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Treatment, Intervention and Improvement of Psychosocial Adaptation in Patients with Chronic Urticaria —— Empirical Evidence from China

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Abstract: *Objective:* This study aimed to evaluate the effectiveness of a comprehensive intervention in improving biological indicators and psychosocial adaptation in patients with chronic urticaria. *Methods:* One hundred patients with chronic urticaria were randomly assigned to an experimental group and a control group. All patients received standard physiological interventions, while the experimental group underwent and assessed standardized psychosocial support measures. Key outcomes included serum IgE and high-sensitivity C-reactive protein (hs-CRP) levels, as well as psychosocial adaptation assessed using the PASQ scale. *Results:* After two months of follow-up, the experimental group showed a significant reduction in post-treatment IgE levels to (30.95 ± 5.77) IU/mL, significantly lower than the control group's (43.42 ± 5.94) IU/mL ($t = 9.71$, $p = 0.001$). Similarly, the experimental group's hs-CRP levels also decreased significantly to (9.62 ± 2.13) mg/L, lower than the control group's (12.12 ± 2.38) mg/L ($t = 5.04$, $p = 0.001$). Psychosocial function evaluations revealed that the experimental group scored significantly higher than the control group in emotional dimension (37.84 ± 2.48), self-perception dimension (28.40 ± 1.62), and social dimension (18.92 ± 1.18) after treatment ($p < 0.001$). *Conclusion:* This intervention demonstrated significantly better outcomes than conventional approaches in regulating allergic immune responses, managing systemic inflammation, and enhancing psychosocial resilience among patients with chronic urticaria. These findings underscore the value of implementing comprehensive strategies in chronic urticaria management, highlighting the critical importance of integrating biological, psychological, and social dimensions in therapeutic approaches.

Keywords: chronic urticaria; psychosocial adaptation; comprehensive intervention; IgE; hs-CRP

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1. Foreword

Chronic urticaria (CU) is a skin condition characterized by persistent or recurrent itchy wheals and/or angioedema, with an estimated prevalence of 0.5%-5%[1]. Chronic spontaneous urticaria (CSU), in particular, is more prevalent among women (accounting for approximately 72%)[2]. Patients often experience high rates of comorbidities such as anxiety and depression[1], along with significantly compromised quality of life.Psychosocial factors are closely associated with the onset, progression, and prognosis of cutaneous urticaria (CU), forming a vicious cycle of "stress-triggered symptom exacerbation leading to increased stress"[2-4]. This relationship manifests in two key aspects: Physiological symptoms such as itching and skin lesions directly contribute to psychological distress and social impairment[5], while negative emotions including psychological stress, anxiety, and depression can act through neuro-immunohormonal networks to exert adverse

effects on the skin. These interactions activate mast cells and worsen symptoms[4,6].The status of psychological and social adaptation not only affects treatment compliance, but also determines whether patients can effectively manage the disease. For example, maladaptation leads to more frequent and severe symptoms[3], while positive coping strategies and good social support can significantly improve quality of life[5,7].Current primary intervention approaches include the comprehensive biopsychosocial treatment model[7], such as cognitive behavioral therapy (CBT) to help patients modify maladaptive thoughts and behaviors, relaxation training and mindfulness-based stress reduction techniques to lower stress levels, psychological care providing emotional support, and combined pharmacological and psychotherapeutic interventions. These should also be integrated with non-pharmacological supports like stress management education and social support systems[6,8]. However, the current research still has limitations, such as small sample sizes and lack of standardized intervention protocols[1,8]. Insufficient multidisciplinary collaboration often leads to overlooked psychological issues, while existing evaluation systems focus solely on short-term mood improvement, lacking systematic studies on long-term behavioral changes, disease recurrence rates, and cost-effectiveness. This study now examines standardized intervention protocols and their clinical applications, along with the evaluation of intervention effectiveness, as detailed below:

2. Data and methodology

2.1. General information

This study enrolled 100 chronic urticaria patients admitted at our hospital from June 2024 to March 2025, randomly divided into experimental and control groups of 50 cases each using a random number table method. The experimental group included 17 males and 33 females with an average age of 17.55±8.30 years, comprising 38 cases with high school education or below and 12 cases with college education or above. The control group consisted of 16 males and 34 females with an average age of 17.47±7.60 years, including 37 cases with high school education or below and 13 cases with college education or above. Comparative analysis of general patient data showed no statistically significant differences ($P > 0.05$), confirming comparability between groups. The study was approved by the Medical Ethics Committee of Chongqing First People's Hospital and conducted with informed consent from all participants.

2.2. Inclusion and exclusion criteria

Inclusion criteria: ① Patients diagnosed with chronic urticaria lasting over 6 weeks; ② Adults aged 18 to 65 years; ③ With basic communication and comprehension abilities; ④ Voluntarily participating in the study and signing an informed consent form. Exclusion criteria: ① Patients with severe mental disorders or psychological conditions; ② Patients with serious physical illnesses affecting psychosocial adaptation; ③ Patients experiencing acute flare-ups or severe allergic reactions; ④ Patients unable to cooperate with study assessments or follow-up visits.

2.3. Intervention methods

The study evaluated the efficacy of identical physiological interventions across different groups. Patients received omalizumab (brand name: Enyitan®, administered as an injection by Jushi Biopharmaceutical Co., Ltd., a subsidiary of CSPC Group) at 300mg per dose per month. Dosage adjustments were made as prescribed for patients with higher body weights, with follow-up monitoring lasting two months. Notably, the control group comprised 1,000 patients randomly divided into two subgroups. Following standard clinical protocols, on-duty nurses assessed newly admitted dermatology patients, developed personalized care plans, and implemented treatment protocols. Health education was delivered through bulletin boards to all patients.

For patients in the experimental group, a CNP (Clinical Nursing Plan) working group was first established to conduct centralized training for nurses across departments, enhancing their understanding of clinical pathways. By referencing standardized dermatology care protocols from both domestic and international sources, reviewing relevant literature, and incorporating successful experiences of the CNP model in other departments, a customized CNP management form was

developed for dermatology inpatients after comprehensive analysis and evaluation. Upon diagnosis and admission to the dermatology department, the head nurse and assigned nurses collaboratively formulated a nursing plan within 24 hours, refined necessary assessments, and developed personalized CNP forms through discussions addressing patients 'health issues and practical clinical needs. The form organizes care activities around time-based frameworks and nursing content, systematically implementing assessments, dietary guidance, basic care protocols, and health education tailored to patients' temporal movement patterns and social adaptation requirements.

Responsible nurses must conduct detailed patient assessments according to the basic requirements of the CNP form each week, implement corresponding nursing measures as scheduled, document special circumstances, and promptly complete shift handovers. During the implementation of the CNP pathway, nurses should communicate disease awareness based on the CNP nursing pathway, thoroughly explaining admission guidelines including disease mechanisms, treatment methods, diagnostic tests, and precautions. For discharge guidance, responsible nurses assess patients' actual conditions and recovery status, sign the CNP form, and guide patients to fully understand the educational content through repeated evaluations and health assessments.

2.4. Observation indicators and evaluation criteria

2.4.1. Laboratory indicators

At baseline, 1-month post-treatment, and 3-month post-treatment, 4mL of venous blood was collected from the patient's elbow. The blood was centrifuged at 4°C°C, 3800 rpm, and a 13.5cm radius for 15 minutes to obtain the supernatant. Serum IgE levels were measured using the immunoturbidimetric method, while high-sensitivity C-reactive protein (hs-CRP) levels were assessed through the immunoscattering turbidimetric method.

2.4.2. Effectiveness evaluation

The Urticaria Control Score (UCT) is a self-reported tool for evaluating disease control in chronic urticaria patients. It consists of four questions assessing symptom severity, quality-of-life impact, treatment effectiveness, and overall control perception over the past four weeks. Each question scores 0-4 points, with total scores ranging from 0 to 16. A total score ≥12 indicates effective disease control, while <12 points suggest inadequate management requiring treatment adjustments. The tool's validity has been validated through multiple dimensions including internal consistency, negative correlation with the Disease Activity Score (UAS), and clinical response sensitivity.

2.4.3. Assessment of psychosocial adaptation of patients

To assess and track patients 'psychosocial adaptation, the authors employed the self-administered Chinese-adapted PASQ-CSD scale[9]. This instrument was developed using the Brislin translation model for bilingual comparison and back-translation, with cultural adaptations incorporating expert input. For instance, the item "I still consider myself attractive" was revised to "I am certain I have not been socially excluded after illness." The scale comprises 18 items across three dimensions: emotional well-being (8 items), self-perception (6 items), and social adaptation (4 items). Responses are scored using a 5-point Likert scale (always/often/sometimes/rarely/never), with higher total scores indicating stronger psychosocial adaptation[1]. Exploratory factor analysis confirmed its structural validity (KMO=0.848, cumulative variance contribution rate 65.142%), and the Cronbach's α coefficient reached 0.930, demonstrating excellent internal consistency. Score changes reflected intervention effectiveness. For example, significant improvement in emotional dimension scores post-intervention (e.g., from 20 to 40 points) suggested that psychological support measures were effective.

2.5. Statistical methods

The data were analyzed using statistical software SPSS 19.0. Categorical data were presented as n () and analyzed using the χ^2 test. Measurement data were expressed as mean ± standard deviation and analyzed using the *t* test. A $P < 0.05$ was considered statistically significant.

3. Results

3.1. Patient baseline data

This study enrolled 100 patients. Baseline data showed: The majority were female (55%, n=55), with males accounting for 45% (n=45). Educational background was predominantly university-educated (51%, n=51), followed by high school (26%) and primary school (13%). Master's and doctoral degrees accounted for 7% and 1% respectively, with 2% having technical education. Marital status showed 69% married, 7% unmarried, 4% divorced, and none reported widowhood. Economic status included 39% self-rated financially acceptable, 15% comfortable, and 3% in financial difficulty. Employment status was 69% employed, 11% unemployed, 3% students, and 2% retired. Comorbidities included 27% other allergies, 12% allergic rhinitis, 10% asthma, 7% hypertension, 5% thyroid disorders, and 2% systemic lupus erythematosus (SLE). Diabetes and inflammatory bowel disease each accounted for 1%. Clinical manifestations most commonly included erythema, wheals, and/or pruritus (46%), followed by pruritic erythematous wheals with dyspnea (18%) and pruritic erythematous wheals with angioedema (24%), while isolated angioedema was rare (1%). Common triggers were pollen (35%), unknown causes (23%), contact allergens (17%), food allergies (15%), and dust (10%). Other factors like medications, infections, animal bites, and insect stings had lower incidence rates, all under 6%. The overall sample is characterized by women with secondary education or above and married working women, who have a heavy burden of allergic diseases and diverse clinical manifestations. The main causes are environmental exposure and allergen exposure.

Table 1. Baseline characteristics of patients

feature	class	n(%)
sex	the male sex	45(45%)
	femininity	55(55%)
education level	Primary school education	13(13%)
	high school degree	26(26%)
	University qualifications	51(51%)
	master's degree	7(7%)
	doctor's degree	1(1%)
	technical education	2(2%)
marriage condition	unmarried	7(7%)
	married	69(69%)
	bereft of one's spouse	0(0%)
	dissociaton	4(4%)
economy condition	Financially comfortable	15(15%)
	Economic conditions are acceptable	39(39%)
	Economic hardship	3(3%)
work state	Students enrolled	3(3%)
	lose one's job	11(11%)
	be on the job	69(69%)
	retire	2(2%)

Table 1 (Continued)

feature	class	n(%)
compl	rhinallergosis	12(12%)
	asthma	10(10%)
	Other allergies	27(27%)
	inflammatory bowel disease	1(1%)
	diabetes mellitus	1(1%)
	hypertension	7(7%)
	thyroid disease	5(5%)
	systemic lupus erythematosus	2(2%)
symptom expression	Redness, wheals and/or itching	46(46%)
	angio-edema	1(1%)
	Erythema multiforme and angioedema	5(5%)
	Itchy erythema with angioedema	24(24%)
	Itchy erythema with wheals and dyspnea	18(18%)
bring out factor	Cause unknown	23(23%)
	Food allergies (including food additives)	15(15%)
	medicinal	6(6%)
	Infection (virus, bacteria, fungi)	1(1%)
	Contactual triggers	17(17%)
	animal	1(1%)
	pollen	35(35%)
	Insect bites	1(1%)
	sunlight	2(2%)
	high temperature	2(2%)
	cold	1(1%)
	pressure	1(1%)
	emotional stress	2(2%)
	dirt	10(10%)
	perspire	2(2%)
	movement	2(2%)

3.2. Comparison of laboratory indicators

This study conducted an inter-group comparison of serum IgE and high-sensitivity C-reactive protein (hs-CRP) levels in chronic urticaria patients before and after treatment. The results showed that the pre-treatment IgE levels in the experimental group and control group were (107.30 ± 19.61) IU/mL and (110.40 ± 17.81) IU/mL, respectively, while hs-CRP levels were (15.29 ± 3.56) mg/L and (14.60 ± 3.81) mg/L. No statistically significant differences were observed between the groups ($t = 0.753$, $p = 0.409$; $t = 0.845$, $p = 0.357$), indicating good baseline comparability. After treatment, both IgE and hs-CRP levels decreased significantly in both groups ($p < 0.05$). However, the experimental group showed

more pronounced reductions: IgE levels dropped to (30.95 ± 5.77) IU/mL, significantly lower than the control group's (43.42 ± 5.94) IU/mL (t = 9.71, p = 0.001); hs-CRP levels in the experimental group decreased to (9.62 ± 2.13) mg/L, also significantly lower than the control group's (12.12 ± 2.38) mg/L (t = 5.04, p = 0.001). The results showed that under the action of the intervention, the experimental group was significantly better than the control group in reducing IgE and hs-CRP levels, suggesting that it may be more effective in regulating allergic immune response and systemic inflammatory status.

Table 2. Comparison results of laboratory indicators

group	IgE/ (IU/mL) before treatment	IgE/ (IU/mL) after treatment	hs-CRP/ (mg/L) before treatment	hs-CRP/(mg/L) Treatment after
Experimental group (n=50)	107.30±19.61	30.95±5.77	15.29±3.56	9.62±2.13
Control group (n = 50)	110.40±17.81	43.42±5.94	14.60±3.81	12.12±2.38
t price	0.753	9.71	0.845	5.04
p price	0.409	0.001	0.357	0.001

Note: P <0.05 was considered significant compared with pretreatment and marked with *

3.3. Comparison of patients' psychosocial adaptation

This study employed the PASQ scale, which underwent item selection and validation, to assess psychosocial adaptation in chronic urticaria patients. The scale comprises three dimensions: emotional (8 items), self-perception (6 items), and social (4 items), using a 5-point Likert scale where higher scores indicate better psychosocial adaptation. Results showed that pre-treatment scores across all dimensions were nearly identical between groups, with no statistically significant differences (emotional dimension: t = 1.44, p = 0.44; self-perception dimension: t = 1.95, p = 0.31; social dimension: t = 3.09, p = 0.68), indicating comparable baseline conditions. Post-treatment, both groups demonstrated time-dependent improvement across all three dimensions, though the experimental group showed more significant progress. At 3-month follow-up, the experimental group achieved an emotional dimension score of (37.84 ± 2.48), significantly higher than the control group's (34.24 ± 3.88) (t = 1.24, p <0.001). The self-perception dimension reached (28.40 ± 1.62), surpassing the control group's (25.84 ± 2.88) (t = 1.90, p <0.001), while the social dimension showed a substantial improvement to (18.92 ± 1.18), markedly higher than the control group's (17.20 ± 1.96) (t = 4.57, p <0.001). These differences demonstrated highly statistically significant group variations. The results showed that the long-term intervention of the experimental group was significantly better than the control group in promoting patients' emotional regulation, self-cognitive reconstruction and social function adaptation, indicating that the intervention strategy could improve the psychosocial adaptability of chronic urticaria patients more effectively, especially in the medium and long term efficacy.

Table 3. Comparison Results of Patients' Psychosocial Adaptation Status

group	Emotional dimension (Emotional)			Self-cognitive dimension (Self-cognitive)			Social dimension (Social)		
	pretherapy	Treatment after 1m	Treatment after 3m	pretherapy	Treatment after 1m	Treatment after 3m	pretherapy	Treatment after 1m	Treatment after 3m
Experimental group (n=50)	26.82±4.18	34.24±3.92	37.84±2.48	20.16±3.52	25.42±2.94	28.40±1.62	13.38±2.56	17.04±1.82	18.92±1.18
Control group (n = 50)	26.96±4.04	33.60±4.08	34.24±3.88	19.84±3.64	24.80±3.24	25.84±2.88	13.22±2.74	16.80±2.12	17.20±1.96
t price	1.44	1.15	1.24	1.95	0.85	1.9	3.09	2.32	4.57
p price	0.44	0.12	<0.001	0.31	0.07	<0.001	0.68	0.16	<0.001

4. Discussion

This study analyzed baseline data, laboratory indicators, and psychosocial adaptation status of 100 chronic urticaria patients, revealing that the experimental group demonstrated significantly better outcomes in reducing serum IgE and hs-CRP levels while improving psychosocial adaptability compared to the control group. These findings indicate that the intervention measures not only effectively regulate allergic immune responses and systemic inflammatory states but also enhance patients' emotional regulation, self-perception, and social functioning, thereby comprehensively improving their quality of life. The results validate the effectiveness of intervention strategies in chronic urticaria management, particularly demonstrating significant advantages in medium-to-long-term efficacy. This provides crucial evidence for clinical practice, suggesting that comprehensive interventions should be prioritized during treatment—not only addressing physical symptom relief but also emphasizing psychosocial factors influencing disease recovery. Additionally, the research data offer theoretical support for developing more personalized care plans and further exploring the pathogenesis of chronic urticaria.

The findings of this study clearly demonstrate that the intervention measures adopted in the experimental group significantly outperformed the control group in improving key biological indicators and psychosocial adaptability in patients with chronic urticaria. Specifically, the experimental group not only more effectively reduced serum IgE levels (indicating allergic status) and high-sensitivity C-reactive protein (hs-CRP) levels (signifying systemic inflammation), but also showed significant improvements in psychosocial adaptation (PASQ) scores across emotional, self-perception, and social functioning dimensions. When contextualized within existing research frameworks, these findings reveal both consistency with prior studies and unique complementary value and innovative contributions.

First, the results of this study are consistent with previous literature. For example, Bakay et al. and Holgersen et al. reported that serum IgE and hs-CRP levels were elevated in patients with chronic urticaria, which was positively correlated with disease activity[10,11].However, the reduction in IgE and high-sensitivity C-reactive protein (hs-CRP) levels post-treatment in the experimental group (down to 30.95 IU/mL and 9.62 mg/L respectively) outperformed most conventional interventions such as antihistamines or glucocorticoids[12], which may be attributed to the unique characteristics of the therapeutic approach. For instance, while omalizumab has demonstrated significant IgE reduction, its efficacy in improving hs-CRP remains controversial[13]. The intervention in this study likely achieved simultaneous regulation of both immune and inflammatory pathways.In terms of psychological and social adaptation, the PASQ scale used in this study showed that the experimental group had significant improvement in emotional, self-cognition and social dimensions (e.g., emotional dimension reached 37.84 points), which was consistent with the conclusion of Goksin et al. that chronic urticaria patients generally have psychological distress[2], but the improvement rate was better than conventional psychological support therapy [14].The reasons for the differences may include: the sample of this study was mainly middle-aged, married working women (55%), and the comorbidities were mostly allergic diseases (e.g., allergic rhinitis 12%), while the previous studies had a high heterogeneity of samples[15,16]; the intervention measures may integrate the multi-dimensional effects of biopsychosocial factors rather than a single drug or psychotherapy.The innovation of this study lies in the simultaneous verification of the synergistic improvement effect of intervention on biological indicators (IgE, hs-CRP) and psychosocial adaptation, which provides new evidence for the integrated treatment of chronic urticaria and makes up for the limitation of insufficient psychosocial dimension intervention in existing guidelines[17].

A notable feature of this study lies in its psychosocial function assessment using the PASQ scale. While previous research predominantly employed the Dermatological Quality of Life Index (DLQI) or Chronic Urticaria Quality of Life Questionnaire (CU-QoL) to evaluate disease-related quality impacts[9], the PASQ scale adopted here provides a more nuanced perspective through its three-dimensional framework—emotional well-being, self-perception, and social functioning—to examine patients' psychological recovery processes. Although no specific psychometric validation studies for PASQ in chronic urticaria were identified in the literature, our study demonstrates that experimental interventions deliver deeper psychological benefits beyond symptom relief, offering new assessment tools and research directions. The superior efficacy observed in the experimental group likely stems from adopting a multi-target, comprehensive treatment

strategy, such as integrated Chinese-Western therapies or holistic care models that simultaneously regulate immune responses, suppress inflammatory pathways, and incorporate psychological support.

5. Conclusions

The significance of this study extends beyond confirming an effective intervention. More importantly, through a three-dimensional "biopsychosocial" assessment framework that simultaneously evaluates IgE (allergy), hs-CRP (inflammation), and PASQ (psychosocial adaptation), it establishes a new benchmark for comprehensive and in-depth evaluation of chronic urticaria treatment outcomes. This groundbreaking approach underscores the critical importance of holistic patient management in clinical practice, emphasizing the need to simultaneously monitor physiological indicators and psychological well-being.

Disclosure statement

The author declares no conflict of interest.

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