CLINICAL FEATURES AND ASSOCIATED FACTORS OF ATOPIC DERMATITIS AT THAI BINH UNIVERSITY HOSPITAL

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ABSTRACT

Objective: This study aims to identify the clinical features and factors associated with atopic dermatitis (AD) at Thai Binh University Hospital, as well as to analyze the relationship between disease severity and quality of life of patients.

Method: A cross-sectional study was conducted with 225 patients diagnosed with atopic dermatitis at Thai Binh University Hospital in 2022. Patients were surveyed on clinical factors, disease severity using the SCORAD index, and quality of life using the DLQI scale. Data analysis was performed using descriptive statistics, correlation, and linear regression methods.

Results: The results showed a strong correlation between stress levels and both SCORAD (r = 0.56) and DLQI (r = 0.35) scores. Furthermore, factors such as allergic history and stress levels had a significant impact on disease severity and quality of life ($p < 0.01$). Linear regression analysis indicated that allergic history and stress levels were the most significant factors influencing disease severity and quality of life ($\beta = 0.42$ and $\beta = 0.25$, $p < 0.01$).

Conclusion: Factors such as allergic history and stress levels have a significant impact on the severity and quality of life of patients with atopic dermatitis. Managing stress and controlling allergic factors may improve patients' quality of life and help manage disease severity.

Keywords: Atopic dermatitis, disease severity, quality of life, SCORAD, DLQI, allergic history, stress.

I. INTRODUCTION

Atopic dermatitis (AD) is a chronic dermatological disease characterized by skin inflammation, itching, and dryness, affecting various age groups and genders. The disease often begins in childhood and can last throughout life, significantly impacting the quality of life of the patients. According to a study by Sato et al. (2019) [1], atopic dermatitis is the most common dermatological disease in children, with a global prevalence of approximately 15-20% in children and 1-3% in adults (Sato et al., 2019). This condition not only causes skin problems but also deeply affects the psychological state and daily activities of patients, especially with functional symptoms such as itching and insomnia.

Atopic dermatitis has a genetic component, regulated by the interaction between genetic and environmental factors. A study by Silverberg (2017) [2] indicated that 50-80% of atopic dermatitis cases have a genetic basis, particularly in patients with a family history of other allergic conditions such as asthma and allergic rhinitis (Silverberg, 2017) [2]. Early detection and treatment of atopic dermatitis are crucial in preventing complications and improving the quality of life of the patients. Atopic dermatitis (AD) is a common condition in dermatology, particularly at large medical facilities such as Thai Binh University Hospital. However, research on the clinical characteristics and factors affecting the quality of life of atopic dermatitis patients in provincial hospitals remains limited. Factors such as family history, functional symptoms, and disease severity have not been fully and clearly studied.

The aim of this study is to describe the clinical characteristics of atopic dermatitis and analyze the factors affecting the quality of life of patients at Thai Binh University Hospital. The results of this research will provide valuable insights into this condition, while also contributing to improving diagnostic, treatment, and management practices, thereby enhancing the quality of life for patients.

II. SUBJECTS AND METHODS

2.1. Subject, location, and study period

2.1.1. Subjects

The study subjects are patients diagnosed with atopic dermatitis who visited Thai Binh University of Medicine and Pharmacy Hospital.

Inclusion criteria:

Patients aged ≥ 18 years, diagnosed with atopic dermatitis, capable of communication, and consenting to participate in the study.

Exclusion criteria:

1. Thai Binh University of Medicine and Pharmacy
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Patients with severe internal diseases affecting their ability to self-assess.

2.1.2. Study Location: The study was conducted at the Dermatology Clinic, Thai Binh University of Medicine and Pharmacy Hospital

Study period: From January to June 2022

2.2. Method

2.2.1. Study Design

This is a descriptive cross-sectional study with analysis to investigate the clinical features and factors affecting the quality of life of patients with atopic dermatitis.

2.2.2. Sample Size and Sampling Method

Sample size: Calculated using the formula

$$n = Z^2_{(1-\alpha/2)} \frac{p(1-p)}{d^2}$$

Where:

n: minimum sample size

α/2: statistical significance confidence level, in this study set at α = 0.05.

$Z_{1-\alpha/2}$ Confidence coefficient. With α = 0.05, $Z^2_{1-\alpha/2} = 1.96^2$.

p: The general disease prevalence rate, according to research by Pham Van Hien, is approximately 4%, so p = 0.04 [3].

d: Desired absolute precision, typically set to 0.03 (3%).

Based on these data, the calculated sample size is 164. In practice, we collected data from 225 patients with atopic dermatitis who came for examination.

2.2.3. Variables and Evaluation Indicators

Variables: General characteristics (age, gender, occupation, disease duration), functional symptoms, clinical skin lesions, disease severity (SCORAD), quality of life (DLQI). Indicators: The proportion of patients by the above characteristics, the rate according to symptoms and clinical lesions, SCORAD score, DLQI score.

2.2.4. Diagnosis and Evaluation Criteria

Diagnosis of atopic dermatitis: Based on the Hanifin and Raika criteria (1993). Disease severity diagnosis: Using the SCORAD scale to evaluate the disease severity (mild, moderate, severe).

2.2.5. Data Collection Method

- Data were collected through:

Direct interviews with patients using a semi-structured questionnaire.

Clinical examination to determine the location and characteristics of skin lesions.

Evaluation of quality of life using the DLQI (Dermatology Life Quality Index) scale.

- The main contents collected included:

Demographic information: age, gender, occupation, educational level, place of residence.

Disease characteristics: onset time, disease duration, severity, functional symptoms (itching, insomnia, burning sensation, exudation, etc.).

Personal and family medical history: history of allergic diseases such as asthma, allergic rhinitis, allergic conjunctivitis, etc.

2.3. Data Processing

The data were entered and processed using SPSS 26.0 software. The analyses included:

Descriptive statistics: Proportions, mean, and standard deviation.

Inferential statistics: Chi-square test, independent t-test, and logistic regression to determine the relationship between demographic, clinical factors, and the quality of life of patients.

2.4. Ethical Considerations

The study was conducted after receiving approval from the Thesis Protection Council of Thai Binh University of Medicine and Pharmacy. All patient personal information was kept confidential and anonymized.

III. RESULTS

Table 1. General Characteristics of Atopic Dermatitis Patients

Characteristic	Quantity (n = 225)	Percentage (%)
Gender		
Male	95	42.0
Female	130	58.0
Age		
16 - under 25	50	22.0
25 - under 45	52	23.0

Characteristic	Quantity (n = 225)	Percentage (%)
45 - under 60	54	24.0
Over 60	69	31.0
Occupation		
Retired	68	30.0
Housewife	29	13.0
Other professions	128	57.0
Age of Disease Onset		
Under 2 years	11	5.0
2 - 12 years	16	7.0
Over 12 years	198	88.0

Atopic dermatitis is more common in females (58%) and most prevalent in individuals over 60 years old (31%). The majority of patients have disease onset after 12 years of age (88%).

Table 2. Disease Duration

Disease Duration	Quantity (n = 225)	Percentage (%)
Under 1 year	121	53.8
1 - under 5 years	54	24.0
5 - 10 years	20	8.9
Over 10 years	30	13.3

More than half of the patients (53.8%) have had the disease for less than 1 year, indicating that atopic dermatitis can start and progress quickly.

Table 3. Medical and Family History

Medical History	Quantity (n = 225)	Percentage (%)
Total allergic history	177	78.67
Atopic dermatitis history	141	62.7
Family history of allergies	94	41.8

78.67% of patients have an allergy history, particularly atopic dermatitis (62.7%). Family history of allergies is also high (41.8%).

Table 4. Functional Symptoms

Functional Symptoms	Quantity (n = 225)	Percentage (%)
Itching	219	97.3
Insomnia	125	55.6
Burning pain	33	14.7

Itching is the most common symptom (97.3%), significantly affecting the quality of life, particularly causing insomnia (55.6%).

Table 5. Clinical Skin Lesions

Lesion Characteristics	Quantity (n = 225)	Percentage (%)
Lesion Location		
Flexural areas of limbs	134	59.6
Extensor surfaces of limbs	131	58.2
Trunk	84	37.3
Folds	70	31.1
Main Symptoms		

Lesion Characteristics	Quantity (n = 225)	Percentage (%)
Redness	185	82.2
Blisters	142	63.1
Erosion	128	56.9
Secondary Symptoms		
Dry skin	144	64.0
Itching when sweating	95	42.2
Hand and foot dermatitis	62	27.6
Skin infections	51	22.7

The primary lesions are located in the flexural areas of limbs (59.6%) and extensor surfaces of limbs (58.2%). Redness (82.2%) is the main symptom, while dry skin (64%) is the most common secondary symptom.

Table 6. Disease Stage and Severity

Disease Stage	Quantity (n = 225)	Percentage (%)
Acute	77	34.0
Subacute	68	30.0
Chronic	80	36.0
Disease Severity		
Mild	83	37.0
Moderate	126	56.0
Severe	16	7.0

Patients are relatively evenly distributed across the acute, subacute, and chronic stages. The majority of patients have moderate disease severity (56%), with only 7% having severe disease.

Table 7. SCORAD Disease Severity Score

Average SCORAD Score	Value
Mean ± Standard Deviation	28.8 ± 12.7

The average score of 28.8 ± 12.7 reflects that atopic dermatitis is generally of moderate severity.

Impact on quality of life: assessed using the DLQI scale.

Table 8. Quality of Life (DLQI)

Factor	Average DLQI Score (± SD)
Male	7.3 ± 2.6
Female	7.8 ± 3.1
Allergy history	9.2 ± 3.0
No allergy history	6.4 ± 2.5

Female patients and those with a history of allergies have higher DLQI scores, indicating that their quality of life is more significantly affected compared to male patients and those without an allergy history.

Table 9. Correlation Analysis Between Factors and SCORAD, DLQI Scores

Factor	Correlation with SCORAD Score (r)
Male	-0.32
Female	0.15
Allergy history	0.45
Stress level	0.56

Table 9 shows that stress level has the strongest correlation with both SCORAD score (r = 0.56) and DLQI score (r = 0.35), indicating that stress significantly affects the severity of the disease and quality of

life. Allergy history also shows a moderate correlation with both SCORAD and DLQI scores, suggesting that patients with an allergy history tend to have more severe disease and lower quality of life.

Table 10. Linear Regression Analysis Identifying Factors Affecting Disease Severity and Quality of Life

Risk Factor	Regression Coefficient (β)	p-value
Age	-0.15	0.03
Gender (Male/Female)	0.09	0.29
Allergy history	0.42	<0.01
Stress level	0.25	<0.01

The results of the linear regression analysis show that age has a negative effect on both disease severity and quality of life (β = -0.15, p = 0.03), meaning that older age may be associated with more severe disease. Allergy history and stress level both have significant effects (β = 0.42, p < 0.01 and β = 0.25, p < 0.01), indicating that these are important factors that increase disease severity and reduce quality of life. Gender does not have a statistically significant effect on the outcomes (p = 0.29).

IV. DISCUSSION

4.1. General Characteristics of Atopic Dermatitis Patients

In this study, the proportion of female patients with atopic dermatitis (AD) was higher than that of males (58% vs. 42%). This is consistent with several previous studies, which found that the prevalence of the disease is higher in females due to hormonal influences and skin care habits [4]. However, some studies have indicated that this difference is not always clear, and AD may be more common in males in some younger age groups [5].

The study showed that patients over 60 years old accounted for the highest proportion (31%), while other age groups ranged from 22% to 24%. This demonstrates that AD is not only a disease of children but also prevalent in older adults. According to the study by Văn Thế Trung & Vũ Thị Minh Nhật (2017) [6], AD can persist or relapse multiple times in life, especially when there is immune system impairment or exposure to allergens.

Patients who were retired accounted for 30%, while housewives had the lowest proportion (13%). This may be related to age, as the over 60 age group accounted for the highest proportion. Some studies suggest that occupation may influence the risk of AD, particularly in professions involving exposure to chemicals or allergens [7].

The majority of patients had disease onset after the age of 12 (88%). This differs from earlier studies, which reported that AD typically starts in childhood [5]. However, some recent studies have indicated that AD can start later due to environmental factors and lifestyle changes [8]. More than half of the patients (53.8%) had been diagnosed with the disease for less than 1 year, while 13.3% had had the disease for more than 10 years. This reflects the difference in disease progression between patient groups. Some cases can be effectively treated and well-controlled, while others tend to relapse over time [4].

The study found that 78.67% of patients had an allergy history, with 62.7% having a history of AD. Additionally, 41.8% had a family history of allergic diseases. This is consistent with many other studies, where genetic factors play a significant role in the pathogenesis of AD [6]. According to the study by Đặng Thị Hồng Phượng & al. (2019) [5], filaggrin gene mutations are closely related to the development of AD, particularly in patients with a family history of allergic diseases.

4.2. Functional Symptoms

Itching was the most common symptom (97.3%), followed by insomnia (55.6%) and burning pain (14.7%). Itching is not only the primary symptom but also a factor that increases the risk of secondary infections due to scratching. Another study also recorded a high rate of insomnia caused by itching, significantly reducing the patients' quality of life [8].

AD patients commonly have lesions on the flexural areas of limbs (59.6%) and extensor surfaces of limbs (58.2%). This is consistent with many other studies where AD in adults often occurs in the flexural regions [6].

Redness (82.2%) is the most common symptom, in line with the chronic inflammation characteristic of AD [3]. Blisters (63.1%) and erosion (56.9%) are also commonly observed, reflecting the damage to

the skin's protective barrier [5]. Dry skin (64%) is the most common secondary symptom, highlighting the importance of moisturizing in treatment [7].

Patients were relatively evenly distributed across the three stages: acute (34%), subacute (30%), and chronic (36%). The disease severity was predominantly moderate (56%), with only 7% of patients having severe disease. This emphasizes that most patients have moderate symptoms but still require long-term treatment to control the disease [8].

The average SCORAD score was 28.8 ± 12.7, reflecting that the majority of patients have moderate disease severity. This is consistent with many other studies where SCORAD is commonly used to assess the severity of AD, helping in selecting appropriate treatment methods [3].

4.3. Factors Affecting Disease Severity and Quality of Life in Patients with Atopic Dermatitis

The results of the linear regression analysis show that age, allergy history, and stress level significantly affect the severity of atopic dermatitis and the quality of life of patients. Specifically, age has a negative impact on disease severity ($\beta = -0.15$, $p = 0.03$). This finding is consistent with the study by Smith [9], which indicated that older patients with atopic dermatitis tend to have more severe disease due to aging processes that may impair self-healing abilities and reduce the effectiveness of treatments.

Allergy history is a significant factor and has a strong correlation with disease severity ($\beta = 0.42$, $p < 0.01$). This is consistent with several previous studies, such as the one by Williams [10], which emphasized that individuals with an allergy history (such as asthma, allergic rhinitis) are more likely to develop more severe atopic dermatitis, as their immune system has already overreacted to external triggers. The significant impact of allergy history on atopic dermatitis has been confirmed in clinical studies, where allergic factors enhance inflammatory responses, leading to more severe symptoms.

Stress level is also an important factor influencing the patient's condition ($\beta = 0.25$, $p < 0.01$). Gardea's (2020) study [11] showed that stress can exacerbate atopic dermatitis symptoms, as stress intensifies inflammation in the body. Patients with higher stress levels often tend to scratch more, causing skin damage and increasing the risk of infections. Furthermore, some studies also suggest that stress induces an imbalance in pro-inflammatory cytokines, worsening the dermatological condition.

V.CONCLUSION

The results of the study show that atopic dermatitis is fairly evenly distributed between males and females, with a high proportion of patients having a history of allergies. Additionally, factors such as stress level and allergy history have been shown to significantly impact the severity of the disease and the quality of life of patients.

Correlation and linear regression analyses indicate that stress level and allergy history are powerful factors affecting both the severity of the disease (SCORAD) and the quality of life (DLQI) of patients. This highlights the importance of intervening in stress-related factors and allergic factors to improve the condition of patients with atopic dermatitis.

Based on the study's findings, we recommend implementing measures to reduce stress levels and control allergic factors in order to improve patients' quality of life. Additionally, regular monitoring and evaluation of these factors will contribute to enhancing the effectiveness of treatment and minimizing potential complications during the treatment process for atopic dermatitis.

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