

Epidemiology, Clinical Presentation, and Management of Atopic Dermatitis in Pediatric Populations

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Abstract: Atopic dermatitis is the main form of eczema in childhood and is a frequent reason for consultation. This study largely contributes to the epidemiology and clinical presentation, as well as assessment and management of atopic dermatitis for 97 children patients. A cross-sectional study was performed to children who were diagnosed with atopic dermatitis and treated at Baghdad, Iraq hospitals, where it's followed them during the period from April 2024 to April 2025. The universe was made up of the 97 children patients who came to the dermatology inpatient clinic with a diagnosis of atopic dermatitis at Baghdad, Iraq hospitals, where all children were examined into an inpatient medical history and a complete physical examination. Also, the Scoring Atopic Dermatitis (SCORAD) index was used to assess the degree, intensity, and severity of atopic eczema. Furthermore, we assessed the severity of subjective symptoms in correlation with quality of life. Based on clinical outcomes enrolled in Baghdad - Iraq hospitals, this study showed that the greatest rate of patients were in the age group between (2 – 8) years with 65.98%. Also, this study noted that both personal and family pathological histories of atopy presented a strong association with atopic dermatitis, where it had allergic rhinitis (60.82%), asthma (37.11%), where a high prevalence of atopic dermatitis into children, within moderate severity in 56.70%. A total of 96.91% of the patients underwent to topical corticosteroids as treatment, while oral antihistamines were indicated in 88.66%. Our results presented that these treatments had improved of psychological and physical status at children during 12-month follow - up, where recorded SCORAD index scores (20.6 ± 7.2), Patient-Oriented Eczema Measure (POEM) Scores (6.4 ± 3.7), and Children's Dermatology Life Quality Index (CDLQI) scores had 4.4 ± 2.8 . The current study indicates that itching and sleep disturbances are the most common symptoms, impairing patients' psychological well-being. It also strongly suggests that the treatments used significantly improved stress, anxiety, and physical symptoms in more than 70% of patients with atopic dermatitis.

Keywords: Epidemiology; atopic dermatitis; itching and sleep disorders; and scoring atopic dermatitis (scorad).

INTRODUCTION

Atopic dermatitis (AD) is a skin disease that occurs most often during lactation and early childhood. The main symptom is pruritus, which can cause a deterioration in the patient's quality of life, both in the maintenance phase and during exacerbations. Multiple factors are involved in its pathogenesis, including a dysfunction in the integrity of the epidermal barrier, as well as alterations in the immune response and in the cutaneous microbial flora [Diepgen, T. L. *et al.*, 2009; Armstrong, A. *et al.*, 2022; Ahmed, A. *et al.*, 2015]. The clinical manifestations vary depending on the evolutionary stage, and the location also changes according to the age of presentation. It is defined as a dermatitis that appears in individuals who 4, due to constitutional factors, possess and genetically transmit the trait or susceptibility to develop bronchial asthma, rhinitis, allergic conjunctivitis, and dermatitis (atopic march). These people are called atopic. [Dotterud, L. K., & Falk, E. S. 1995]

It is the most common chronic skin disease in childhood. It is estimated that between 5 and 30% of the consultations carried out in Primary Care

Pediatrics are due to dermatological problems and that about 10-15% of the patients treated in Dermatology consultations are under the age of 16, DA being the most frequent individual diagnosis, with a prevalence of between 6 and 15% in Spain1 (0.7-2.4% of the general population), and lower in developing countries [Johannisson, A. *et al.*, 2013]. The incidence of AD has increased between 2 and 3 times in industrialized countries during the last three decades, affecting up to 20% of children and causing a great impact on the quality of life of the patient and his family. The increase in prevalence could be linked to a Western way of life. [Mortz, C. G. *et al.*, 2001]

The worldwide prevalence of atopic dermatitis is estimated between 10 and 30% in children, and between 1 and 3% in adults [Yngveson, M. *et al.*, 1998]. These variations depend on the group examined, country, climate, and method of information collection, among others. The vast majority of patients have the mild or moderate form, and the percentage of severe cases is very low. 65% of cases begin in the first year of life. In 85% of patients, the lesions develop before the age

of 5. Only 2% of new cases occur after the age of 20 [Wang, J. *et al.*, 2022; Crane, M. M. *et al.*, 2017].

METHODOLOGY

We collected our cross-sectional study data from Baghdad, Iraq, at the period from April 2024 to April 2025. This study was conducted on pediatric patients who were diagnosed with atopic dermatitis. Our data consists of 97 patients with a diagnosis of atopic dermatitis who came to the Dermatology Department at Baghdad, Iraq hospitals. This study was performed at children after get their parents or guardians had signed the informed consent. Also, all those patients underwent an outpatient medical history and a complete physical examination, including only children who were over than two years. Moreover, we enrolled demographic and diagnostic variables, including age, sex, personal or family pathological history of atopy, morphology and location of the lesions, associated dermatoses, severity of atopic dermatitis, treatment received, and psychological manifestations.

Furthermore, we had conducted a questionnaire to evaluate the degree severity of atopic dermatitis, where including subjective symptoms who diagnosed the quality of life of the atopic person including itching and sleep disorder were also taken into account, which it defined atopic dermatitis was classified as mild with 40 points. Also, we assessed the psychological aspect of patients with atopic dermatitis using the Hamilton scale, which is a self-applied scale consisted of 14 items, which evaluated the physical, psychological, and behavioral aspects of anxiety. The cut-off points on a total of 56 points were divided into two classes where AD Without anxiety (0 to 17 points), while anxiety who greater than or equal to 18 points, which this scale classified into degrees including 0 (absent); 1 (light intensity); 2 (average intensity); 3 (high intensity); and 4 (maximum intensity). Our results were enrolled and analyzed using SPSS, version 24.0, where absolute numbers and percentages were used for the qualitative variables and to identify the possible association between the variables included in the study. The non-parametric test of the chi-squared was used, and an $\alpha = 0.05$ was used.

RESULTS

Table 1: Demographic and clinical features of patients who diagnosed of atopic dermatitis.

Variables	Frequency {n = 97}	Percentage, {%}
Age Groups {y}		
2 – 8	64	65.98
9 - 15	33	34.02
Sex, {M/F}		
Male	55	56.70
Female	42	43.30
Pathological history of atopy		
- Family		
Yes	70	72.16
No	27	27.84
- Personal		
Yes	64	65.98
No	33	34.02
Smoking status of fathers		
Yes	30	30.93
No	67	69.07
Diet		
Healthy	40	41.24
No	57	58.76
Allergic rhinitis		
Yes	59	60.82
No	38	39.18
Asthma		

Yes	36	37.11
No	61	62.89
Food allergy		
Yes	44	45.36
No	53	54.64
Socioeconomic status		
Lower	24	24.74
Middle	53	54.64
Upper	20	20.62

Table 2: Determining the morphology and localization lesions of in atopic into patients enrolled in our study.

Parameters	Frequency {n = 97}	Percentage, {%}
Morphology		
Erythema, vesicles	47	48.45
Erythema, scales	30	30.93
Erythema, scales, crusts	14	14.43
Lichenification	34	35.05
Hypochromic macules	22	22.68
Papules, erythema	15	15.46
Site		
Face	90	92.78
Trunk	63	64.95
Extremities	52	53.61
Flexures (elbows, knees)	43	44.33
Hands	39	40.21
Nipple	8	8.25

Table 3: Hospitalization symptoms and severity signs of atopic dermatitis in pediatric patients at presentation.

Items	Frequency {n = 97}	Percentage, {%}
Severity of atopic dermatitis		
Mild	17	17.53
Moderate	55	56.70
Serious	25	25.77
Symptoms		
Itching	97	100
Sleep disorder	94	96.91
Dry skin	90	92.78
Redness	75	77.32
Eczematous Lesions	96	98.97
Lichenification	31	31.96
Oozing/Crusting	22	22.68
Papules	28	28.87

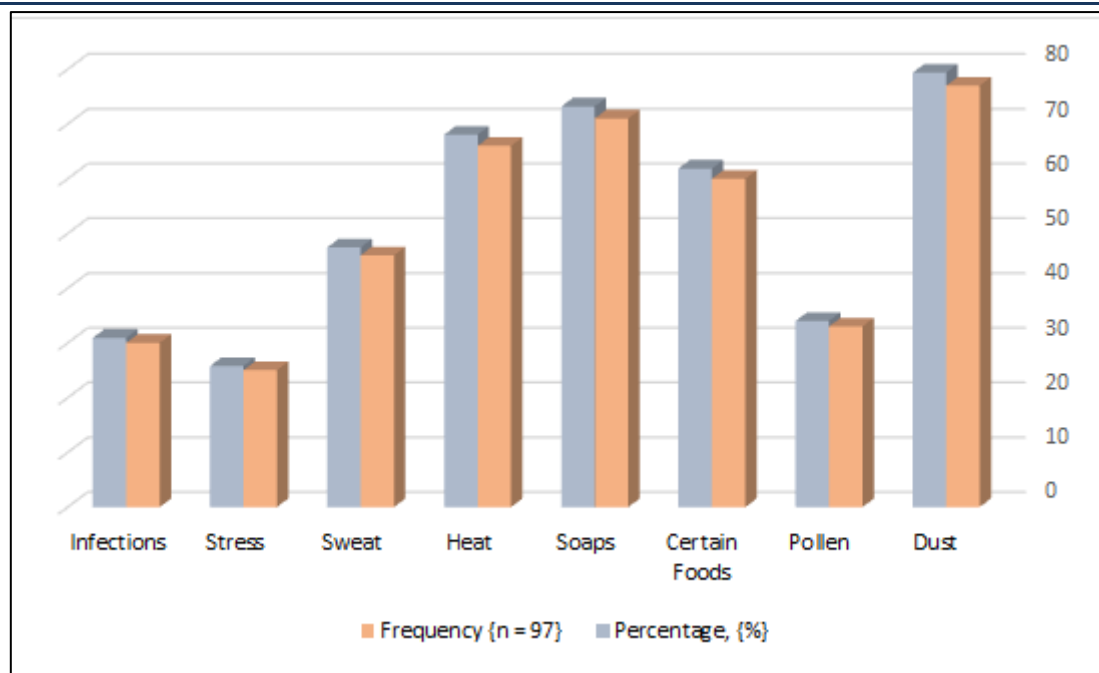


Figure 1: Identification of caustic factors in pediatric patients with atopic dermatitis.

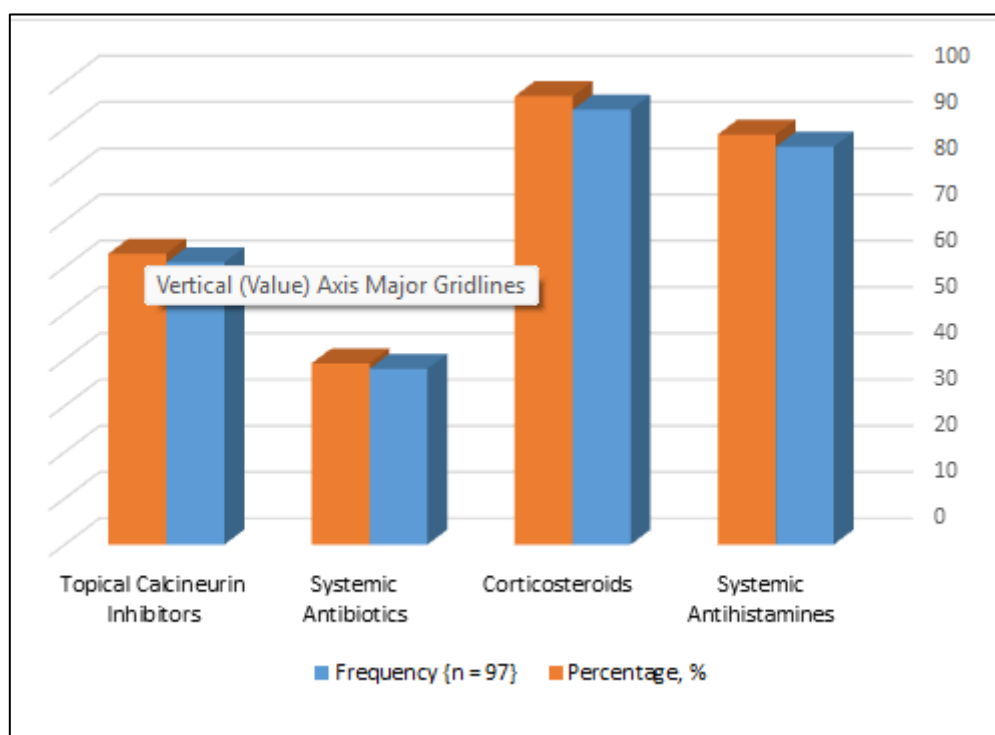


Figure 2: Topical and systemic treatments used in the management of itching and inflammation in atopic dermatitis in children.

Table 4: Assessment of quality of life in pediatric dermatology (atopic dermatitis) at baseline and after 12 months follow-up.

Items	At Baseline	At 12 months
SCORAD Index Scores, {mean $\pm$ SD}	49.4 $\pm$ 11.2	20.6 $\pm$ 7.2
Patient-Oriented Eczema Measure (POEM) Scores, {mean $\pm$ SD}	19.5 $\pm$ 5.1	6.4 $\pm$ 3.7
Children's Dermatology Life Quality Index (CDLQI) Scores, {mean $\pm$ SD}	14.7 $\pm$ 4.4	4.4 $\pm$ 2.8

Table 5: Assessment of pediatric parents' satisfaction in the quality of therapies performed in the management of atopic dermatitis at children.

Categorizes	Frequency, {97}	%
Very satisfied	38	39.18
Satisfied	45	46.39
Neutral	10	10.31
Dissatisfied	4	4.12
Very dissatisfied	0	0.00

Table 6: Univariate analysis of risk factors associated with atopic dermatitis in children.

Risk factors	OR	CI 95%	P - value
Family History of Atopy	3.11	1.20 – 7.70	0.018
Personal History of Atopy	3.03	1. 64 – 8.30	< 0.001
Dust	2.37	1.12 – 6.62	0.041
Asthma	2.84	2.24 – 5.55	0.013
Food Allergy	3.44	2.38 – 7.69	< 0.005
Itching	2.90	1.04 – 5.74	< 0.005
Sleep disorder	2.72	1.19 – 7.80	0.036

DISCUSSION

Our study enrolled clinical outcomes of 97 patients with atopic dermatitis. In term of age, our study found that the largest number of patients were in the group between (2 – 8) years with 65.98%, where males (56.7%) and females (43.3), where it is in correspondence with a study published in Spain [Thyssen, J. P. *et al.*, 2010], which found a predominance in the group from 6 to 7 years, where 83.3% of the patients studied were under 7 years of age, and occurred skin disorders. Also, this study also noted both personal and family pathological histories of atopy share a statistical association with atopic dermatitis, where it had allergic rhinitis (60.82%), asthma (37.11%), which these factors had associated with a report in USA [Meding, B., & Järholm, B. 2004] that indicated that children with atopic dermatitis had four times the risk of rhinitis or asthma, while another study [Vindenes, H. K. *et al.*, 2017] mentioned approximately 60% of patients affected by this disease develop asthma and nasal allergies such as rhinitis, as well as a Canadian study [Röhl, K., & Stenberg, B. 2010] pointed out that the prevalence of bronchial asthma in children with atopic dermatitis is high in Canada. A large number of studies [Silverberg, J. I. *et al.*, 2021; Grönham, C. *et al.*, 2015] point out that 70% of those diagnosed with this disease have a family history of atopy.

A study had performed in China [Barrett, A. *et al.*, 2019] and its indicated a correlation between the morphology and location of the lesions and the age groups of the patients, where the rise rate of comorbidities had a result of skin lesions, since the

skin constitutes the first and most important barrier of the body in its protection against diseases and such lesions compromise its integrity and favor colonization by pathogenic microorganisms, including associated dermatoses Erythema, vesicles had 49% in the patients attending to Baghdad - Iraq hospitals, while Indian study [Rademaker, M. *et al.*, 2021] found that scabies was the high incidence of this ectoparasitosis with 74.3%.

Based on the severity of atopic dermatitis disease by SCORAD index, our study enrolled moderate atopic dermatitis predominated in the patients, accounting for 56.70% of the total cases studied, followed by serious dermatitis in 25.77%. A total of 96.91% of the patients underwent to topical corticosteroids as treatment, while oral antihistamines were indicated in 88.66%, although some studies pointed out that topical corticosteroids are considered the basis of the anti-inflammatory treatment of eczematous lesions [Agner, T. & Elsner, P. 2020]. However, due to their adverse effects, their use is preferred only to acute exacerbations. A study carried out in the province of Argentina [Simonsen, A. B. *et al.*, 2021] pointed out that in moderate forms, when exacerbations occur, they should be treated with topical corticosteroids for brief periods, which coincides with what was found in our work [Lee, H. J. *et al.*, 2001; Toledo, F. *et al.*, 2011]. With regard to calcineurin inhibitors, these are considered second-line in the treatment of atopic dermatitis. Based on quality of life at children, our results presented that these treatments had improved of psychological and physical status at children during 12 months follow - up, where

recorded SCORAD index scores (20.6 ± 7.2), Patient-Oriented Eczema Measure (POEM) Scores (6.4 ± 3.7), and Children's Dermatology Life Quality Index (CDLQI) scores had 4.4 ± 2.8 .

CONCLUSION

This study concluded that there was a strong and significant association between personal and family histories of atopic dermatitis in pediatric patients diagnosed with atopic dermatitis. Regarding diagnostic criteria, we found that facial redness and itching were the most common and prevalent lesions in the atopic dermatitis stage. Furthermore, the treatments used showed psychological changes, with 70% of patients with atopic dermatitis being satisfied.

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