

Evaluation of the dermatological quality of life of children diagnosed with atopic dermatitis and their mothers

Atopik dermatit tanısı olan çocukların ve annelerinin dermatolojik yaşam kalitesinin değerlendirilmesi

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SUMMARY

Aim: This study aimed to evaluate the dermatologic quality of life of children with atopic dermatitis and their mothers.

Material and Methods: 38 children with the diagnosis of atopic dermatitis and their mothers were included in this cross sectional type of study. The clinical severity of atopic dermatitis was classified with the SCORAD index. The questionnaire "The Children's Dermatology Life Quality Index (CDLQI)" was filled by the mothers to evaluate the dermatological quality of life of the children. In addition, the "Dermatology Life Quality Index (DLQI)" was applied to the mother. The age, gender, laboratory values of the children, mothers' age were examined in addition to dermatologic life quality. $P < 0.05$ was accepted as statistical significance level.

Results: Fifteen (39.5%) of 38 children with atopic dermatitis were girls and 23 (60.5%) were boys. The median age of children and mothers were 7.0 years (5.0-16.0) and 38.0 years (26.0-52.0), respectively. Of the children 52.6% had moderate atopic dermatitis. The median scores of CDLQI and DLQI were 12.0 (1.0-29.0), 15.0 (1.0-27.0), respectively. The median score of CDLQI with moderate/severe atopic dermatitis was significantly higher ($p < 0.001$). Multiple allergen sensitivity and gender had no significant effect on CDLQI scores ($p > 0.05$).

Conclusion: The dermatological quality of life of children with moderate-severe atopic dermatitis impaired more. With the clinical control of the disease, the dermatological quality of life could also be increased.

Keywords: Atopic dermatitis, dermatological quality of life, children, mothers

ÖZET

Amaç: Bu çalışmada atopik dermatitli çocukların ve annelerinin dermatolojik yaşam kalitelerinin değerlendirilmesi amaçlanmıştır.

Materyal ve Metodlar: Kesitsel tipteki bu çalışmaya atopik dermatit tanısı olan 38 çocuk ve anneleri dahil edildi. Atopik dermatitin klinik şiddeti SCORAD indeksi ile sınıflandırıldı. Çocukların dermatolojik yaşam kalitesini değerlendirmek için "Çocuk Dermatoloji Yaşam Kalitesi İndeksi (CDLQI)" anketi anneler tarafından dolduruldu. Ayrıca anneye "Dermatoloji Yaşam Kalitesi İndeksi (DLQI)" uygulandı. Dermatolojik yaşam kalitesinin yanı sıra çocukların yaşı, cinsiyeti, laboratuvar değerleri, annelerin yaşı da incelendi. $P < 0.05$ istatistiksel anlamlılık düzeyi olarak kabul edildi.

Bulgular: Atopik dermatitli 38 çocuğun 15'i (%39.5) kız, 23'ü (%60.5) erkekti. Çocukların ve annelerin ortanca yaşları sırasıyla 7.0 yıl (5.0-16.0) ve 38.0 yıl (26.0-52.0) idi. Çocukların %52,6'sında orta derecede atopik dermatit vardı. CDLQI ve DLQI medyan skorları sırasıyla 12.0 (1.0-29.0) ve 15.0 (1.0-27.0) idi. Orta/şiddetli atopik dermatitte CDLQI medyan skoru anlamlı derecede yüksekti ($p < 0.001$). Çoklu alerjen duyarlılığı ve cinsiyetin CDLQI skorları üzerinde anlamlı bir etkisi yoktu ($p > 0.05$).

Sonuç: Orta-şiddetli atopik dermatiti olan çocukların dermatolojik yaşam kalitesi daha fazla bozulmuştur. Hastalığın klinik kontrolü ile dermatolojik yaşam kalitesi artırılabilir.

Anahtar kelimeler: Atopik dermatit, dermatolojik yaşam kalitesi, çocuklar, anneler

INTRODUCTION

Atopic dermatitis (AD) is a chronic, inflammatory skin disease and is a common condition in infancy and childhood. The disease usually manifests with intense itching, dryness, erythema and inflammatory lesions on the skin (1).

Atopic dermatitis is usually associated with other atopic diseases, especially food allergies and inhalant allergies. Food allergies are common in children with AD and may develop especially against common allergens including egg, milk, peanut, wheat and soy (2). Such allergies may increase the severity of AD and make control of the disease difficult (3). Inhalant allergies are also common in individuals with AD and are usually associated with common inhalants such as house dust mites, pollen, and animal dander (4). These allergies may contribute to worsening of AD symptoms and may increase the severity of the disease, especially during seasonal changes (5).

AD not only negatively affects the quality of life of children, but also significantly reduces the quality of life of their families, especially their mothers (6). Mothers may experience high levels of stress, anxiety and burnout due to the continuous care of their children. This may disrupt family dynamics and make disease management of children more difficult (7). The relationship between dermatological diseases and mental conditions such as stress and anxiety is well-known (8,9). Parents of children with chronic illnesses may also experience mental health issues, negatively impacting their quality of life (6,7). In this context, it is possible that the dermatological quality of life of mothers of children diagnosed with AD may be impaired, even in the absence of a diagnosed dermatological condition.

The quality of life of mothers of children with chronic illness is extremely important for both their own health and the health of their children as caregivers. A comprehensive assessment of both the individual and family effects of AD may contribute to the development of more effective strategies in the management of the disease. In this study, we aimed to evaluate the dermatologic quality of life of children diagnosed with atopic dermatitis and their mothers. Taking into account the impact of food allergies and inhalant allergies on AD, the findings of this study may guide the planning of interventions to improve the quality of life of both children and their families.

MATERIAL AND METHODS

Study Type, Design, and Sample

This study is a cross-sectional type of research conducted on children aged 5-18 years who were diagnosed with AD and their mothers, who visited the Pediatric Allergy and Immunology Department. A total of 38 children and their

mothers were included in the study. Participants were included in the study based on clinical evaluation and meeting the necessary criteria.

Data Collection Tools

In the study, the age of the children and their mothers, the gender of the children, laboratory values, and allergen sensitivities were evaluated. In patients assessed for the presence of allergies, allergen-specific IgE measurements were performed using ImmunoCAP (Thermo Fisher Scientific, Uppsala, Sweden), and specific IgE levels for inhalant and food allergens were measured. Allergen-specific IgE levels of 0.35 kU/L and above were considered positive. For patients who underwent the skin prick test, histamine (10 mg/ml) was used as a positive control, and saline was used as a negative control. Tests with induration of 3 mm or more, in the absence of induration and/or dermatographism in the negative control, were considered positive. Allergen sensitivity in children with positive specific IgE and/or skin prick tests was considered positive for the relevant allergen.

To evaluate the dermatological quality of life of the children, the "Children's Dermatology Life Quality Index" (CDLQI) was used, and to evaluate the mothers' quality of life, the "Dermatology Life Quality Index" (DLQI) was used (10,11). The CDLQI and DLQI are questionnaires each consisting of 10 questions, scored between 0 and 3. These scales are used to assess different dimensions of dermatological quality of life, and the maximum score that can be obtained from both scales is 30; higher scores indicate a lower quality of life (10-13). For children under the age of 7, the questionnaires were completed by their mothers, while older children completed the questionnaires themselves.

Clinical Evaluation

The clinical severity of Atopic Dermatitis was classified using the SCORAD (Severity Scoring of Atopic Dermatitis) index. SCORAD is a clinical assessment tool used to measure the severity of AD, with a scoring system ranging from 0 to 103. Patients with a SCORAD score below 25 were classified as having mild AD, those with scores between 25-50 as moderate, and those with scores above 50 as severe AD (14).

Statistical Analysis

For the analysis of the data, SPSS 22.0 (Statistical Package for the Social Sciences) software was used. Descriptive statistics were presented as median, minimum and maximum values, and numbers and percentages (%). The Mann-Whitney U test was used to compare two groups that did not show a normal distribution. The Spearman correlation test was used to compare two numerical variables. A p-value of <0.05 was considered statistically significant.

Ethical Approval

The ethical approval for this study was obtained from the Ümraniye Training and Research Hospital Ethics Committee on December 22, 2022, with the decision number 392. Informed consent was obtained from all participants, and the study was conducted in accordance with the Helsinki Declaration.

RESULTS

In our study, the dermatologic quality of life of 38 children diagnosed with AD and their mothers were evaluated. The ages of atopic dermatitis patients ranged between 5 and 16 years, with a median age of 7.0 years. 39.5% of the children were girls (n=15) and 60.5% were boys (n=23). The median age of the mothers was 38.0 years (26.0-52.0). While 34.2% (n=13) of the patients with atopic dermatitis had mild AD, 52.6% (n=20) had moderate AD. The proportion of patients with severe AD was 13.2% (n=5) (Table 1).

Table 1. Sociodemographic characteristics of the mothers and children and the SCORAD classification of the children

Sociodemographic characteristics		n(%)
Gender, n (%)	Female	15 (39.5)
	Male	23 (60.5)
Age, median (min-max)		7.0 (5.0-16.0)
Age of mother, median (min-max)		38.0 (26.0-52.0)
SCORAD classification, n (%)	Mild	13 (34.2)
	Moderate	20 (52.6)
	Severe	5 (13.2)

When the laboratory values of children with AD were evaluated, the median values of absolute eosinophils and eosinophil percentages were 320.0 103/uL (30.0-2450.0) and 3.6% (0.2-19.3), respectively. The median values of total IgE were 473.5 IU/mL (9.0-4092.0). Other laboratory values of the children are given in Table 2.

Table 2. Laboratory values of children with atopic dermatitis

Laboratory values	Median (min-max)
WBC (103/uL)	9090.0 (4600.0-130000.0)
Neutrophils (103/uL)	4670.0 (1580.0-19160.0)
Eosinophils (absolute) (103/uL)	320.0 (30.0-2450.0)
Eosinophils (%)	3.6 (0.2-19.3)
Lymphocyte (103/uL)	2700.0 (1860.0-5330.0)
Platelet (103/uL)	296000.0 (213000.0-519000.0)
Total IgE (IU/mL)	473.5 (9.0-4092.0)

When examining the allergen sensitivities of the children, house dust mite sensitivity was the most common among

aeroallergens (n=23, 60.5%). Regarding food allergies, 4 children (10.5%) were sensitive to nuts, 3 children (7.9%) to eggs, and 1 child (2.6%) to milk. Additionally, 34.2% of the children (n=13) had multiple allergen sensitivities (Table 3).

Table 3. Allergen sensitivity of the patients

Allergen	n (%)
Aeroallergen Sensitivity	
House dust mite	23 (60.5)
Cat	8 (21.1)
Pollen	8 (21.1)
Food allergen sensitivity	
Nuts	4 (10.5)
Egg	3 (7.9)
Milk	1 (2.6)
Multiple allergen sensitivity	
Yes	13 (34.2)
No	25 (65.8)

The median scores of the CDLQI applied to patients with AD and the DLQI applied to mothers were 12.0 (1.0-29.0) and 15.0 (1.0-27.0), respectively. Factors that may be associated with dermatologic quality of life scores were evaluated. As the eosinophil value of the child increased, the mother's quality of life score decreased significantly ($r=-0.441$, $p=0.008$). Maternal age, child's age, eosinophil and total IgE values were not significantly associated with CDLQI score ($p>0.05$) (Table 4).

Table 4. Factors associated with CDLQI and DLQI

Factors		CDLQI	DLQI
Age of mother	r	0.036	-0.023
	p	0.830	0.891
Age of child	r	-0.094	0.132
	p	0.573	0.430
Eosinophils (absolute)	r	0.199	-0.441
	p	0.252	0.008
Total IgE	r	0.207	-0.183
	p	0.226	0.286

The Children's Dermatology Life Quality Index median score of children with moderate and severe AD was significantly higher than that of children with mild atopic dermatitis ($p<0.001$). Multiple allergen sensitivity and gender had no significant effect on CDLQI scores ($p>0.05$) (Table 5).

DISCUSSION

Quality of life may be negatively affected in children with chronic disease (15). Since atopic dermatitis is a chronic and itchy disease, findings related to the disease may

Table 5. Factors associated with CDLQI

Factors		CDLQI Median (min-max)	p
SCORAD classification	Mild	4.0 (1.0-18.0)	<0.001
	Moderate /severe	14.0 (5.0-29.0)	
Multiple allergen sensitivity	Yes	14.0 (3.0-29.0)	0.054
	No	9.0 (1.0-19.0)	
Gender	Female	12.0 (3.0-21.0)	0.580
	Male	11.0 (1.0-29.0)	

negatively affect quality of life (16,17). In the literature, it has been reported that the quality of life of parents with a child with chronic disease is also negatively affected (18). In our country, mothers as caregivers generally devote a significant portion of their time to the care of their children. Therefore, their quality of life is more likely to be affected by their children's diseases. In this study, the dermatologic quality of life of children diagnosed with AD and their mothers were evaluated.

In the study, the median DLQI score was 15.0 (1.0-27.0). The CDLQI score was 12.0 (1.0-29.0). In a similar study conducted by Çömlek et al. in the literature, the median values of the scales were 5.0 (0-30.0) and 6.0 (0-18.0), respectively (19). In this study in the literature, either mothers or fathers completed the DLQI questionnaire. The fact that the quality of life of mothers was affected more in our study may be explained by gender differences between the studies. As a matter of fact, in a study in the literature, the dermatologic quality of life of both mothers and fathers were evaluated and the quality of life of mothers deteriorated more than that of fathers (20). In addition, the median CDLQI score was found to be higher in our study than in the study of Çömlek et al. The median age was older in our study. Although we did not find a statistically significant result related to age and dermatologic quality of life in our study, the relationship between age and dermatologic quality of life can be evaluated in studies to be conducted with larger samples.

In our study, the CDLQI score of children with moderate-to-severe AD was found to be significantly higher than that of children with mild AD. This indicates that the dermatological quality of life is more impaired in children with moderate-to-severe atopic dermatitis. This situation can be interpreted as the symptoms associated with the disease, such as itching, being more severe in children with moderate-to-severe AD, which could adversely affect their quality of life. A study in the literature reported that dermatological quality of life is more negatively affected in those with higher disease severity, and that after five weeks of treatment, both disease severity decreased and quality of life improved (21). For the long-term successful

management of chronic diseases, it is important to monitor not only clinical improvement in children but also positive changes in quality of life. In cases where needed, multifaceted planning such as psychological support and family education can be provided.

In the study, the DLQI scores of children with multiple allergen sensitivities were found to be higher than those of children with sensitivity to a single allergen. Although statistical significance was not observed, the p-value being close to the threshold for significance suggests that a relationship between multiple allergen sensitivity and quality of life could be found in studies with larger sample sizes. A review in the literature has reported that an increase in the number of sensitized food allergens leads to a greater decrease in quality of life in those with food allergies (22). It is likely that the existing AD condition in children with multiple allergen sensitivities negatively affects their condition and lowers their quality of life.

CONCLUSION

In the study, the dermatological quality of life of children with moderate-to-severe atopic dermatitis was found to be more impaired. With clinical control of the disease, the dermatological quality of life in children with atopic dermatitis can also be improved. In clinical practice, it should be kept in mind that the quality of life of the mothers may also be negatively affected when treating the patients. Holistic approaches that evaluate both the child and the family together in the management of chronic diseases in children will be beneficial.

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