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COMPARATIVE CLINICAL AND ANAMNESTIC CHARACTERISTICS OF ATOPIC DERMATITIS IN EARLY CHILDHOOD AND ADOLESCENCE: A COMPARATIVE STUDY

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Abstract:

Background. Atopic dermatitis (AD) shows age-dependent phenotypes; early-onset disease is more often associated with a longer, persistent course, whereas later onset may be accompanied by less persistence.

Objective. To compare the clinical features of AD between young children and adolescents using standardised statistical analysis.

Methods. In this comparative study, 80 patients with AD were allocated to two groups: group I, young children (up to 3 years; n = 40), and group II, adolescents (12–17 years; n = 40). Sex, age, age at onset, disease duration, family history of allergy, SCORAD index, lesion distribution, itch intensity (VAS), total IgE, presence of bronchial asthma, allergic rhinitis, food allergy, and exacerbation frequency were assessed. Between-group comparisons used the Student t-test or Mann–Whitney U test for continuous variables and the χ^2 or Fisher exact test for categorical variables; $p < 0.05$ was considered significant.

Results. Adolescents had higher SCORAD scores (45.9 ± 12.4 vs 38.6 ± 11.2; p = 0.008), higher total serum IgE (468 [260–820] vs 285 [170–520] IU/mL; p = 0.011), and more frequent bronchial asthma (37.5% vs 17.5%; p = 0.044), allergic rhinitis (45.0% vs 22.5%; p = 0.033), and severe disease (42.5% vs 22.5%; p = 0.048). Food allergy was more common in young children (62.5% vs 37.5%; p = 0.025). Family history of allergy did not differ significantly (60.0% vs 55.0%; p = 0.65).

Conclusion. Adolescents with atopic dermatitis showed greater disease severity, higher IgE, and more frequent respiratory allergic comorbidity than young children, whereas food allergy was more common in early childhood—consistent with age-dependent phenotypes and the atopic march.

Keywords: atopic dermatitis; children; adolescents; age phenotype; atopic march; SCORAD; IgE.

1. Introduction

Atopic dermatitis (AD) is a common chronic inflammatory skin disorder characterised by recurrent eczematous lesions and intense itch, affecting people of all ages and imposing a substantial burden on patients and families [1,2]. Its first manifestations usually appear early in life, and early onset frequently precedes the development of other allergic conditions [3]. The concept

of the atopic march describes a typical sequence in which AD in infancy is followed, in a proportion of children, by allergic rhinitis and asthma, with epidermal barrier dysfunction implicated as an important early predisposing factor [5].

Clinically, AD is increasingly understood in terms of age-dependent phenotypes. Early-onset disease is more often associated with a longer and more persistent course and with the subsequent development of respiratory allergic disease, whereas later presentations may differ in severity, distribution, and comorbidity [2]. Characterising these differences within a single cohort is therefore relevant both to prognosis and to the planning of age-appropriate monitoring and treatment.

The aim of the present study was to perform a comparative analysis of the clinical and anamnestic features of AD in young children and in adolescents, using standardised clinical and laboratory measures and appropriate statistical methods.

2. Materials and Methods

2.1. Study design and participants

This was a comparative study of patients with a clinical diagnosis of atopic dermatitis established according to accepted diagnostic criteria [5]. A total of 80 patients were included and allocated to two age groups: group I, young children up to 3 years of age (n = 40), and group II, adolescents aged 12–17 years (n = 40).

2.2. Assessments

The following variables were recorded for each participant: sex; age; age at disease onset; disease duration; family history of allergy; disease severity by the SCORAD index [4]; lesion distribution; itch intensity on a visual analogue scale (VAS); total serum IgE; and the presence of bronchial asthma, allergic rhinitis, and food allergy, together with the frequency of exacerbations. Total serum IgE was measured by enzyme-linked immunosorbent assay (ELISA) on venous blood samples. Bronchial asthma, allergic rhinitis, and food allergy were determined clinically and/or on the basis of a previously established diagnosis.

2.3. Statistical analysis

Statistical analysis was performed using standard software (Microsoft Excel with SPSS, Statistica, or R). The distribution of continuous variables was assessed with the Shapiro–Wilk test. Normally distributed data are presented as mean ± standard deviation (M ± SD) and non-normally distributed data as median with interquartile range (Me [Q1; Q3]). Between-group comparisons of continuous variables used the Student t-test for normally distributed data and the Mann–Whitney U test otherwise. Categorical variables are presented as absolute numbers and percentages and were compared using the Pearson χ^2 test, or the Fisher exact test when expected frequencies were below five. A two-sided $p < 0.05$ was considered statistically significant.

3. Results

A total of 80 patients with atopic dermatitis were included, comprising 40 young children and 40 adolescents. The proportion of males was comparable between the groups (57.5% vs 52.5%; p = 0.65). As expected from the age definitions, adolescents had a significantly longer disease duration than young children (10.8 ± 2.9 vs 1.3 ± 0.6 years; p < 0.001) and a later age at onset (3.6 ± 2.1 vs 0.8 ± 0.5 years; p < 0.001). Food allergy was significantly more common among young children (62.5% vs 37.5%; p = 0.025), whereas adolescents experienced more frequent exacerbations during the preceding year (3.9 ± 1.2 vs 3.2 ± 1.0 episodes; p = 0.009) (Table 1).

Clinical severity also differed between the age groups (Table 2). Adolescents demonstrated significantly higher SCORAD scores than young children (45.9 ± 12.4 vs 38.6 ± 11.2; p = 0.008), and median total serum IgE was also higher among adolescents (468 [260–820] vs 285 [170–520] IU/mL; p = 0.011). Respiratory allergic comorbidities were more frequent in adolescents: bronchial asthma was present in 37.5% versus 17.5% (p = 0.044) and allergic rhinitis in 45.0% versus 22.5% (p = 0.033). The prevalence of severe atopic dermatitis was also greater in adolescents (42.5% vs 22.5%; p = 0.048). No significant difference was found in the family history of allergic diseases (60.0% vs 55.0%; p = 0.65).

Table 1. Baseline characteristics of the study groups.

Characteristic	Young children (n=40)	Adolescents (n=40)	p
Age, years	2.1 ± 0.7	14.5 ± 1.6	<0.001
Sex, male — n (%)	23 (57.5%)	21 (52.5%)	0.65
Age at onset, years	0.8 ± 0.5	3.6 ± 2.1	<0.001
Disease duration, years	1.3 ± 0.6	10.8 ± 2.9	<0.001
Food allergy — n (%)	25 (62.5%)	15 (37.5%)	0.025
Exacerbations per year	3.2 ± 1.0	3.9 ± 1.2	0.009

Table 2. Comparison of clinical, laboratory, and comorbidity indicators between age groups.

Indicator	Young children (n=40)	Adolescents (n=40)	p
SCORAD index	38.6 ± 11.2	45.9 ± 12.4	0.008
Total IgE, IU/mL	285 (170–520)	468 (260–820)	0.011
Family history of allergy — n (%)	22 (55.0%)	24 (60.0%)	0.65
Bronchial asthma — n (%)	7 (17.5%)	15 (37.5%)	0.044
Allergic rhinitis — n (%)	9 (22.5%)	18 (45.0%)	0.033

Indicator	Young children (n=40)	Adolescents (n=40)	p
Severe course — n (%)	9 (22.5%)	17 (42.5%)	0.048

4. Discussion

In this comparative study, adolescents with atopic dermatitis showed a more severe disease phenotype than young children. Adolescents had higher SCORAD scores, higher total serum IgE, and a greater frequency of bronchial asthma and allergic rhinitis, together with a higher prevalence of severe disease, whereas food allergy was more common among young children. As expected from the age definitions, adolescents also had a longer disease duration and a later age at onset, and the family history of allergy did not differ significantly between the groups.

These findings are consistent with the contemporary understanding of age-dependent phenotypes of atopic dermatitis and with the concept of the atopic march. Early-onset disease is associated in the literature with a more prolonged course and with the subsequent development of respiratory allergic disease, in which cutaneous barrier dysfunction and type-2 immune activation are central [2,5]. The higher frequency of asthma and allergic rhinitis and the higher total IgE observed in adolescents are compatible with progression along the atopic march over time, whereas the greater frequency of food allergy in young children accords with the earlier position of food allergy in the typical sequence of atopic manifestations [3,5]. The comparable family history of allergy across the groups suggests that the observed differences reflect age and disease evolution rather than differing genetic loading between the samples.

Because the study is cross-sectional and compares different individuals in two age bands, it describes age-associated differences rather than the evolution of disease within the same patients; longitudinal data would be required to confirm progression along the atopic march at the individual level.

5. Limitations

This was a single-centre comparative study of limited size, and its cross-sectional design compares different age groups rather than following the same individuals over time; it therefore describes age-associated differences rather than the longitudinal course of the disease. Larger, multicentre, and ideally longitudinal studies are needed to characterise the evolution of AD phenotypes with age and their relationship to the atopic march.

6. Conclusion

Comparative analysis of young children and adolescents with atopic dermatitis revealed age-related differences in the clinical course of the disease. Adolescents were characterised by greater disease severity, higher total serum IgE, and a more frequent association with bronchial asthma and allergic rhinitis, whereas food allergy was more common in early childhood. These findings are consistent with age-dependent phenotypes and the atopic march and may inform age-appropriate monitoring and management of patients with atopic dermatitis. Larger, ideally longitudinal, studies are needed to confirm these observations.

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