

Cumulative prevalence of atopic eczema and related skin symptoms in a well-baby clinic: a retrospective cohort study

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The aim of the study was to assess the frequency and treatment policy of atopic eczema (AE) and related skin symptoms including rash, redness, dryness and itch in 0- to 5-year-old children. Health records of 320 children born in 1994 were systematically studied. The main results were that 77% of children suffered from skin symptoms during their first 5 years while the cumulative prevalence of AE was 16%, and 11% of children with skin symptoms were referred to a specialist. AE and related skin symptoms were common in the first 5 years of life, and were mostly temporary and responsive to topical treatment. Well-baby clinics play a key role in the treatment of skin-symptomatic children.

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Symptoms of eczema include itching, dryness, excoriation and exudation of the skin. Atopic eczema (AE) is an itchy skin condition with three or more of the following: history of flexural involvement, a history of asthma or hay fever, a history of a generalized dry skin, onset of rash under the age of two, or visible flexural dermatitis (1). The prevalence of AE in Finnish school-aged children (15–20%) is among the highest in the world (2).

The well-baby clinics in Finland monitor and support children's physical, psychological and social development. Indications for referral in the case of eczema are a large area of dermatitis, dermatitis that is not responding to topical emollients or hydrocortisone, and suspected allergy to staple foods. There is a lack of population-based studies considering the prevalence of skin symptoms in early childhood.

The aim of this study was to assess the cumulative prevalence and treatment policy of AE and related skin symptoms, i.e. rash, redness, dryness and itch, in a cohort of children seen regularly in a well-baby clinic during their first 5 years of life.

Patients and methods

A retrospective chart review was performed in the four well-baby clinics in Kangasala, a small county in Southern Finland. The study population consisted of 320 children born in 1994 and living in Kangasala during the study period, i.e. 11/1999 to 5/2000. An additional five children were excluded because of missing data.

The data source was the individual handwritten health record, in which a public-health nurse and a general practitioner make notes on the background information and the regular consulting visits. According to the local schema, a child should visit a nurse 13 times and a physician 4 times during the first 5 years with extra visits on an individual basis.

To standardize data collection, a pre-designed case-record form was used and the data were collected by the same researcher. The number of children in different variables varies because of variability of recording, number of visits of an individual child, and on a few occasions, indistinctness of the records.

Skin symptoms variously described in the records were classified before data analysis into

four groups, i.e. rash, redness, dryness and itch. Rash refers to basic rash and non-specific symptoms. Dryness includes dry skin and spots. Itch contains itch, scratch, scrape and excoriation. Notes of warts, pimples, abscesses, furuncles, infections and bruises were disregarded.

The retrospective design did not allow us to apply specific criteria for AE (1). A child was considered to have an AE if a physician or a nurse had used any of the following words in the record: atopic eczema, atopic dermatitis, atopic rash, atopic-like rash, milk crust and flexural rash, an atopic child with a rash or an atopic predisposition in a child with a rash.

Statistical analyses

The mean standard deviation range (SD) and 95% confidence interval (95% CI) are given as descriptive statistics. All treated data were normally distributed. The association between AE (as a dependent variable) and skin symptoms at different ages or different background variables (as independent variables) were analyzed using stepwise logistic regression. Kruskal–Wallis ANOVA and the χ^2 -test were used to compare differences between categorical data. All analyses were performed with Statistica/Win (StatSoft Inc., Tulsa, OK, USA) on a PC, and BMDP Statistical Software (Version 1993; Los Angeles, CA, USA) on a SUN/UNIX mainframe.

Results

Forty-eight percent were boys and 52% were girls. Their mean duration of gestation was 39.8 weeks (SD 1.8), mean birth weight 3620 g (560) and height 50.9 cm (2.7). The duration of

breast-feeding was less than 3 months in 21% of children and more than 6 months in 46%, while 3 (1%) were not breast-fed at all (missing data $n = 33$). Most children (57%) began to have solid food at the age of 3–4 months, before 3 months in 11 (3%) and after 4 months in 33 (10%) children (missing data $n = 92$). A positive family history of an allergy was noted in 41% (missing data $n = 93$). At the age of five, most children were cared for in day-care centers (35%) or at home (25%) (missing data $n = 49$).

Altogether, 77% of children (95% CI 72–81) had skin symptoms during their first 5 years, the prevalence varying between well-baby clinics (range 63%–85%, $p = 0.01$) (Fig. 1). Skin symptoms were primarily noted in most cases during the first year (67%), principally before the age of 3 months (47%). The duration of symptoms was usually 1 (37%) or 2 years (25%). Only two children had symptoms during the entire 5 years. The most common symptom was dryness (Table 1).

The cumulative prevalence of AE at the age of 5 years was 16% (95% CI 12–20). The diagnosis was most often set between the ages of 6–24 months (49%). The prevalence of AE was similar in all four well-baby clinics. Different skin symptoms correlated with AE except at the ages of 0–3 months and 4–5 years.

During their first 5 years of life, 28% of children visited a physician 4 times and 18% a nurse 13 times, as recommended. The ranges of the number of visits were 2–14 (mean 5), and 2–36 (mean 14), respectively. Children with skin symptoms visited a physician more often than the others ($p = 0.004$). Altogether 11% of skin symptomatic children were referred to a specialist clinic, half of them during the first year of life. Twelve of the referred children actually had AE, the others had a severe rash without a specific diagnosis.

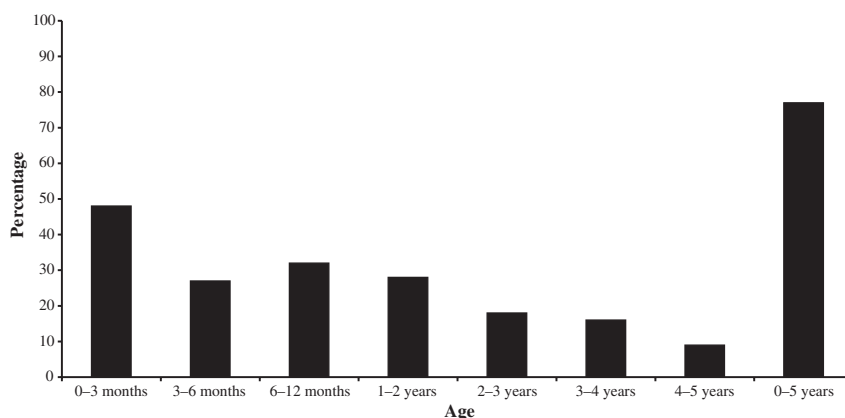


Fig. 1. Prevalence of skin symptoms (%) during the first 5 years ($n = 320$).

Table 1. The frequency of different skin symptoms, mean (95% CI), in the skin-symptomatic children during the first 5 years including also atopic eczema (AE)

Age	Rash (%)	Dryness (%)	Redness (%)	Itch (%)
0–3 months (n = 153)	16 (11–22)	73 (66–80)	20 (14–27)	3 (1–7)
3–6 months (n = 85)	42 (32–54)	60 (49–71)	34 (24–45)	7 (3–15)
6–12 months (n = 105)	56 (47–66)	48 (38–57)	26 (17–33)	4 (1–9)
1–2 years (n = 90)	53 (43–64)	56 (45–66)	21 (13–31)	13 (7–22)
2–3 years (n = 56)	52 (38–65)	55 (42–69)	14 (6–26)	11 (4–22)
3–4 years (n = 50)	50 (36–65)	46 (32–61)	8 (2–19)	10 (3–22)
4–5 years (n = 29)	10 (2–28)	52 (33–71)	10 (2–27)	10 (2–27)
0–5 years (n = 245)	57 (51–63)	57 (51–63)	57 (51–63)	58 (51–64)

One child can suffer from more than one symptom at the same time.

During the first 5 years of life, 44% of children received topical skin treatment and 21% of them mild topical corticosteroid cream. Topical skin treatment includes emollients, lotions, oils, starch, talcum powder and zinc ointment. Topical treatment was most common during the first 6 months of life (31%). Altogether 25 children received systemic drugs, i.e. antihistamines, anti-inflammatory and fungicide drugs, and one child had an epinephrine auto-injector. Other treatments were occasionally mentioned in the cards, i.e. guidance, paint and UV-light therapies.

Altogether, 30% of the children were recorded to have food-related problems, but 10% observed a therapeutic elimination diet. Furthermore, 12 children were on an allergic preventive diet before symptoms. Five mothers observed an elimination diet when their babies were younger than 6 months.

Discussion

The main findings of the present study were that during the first 5 years of life practically four out of five children had skin symptoms related to AE, and 16% of the children had AE.

Nearly all the children attend regular follow-up in a well-baby clinic resulting in a representative data source. The prevalence of skin symptoms varied between well-baby clinics which may be due to a divergent threshold for recording. However, there were similar prevalences of AE in the clinics which confirms that physicians agree well on a typical case of AE (3). The recordings of skin symptoms mostly correlated with AE which agrees with the previous study which showed dry skin, itch and other atopic features to be more common among the children with AE than the others (4).

AE was diagnosed mostly at the ages of 6–24 months which is typical for AE and the prevalence diminishes after that (5). Although specific diagnostic criteria (1) were not used, our study seems reliable because it is in accordance with previous results (2, 6, 7). It therefore seems that contrary to what has been suggested, the cumulative prevalence of AE has not increased significantly within the past decades. A previous Finnish study (6) reported a prevalence of 23% by 5 years of age, which is quite comparable to our results and indicates higher prevalences in Finland than in other countries (2).

Topical treatment was very common among children, especially among babies of whom a third were treated with emollients during their first 6 months. Most children with AE respond well to the first-line management, i.e. explanation and discussion, avoiding of provoking factors, emollients, infection treatment, topical corticosteroids, and antihistamines (8). Moreover, breast-feeding is beneficial for an allergic child (7). In the management, nurses (9) and parents (10) play a vital role.

Our conclusions are that most eczema-related skin symptoms are very common, non-specific and transient. The well-baby clinics have a key role in treating children suffering from skin symptoms.

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