee.

Patients with other organ diseases; prior glucocorticoid treatment within 2 weeks before the study; Mental problems or cannot communicate were excluded.

Methods

Group B received conventional treatment plus conventional nursing. The specific steps are as follows: (1) Conventional treatment: 0.06% tazarotene cream (Chongqing Huabang Pharmaceutical Co., Ltd., SFDA approval number H20040124) was applied on the affected area every night before going to bed. And after breakfast and dinner, 5 tablets of Diyin Tablets (Chongqing Huabang Pharmaceutical Co., Ltd., SFDA approval number H50021778) were taken orally (Arnone *et al.*, 2019; Dabholkar *et al.*, 2020; Loft *et al.*, 2019; Nirbhavane *et al.*, 2020). (2) Routine nursing: Basic

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dietary intervention and skin care was provided to patients by nursing staff, and the recovery status of patients were observed and recorded, and patients were reminded to maintain oral hygiene.

On the basis of the former group, group A was treated with cooling blood detoxification decoction and TCM care. The specific steps are as follows: (1) Cooling blood detoxification decoction: The prescription contains 25g each of Sophora japonica, Imperata cylindrica root, Isatis indigotica, Daqing leaves, and 10g each of comfrey, red peony root, raw rehmannia, danshen, salvia, honeysuckle and white fresh peel. The medicine was decocted by the research group and boiled to 250ml. The patient took it once in the morning and evening, 5 doses per week. (2) TCM nursing: Nursing staff should increase the frequency of communication with patients, enhance the patient's understanding of symptoms and their own conditions, dispel the patients' doubts or anxiety, and inform them of the adverse effects of depression on recovery; nursing staff should demand patients to feed that assists the prescription to work, avoid spicy food, and inform them of the importance of diet therapy, so that they can consciously cooperate; nursing staff should instruct patients about daily precautions, keep the patient's skin fresh, prohibit scratching, and encourage patients to warm water bathing daily; nursing staff should adjust the indoor temperature to about 20 degrees Celsius, ensure proper humidity, avoid excessive dryness, and provide patients with good rest conditions; if the patient is of toxic fever or sepsis, it should be recommended to live a single room and isolate.

The two groups of patients were treated for 4 weeks.

Observation criteria

(1) Immune function indicators: The venous blood was collected when the patient got up in the morning on an empty stomach, and the T lymphocyte CD3+, CD4+, CD4+/CD8+ levels of the patient were detected by flow cytometry and immunofluorescence staining.

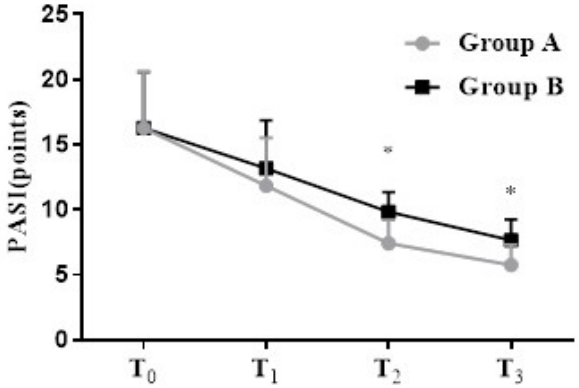
(2) Inflammatory factor levels: ELISA was used to detect the levels of interleukin-6 (IL-6), interleukin-23 (IL-23) and tumor necrosis factor (TNF-α) in patients.

(3) Psoriasis area and severity index (PASI): The PASI scores of patients were recorded before treatment (T0), 3 weeks (T1), 6 weeks (T2), and 9 weeks (T3) after treatment. A lower score indicates a better condition.

(4) Quality of life (QOL): The QOL-C30 score scale was used to compare the physical function, emotional function, role function and social function of the two groups of patients. The score range is between 0 and 100 points. Higher score indicate better QOL of the patient.

(5) Overall response: Markedly effective is defined as that the patient's skin lesions and clinical symptoms disappeared and the symptom score reduced by more than 90%; Effective is defined as that the patient's skin lesions basically subsided, the symptoms significantly reduced, and the symptom score reduced by more than 50%, but less than 90%; Ineffective: it did not meet the above criteria.

(6) Nursing satisfaction: The satisfaction was assessed using our hospital's self-developed scale, the rating range is between 0 stars and 5 stars, 5 stars are considered very satisfactory, 3 stars-4 stars are considered satisfactory, 2 stars and below are considered dissatisfied.



Note: The horizontal axis from left to right is before treatment (T0), 3 weeks (T1), 6 weeks (T2), and 9 weeks (T3) after treatment.
The score of patients in group A at T0 was (13.21±6.10) points, group B was (13.22±6.11) points;
The score of patients in group A at T1 was (9.25±5.20) points, and group B was (10.56±5.23) points;
The scores of the patients in group A at T2 was (6.15±2.54) points, and group B was (8.80±2.10) points;
The score of patients in group A at T3 was (4.65±2.21) points, and group B was (6.54±2.23) points.
*Indicates P<0.001 when compared between groups

Fig. 1: PASI comparison of patients (x±s, points)

STATISTICAL ANALYSIS

The statistical analysis was carried out using SPSS 20.0 and the graphics were plotted using Graph Pad Prism 7 (Graph Pad Software, San Diego, USA). The count data and measurement data were determined for distinctive differences using Chi-square test and t test. Significance level was set at P<0.05.

RESULTS

Immune function indexes

Higher immune function indexes after treatment was observed in group A as compared to the group B, and the difference reached significance (P<0.001, table2).

Inflammatory factor levels

Table 3 details that the levels of inflammatory factors in group A after treatment were significantly lower than those in group B (P<0.001).

PASI

The PASI scores of group A exhibited a remarkably higher level when compared to group B at 6 and 9 weeks after treatment (P<0.001), as shown in fig. 1.

QOL after treatment

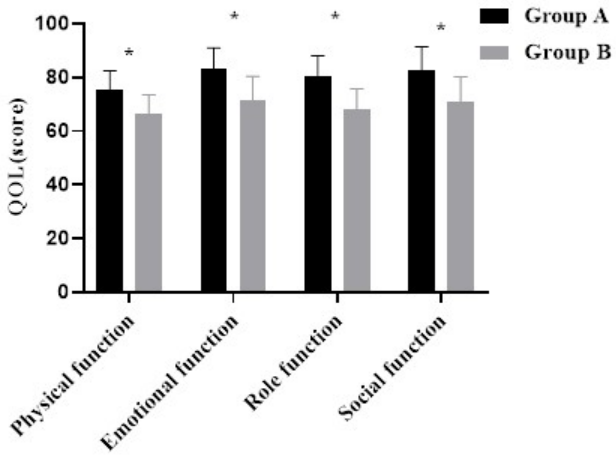
The QOL scores of patients in group A were found to be significantly higher when compared to the group B (P<0.001, fig. 2).

Overall efficacy

The overall response in group A was superior to the group B (χ^2=5.926, P=0.015), as presented in fig. 3.

Nursing satisfaction

Table 4 details that the nursing satisfaction of patients in group A was beyond the group B (P<0.05).



Note: The horizontal axis represents physical function, emotional function, role function and social function from left to right.

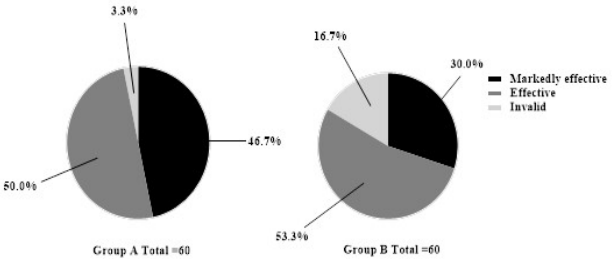
The physical function score of group A was (70.21±10.23) points, and group B was (61.21±10.22) points;

The emotional function score of group A was (77.52±11.22) points, and group B was (65.56±12.32) points;

The role function score of group A was (75.56±10.32) points, and group B was (62.23±11.25) points;

The social function score of group A was (76.52±12.36) points, and group B was (64.32±13.25) points.

Fig. 2: Comparison of QOL after treatment (x ± s, points)



Note: The black area is markedly effective, the dark gray area is effective, and the light gray area is ineffective.

28 cases (46.7%) were markedly effective in group A, 18 cases (30.0%) in group B;

30 cases (50.0%) were effective in group A, 32 cases (53.3%) in group B;

2 cases were ineffective in group A (3.3%), and 10 cases (16.7%) in group B.

Fig. 3: Comparison of overall efficacy of patients [n(%)]

DISCUSSION

It is well known that the abnormal T lymphocytes and increased TNF-α are the key factors leading to the presence of psoriasis symptoms in patients. Nowadays, with the deterioration of environmental conditions worldwide, residents' immunity and mentality are negatively affected, and the incidence of psoriasis is rising annually (Liu *et al.*, 2015; Lima *et al.*, 2020; Nehring *et al.*, 2020; Shary *et al.*, 2020). It is fundamental for treatment of acute psoriasis to enhance the patient's immunity and regulate the patient's body function. The authors found in this study that the immune function indexes in group A after treatment were notably higher (P<0.001), while the level of inflammatory factors were lower (P<0.001). It is attributable to that the roots of Imperata cylindrica and Radix isatidis in the cooling blood detoxification decoction can reduce the level of IL-8 secretion in patients, while the medicines such as red peony root play a role in anti-bacteria, and adjuvant drugs such as white fresh peel regulate the immune system of patients(Kelly *et al.*, 2019; Dimitris *et al.*, 2020; Niculet *et al.*, 2020; Nussbaum *et al.*, 2020). The combination of above drugs can weaken the release frequency of inflammatory factors in the patient's body, enhance its immune function, and accelerate the patient's recovery process.

Importantly, the authors observed that PASI scores of patients in group A were significantly lower than those in group B at 6 and 9 weeks after treatment (P<0.001). It can be assumed that the comfrey successfully played the role of eliminating blood heat, realizing the effect of curing macula and achieved detoxification and dehumidification purpose, so group A garnered a desirable outcome. Japanese scholar Kari Kobayashi explored the effectiveness of Chinese herbal medicine in his study on the treatment of acute psoriasis, and found that the study group using comfrey, red peony and other similar prescriptions and special care obtained a remarkable higher score of PASI at 6 weeks (6.12±2.26) points and 9 weeks (4.55±2.11) points after treatment, which outperformed the control group (P<0.001), indicating that comfrey and other Chinese herbal medicines have a positive effect in the treatment of psoriasis (Posadzki *et al.*, 2013). The findings are in conformity with our study.

TCM believes that emotional nursing is imperative in nursing, due to the depression during the treatment would

Table 1: Comparison of general information of patients

Groups	n	Gender (Male/female)	Age (years)	Course of disease (months)
Group A	60	32/28	44.51±5.23	25.12±10.58
Group B	60	33/27	44.53±5.46	25.53±10.89
χ^2/t		0.034	0.020	0.209
P		0.855	0.984	0.835

Table 2: Comparison of immune function indexes of patients (x ± s, %)

Items	Group A		Group B		t	P
$CD3^+$	Before treatment	25.12±3.25	Before treatment	25.11±3.21	0.017	0.987
	After treatment	47.89±5.32	After treatment	39.21±4.52	9.631	<0.001
	t	28.292	t	19.701		
	P	<0.001	P	<0.001		
$CD4^+$	Before treatment	16.12±2.15	Before treatment	16.22±2.32	0.245	0.807
	After treatment	36.21±2.12	After treatment	28.51±2.65	17.575	<0.001
	t	51.539	t	27.029		
	P	<0.001	P	<0.001		
$CD4^+/CD8^+$	Before treatment	0.56±0.21	Before treatment	0.56±0.23	<0.001	1.000
	After treatment	1.65±0.35	After treatment	1.32±0.21	6.263	<0.001
	t	20.685	t	18.902		
	P	<0.001	P	<0.001		

Table 3: Comparison of inflammatory factor levels in patients (x ± s)

Items	Group A		Group B		t	P
IL-6	Before treatment	180.21±10.22	Before treatment	180.32±11.23	0.056	0.955
(ng/L)	After treatment	105.23±12.23	After treatment	129.52±10.56	11.644	<0.001
	t	36.441	t	25.527		
	P	<0.001	P	<0.001		
IL-23	Before treatment	81.23±5.21	Before treatment	81.00±5.23	0.241	0.810
(ng/L)	After treatment	55.56±5.23	After treatment	67.21±6.56	10.756	<0.001
	t	26.935	t	12.732		
	P	<0.001	P	<0.001		
TNF-α	Before treatment	1.70±0.56	Before treatment	1.71±0.54	0.100	0.921
(μg/L)	After treatment	0.89±0.35	After treatment	1.32±0.53	5.244	<0.001
	t	9.501	t	3.993		
	P	<0.001	P	<0.001		

Table 4: Comparison of patient care satisfaction [n (%)]

Groups	Very satisfied	satisfied	Dissatisfied	Total satisfaction
Group A	32(53.3)	26(43.3)	2(3.3)	58(96.7)
Group B	18(30.0)	30(50.0)	12(20.0)	48(80.0)
χ^2				8.086
P				0.004

affect recovery. Therefore, we should pay attention to the patient's psychological dynamics and help them express their negative emotions when the nursing is initiated. Additionally, dietary care also plays a pivotal role in TCM care. TCM has a saying that everything that tastes good would benefit the body. Therefore, nursing staff should conduct dietary interventions based on the actual situation of the patient to fully exert the auxiliary role in the recovery process of patients and enhance its efficacy (Ahuja *et al.*, 2021; Visconti *et al.*, 2019). As a result, patients in group A recovered faster and possessed better QOL as compared to the group B (P<0.001) and the total number of effective cases and nursing satisfaction were found to be higher (P<0.05), both revealing the TCM special care is preferable to acute psoriasis.

CONCLUSION

We suggest the combination of cooling blood detoxification decoction and special TCM care a promising technique for acute psoriasis for its strength in

enhancing the immunity of patients, diminishing the level of inflammatory factors and improving their quality of life.

REFERENCES

Ahuja A, Gupta J and Gupta R (2021). Miracles of herbal phytomedicines in treatment of skin disorders: natural healthcare perspective. *Infect. Disord. Drug Targets*, **21**(3): 328-338.

Arnone M, Carvalho AVE, Takahashi MDF and Bernardo WM (2019). Psoriasis in moderate grave plaque - immunobiological treatment. *Rev. Assoc. Med. Bras*, **65**(4): 493-508.

Dabholkar N, Rapalli VK and Singhvi G (2021). Potential herbal constituents for psoriasis treatment as protective and effective therapy. *Phytother. Res.,* **35**(5): 2429-2444.

Dagan A, Dahan S, Shemer A, Langevitz P, Hellou T, Davidson T and Shovman O (2019). Acute onset of psoriatic spondyloarthritis as a new manifestation of post-streptococcal reactive arthritis: A case series. *Clin. Rheumatol.,* **38**(9): 2367-2372.

Dimitris D, Ekaterina-Michaela T, Christina K, Ioannis S, Ioanna SK, Aggeliki L and Helen S (2020). *Melissa officinalis* ssp. altissima extracts: A therapeutic approach targeting psoriasis in mice. *J. Ethnopharmacol.,* **246**: 112208.

Kelly A and Ryan C (2019). Genital osoriasis: Impact on quality of life and treatment options. *Am. J. Clin. Dermatol.,* **20**(5): 639-646.

Lima M, Finelli F, de Oliveira A, Kartnaller V, Cajaiba J, Leão R and de Souza R (2020). Continuous-flow synthesis of dimethyl fumarate: A powerful small molecule for the treatment of psoriasis and multiple sclerosis. *RSC Advances,* **10**(5): 2490-2494.

Liu SH, Chuang WC, Lam W, Jiang Z and Cheng YC (2015). Safety surveillance of traditional Chinese medicine: Current and future. *Drug Saf*, **38**(2):117-28.

Loft ND, Egeberg A, Rasmussen MK, Bryld LE, Gniadecki R, Dam TN and Skov L (2019). Patient-reported outcomes during treatment in patients with moderate-to-severe psoriasis: A Danish Nationwide Study. *Acta. Derm. Venereol.,* **99**(13): 1224-1230.

Lu C, Deng J, Li L, Wang D, Li GJBeBA-P and Proteomics (2014). Application of metabolomics on diagnosis and treatment of patients with psoriasis in traditional Chinese medicine. *Biochim. Biophys. Acta.,* **1844**(1 Pt B): 280-288.

Nehring P and Przybyłkowski A (2020). Is psoriasis treatment a risk factor for inflammatory bowel disease? *Pharmaceut. Med.*, **34**(4): 257-262.

Niculet E, Radaschin DS, Nastase F, Draganescu M, Baroiu L, Miulescu M and Tatu AL (2020). Influence of phytochemicals in induced psoriasis (Review). *Exp. Ther. Med.,* **20**(4): 3421-3424.

Nirbhavane P, Sharma G, Verma S, Jadon RS, Singh B and Katare OP (2020). Nail psoriasis treatment: Insights into current progress and future trends. *Crit. Rev. Ther. Drug Carrier. Syst.,* **37**(2): 135-159.

Nussbaum L, Chen YL and Ogg GS (2020). Role of regulatory T cells in psoriasis pathogenesis and treatment. *Br. J. Dermatol.*, **184**(1):14-24.

Posadzki P, Watson LK and Ernst E (2013). Adverse effects of herbal medicines: An overview of systematic reviews. *Clin Med (Lond),* **13**(1): 7-12.

Ramanunny AK, Wadhwa S, Singh SK, Sharma DS, Khursheed R and Awasthi A (2020). Treatment strategies against psoriasis: Principle, perspectives and practices. *Curr. Drug Deliv.,* **17**: 52-73.

Sachinidis A, Nikolic D, Rizzo M and Cianflone D (2019). Psoriasis and acute coronary syndrome risk. *Int. J. Cardiol.,* **286**: 15-16.

Shary N and Kalb R (2020). Optimizing the treatment of moderate-to-severe psoriasis in older adults. *Drugs & Aging,* **37**(10): 1-9.

Visconti M, Bashyam A and Feldman S (2019). Treatment decisions in psoriasis. *J. Comp. Eff. Res.*, **8**(12): 947-949.

Yang X, Chongsuvivatwong V, McNeil E, Ye J, Ouyang X, Yang E and Sriplung H (2013). Developing a diagnostic checklist of traditional Chinese medicine symptoms and signs for psoriasis: A Delphi study. *Chin. Med.,* **8**(1): 10.