



Homoeopathic versus conventional treatment of children with eczema: A comparative cohort study

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KEYWORDS

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Summary

Objectives: To assess, over a period of 12 months, whether homoeopathic treatment could influence eczema signs/symptoms and quality of life (QoL) compared with conventional treatment.

Design: Prospective multi-centre cohort study.

Setting: Children with eczema aged 1–16 years were recruited from primary care practices.

Interventions: Conventional versus homoeopathic treatment.

Outcome measures: Patients (or parents) assessed eczema symptoms by numerical rating scales as well as disease-specific *Atopie Lebensqualitäts-Fragebogen* (ALF) and general quality of life (KINDL, KITA) at 0, 6 and 12 months.

Results: A total of 118 children were included: 54 from homoeopathic (mean age $\pm$ S.D. was 5.1 ± 3.3 years; 56% boys) and 64 from conventional practices (6.2 ± 3.8 years; 61% boys). Eczema symptoms (assessed by patients or their parents) improved from 0 to 12 months for both treatment options, but did not differ between the two groups: 3.5–2.5 versus 3.4–2.1; $p=0.447$ (adjusted). Disease-related quality of life improved in both groups similarly. In the subgroup of children aged 8–16 years the general quality of life showed a better trend for conventional treatment compared with homoeopathic treatment ($p=0.030$).

Conclusions: This observational study is the first long-term prospective investigation to compare homoeopathic and conventional treatment of eczema in children. Over a period of 12 months, both therapy groups improved similarly regarding perception of eczema symptoms (assessed by patients or parents) and disease-related quality of life.

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Background

Eczema (old nomenclature: atopic eczema, atopic dermatitis) is a chronic, disabling non-contagious inflammation of the skin associated with pruritus that occurs predominantly in children.^{1–3} In industrialized countries, the prevalence of eczema has been increasing for decades and is estimated at 10–20% among children of school age and 1–3% among adults.^{1,4–6} Eczema can have a major impact on the quality of life (QoL) of sufferers and their families owing to loss of sleep or working time, the requirement for special clothing, the avoidance of certain activities (e.g., swimming) and the need for frequent medication and visits to physicians.^{6–8} The economic impact of eczema is likewise high, both to society and to the individual.^{6,9}

For 50 years topical, and in severe cases systemic, corticosteroids have played an important role in the treatment of children with eczema, but long-term use causes concern for many physicians and parents because of skin atrophy and other potential side effects.¹⁰ Oral H1 antihistamines are another widely used component of eczema therapy, but evidence for their efficacy is based largely on anecdotal experience or on studies where eczema had not been a primary endpoint.¹¹ A new promising approach in the treatment of eczema is offered by steroid-free topical immunomodulators.^{12,13} However, a recent US expert panel representing specialists in dermatology, allergy, immunology and pediatrics noted that, as with any new class of agents, there are still several unresolved questions including the long-term risk of developing skin cancer.¹⁴

There has been growing public demand for the application of alternative or complementary medicine to eczema and other allergic complaints.^{15,16} According to our own data, one child in five who attends a homoeopathic practice suffers from eczema.¹⁷ However, almost no data are available on the efficacy or effectiveness of homoeopathy for eczema: a meta-analysis carried out for various diagnoses included nine dermatological studies, but none dealing specifically with eczema.¹⁸ One single randomized, placebo-controlled and GCP (Good Clinical Practice)-compliant trial was terminated prematurely owing to recruiting problems. The small evaluable population yielded no useful result.¹⁹

There is thus a major discrepancy between the widespread use of homoeopathic treatment for eczema and the lack of well-founded evaluations of such treatment. The present study was part of a larger study examining the influence and costs of homoeopathic versus conventional treatment of adults and children with various specified chronic diseases.²⁰ This report deals exclusively with the sub-set of patients 1–16 years of age diagnosed with eczema.

Methods

Study design and subjects

A prospective, multi-centre, parallel-group, comparative cohort study was conducted in urban (Berlin, Hamburg) and mixed urban–rural regions (West, Central and South) of Germany. Recruitment of patients took place from January 1998

to December 2000. The study was designed to reflect everyday practice. Therefore, it was planned as an observational, open and non-randomized investigation. The children and their parents were recruited at the homoeopathic or conventional doctor's practices and had thus already made their own choice of preferred therapeutic approach.

We included only children (age <17 years) who had not been treated previously by the study physician for eczema and were suffering from itching accompanied by at least three of the following five criteria: (i) eczema in skin creases; (ii) dry skin for at least the past 12 months; (iii) a history of asthma or allergic rhinitis; (iv) a family history of eczema (for children 1–3 years of age) and (v) first signs of disease before the child's first birthday.^{21,22}

Homoeopathic doctors were recruited through the major organisation of homoeopathic doctors in Germany (DZVhÄ). Homoeopathic treatment included only "classical homoeopathy" defined as a prescription of a single remedy according to the simile law. The participating homoeopathic doctors had to provide only homoeopathic treatment. Evaluating the parental questionnaire data, we found that only one child in the homoeopathic treatment group actually received additional corticosteroids, which was prescribed by a dermatologist who was not in this study.

Doctors practising conventional medicine were randomly chosen from address lists of ambulatory care practices of paediatricians, dermatologists and family practitioners. In Germany, these are the relevant specialities of primary care doctors who are most likely to be approached by parents to receive treatment for their children with eczema. Consecutive selection was based on the return of a postal questionnaire including the confirmation of interested physicians that they did not use homoeopathic treatment.

The study was compliant with Good Epidemiological Practice (GEP), Good Clinical Practice and official data-protection laws. It was approved by the Ethics Committee of the Charité—University Medical Center, Berlin, Germany.

Study protocol

At baseline, the patients (or where appropriate their parents) recorded the severity of their symptoms, provided socio-demographic information and completed the quality of life questionnaires: (i) the disease-specific *Atopie Lebensqualitäts-Fragebogen* (ALF), a questionnaire developed for the present study, assessing eczema-related quality of life with 12 items regarding school, leisure time, everyday life activities, aggravation, skin complaints and bearing of treatment; (ii) the general health-related KINDL, validated for the age group of 8–16, or KITA for age group <8 years.^{23–25} The physicians recorded the severity of eczema signs/symptoms and the patient's medical history. After 6 and 12 months, the patients received standardised questionnaires to provide information on current symptom severity, any perceived side effects of treatment and quality of life. After 12 months, the study physicians also recorded the current severity of eczema, using standardised questionnaires.

The primary outcome parameters were: (i) eczema symptoms, as assessed by the child (or parent) on a numerical rating scale (NRS) from 0 to 10,²⁶; (ii) eczema signs/symptoms, as assessed by the physician, also using

the NRS; (iii) eczema-related quality of life assessed by the child (or parent), using the ALF.²³ The secondary outcome parameter was general health-related quality of life, using different questionnaires in the two sub-samples of children of age 8–16 and age 1–7.^{24,25}

Statistical methods

The statistical analysis was performed in three steps. (A) The treatment cohorts were tested for significant differences in age, sex, parents' education and duration of symptoms, using *t*-tests or χ^2 tests as appropriate. Rates of loss to subsequent assessment were compared by χ^2 tests. (B) Repeated-measurement analysis of variance (ANOVA) models were fitted to the data from patients who yielded complete study data. In an initially saturated model with the factors "treatment" and "time", it was investigated whether there were overall differences between the treatment cohorts (significant interaction term time $\times$ treatment). If so, the differences were displayed, with additional tests as appropriate. (C) The initial model of step B was extended to include the covariates mentioned in step A (ANCOVA). Step B was repeated for the resulting model. For each outcome variable (symptoms assessed by patient, signs assessed by physician and quality of life) treatment-group-specific marginal means are reported, resulting from the last adjusted model.

Results

Patients

A total of 118 children with eczema were included in the present study: 54 were treated homoeopathically and 64 conventionally. Parental questionnaires for all 3 time points were returned for 70% (homoeopathy) and 75% (conventional); whereas physicians' questionnaires for both time points were returned for 87% (homoeopathy) and 97% (conventional). Those children receiving homoeopathic

treatment were more likely to have at least one parent with an educational level of 12 or more years and to have been treated with alternative therapy within the last 12 months (see Table 1).

Severity of symptoms

Among the homoeopathically treated patients the physicians' assessment of the eczema severity at baseline was slightly higher compared with the conventionally treated patients ($p=0.071$). Changes in the two treatment groups showed marked improvement in the patients' condition. However, there was a difference between the results of assessments by the patients/parents and by the physicians:

According to the patients'/parents' assessment the symptoms improved gradually over time in both groups (unadjusted, $p<0.001$; adjusted, $p=0.037$). While there was a tendency for more severe cases to be found in the homoeopathy group ($p=0.077$ unadjusted, $p=0.172$ adjusted), trends did not differ between the groups ($p=0.830$ unadjusted, $p=0.447$ adjusted). See Table 2, upper block, for unadjusted and Fig. 1B for adjusted values.

While according to the physicians' assessment the eczema signs/symptoms improved in both groups ($p<0.001$ for each group, both adjusted and unadjusted), the extent of the improvement was significantly different, in favour of homoeopathically treated patients ($p<0.001$, both adjusted and unadjusted). See Table 2, lower block, for unadjusted and Fig. 1A for adjusted values.

Eczema-related quality of life

The ALF scores for eczema-related quality of life improved significantly ($p<0.001$) according to the unadjusted analysis, as shown in Table 3. However, this effect was not significant after adjustment ($p=0.422$). Trends were not different between groups ($p=0.365$ unadjusted, $p=0.465$ adjusted); as presented in Fig. 2.

Table 1 Baseline characteristics of study participants

	Homoeopathic treatment $n=54$	Conventional treatment $n=64$	p -Value (if <0.05)
Age in years (mean $\pm$ standard deviation)	5.1 $\pm$ 3.3	6.2 $\pm$ 3.8	—
Sex			
Male	56%	61%	—
Female	44%	39%	
Educational level of parent(s)			
≥ 12 years	64%	33%	<0.01
<12 years	36%	67%	
Living together			
With sibling(s)	63%	50%	—
Without siblings	37%	50%	
Use of alternative therapy			
Within the last 12 months	50%	5%	<0.001
Not within the last 12 months	50%	95%	

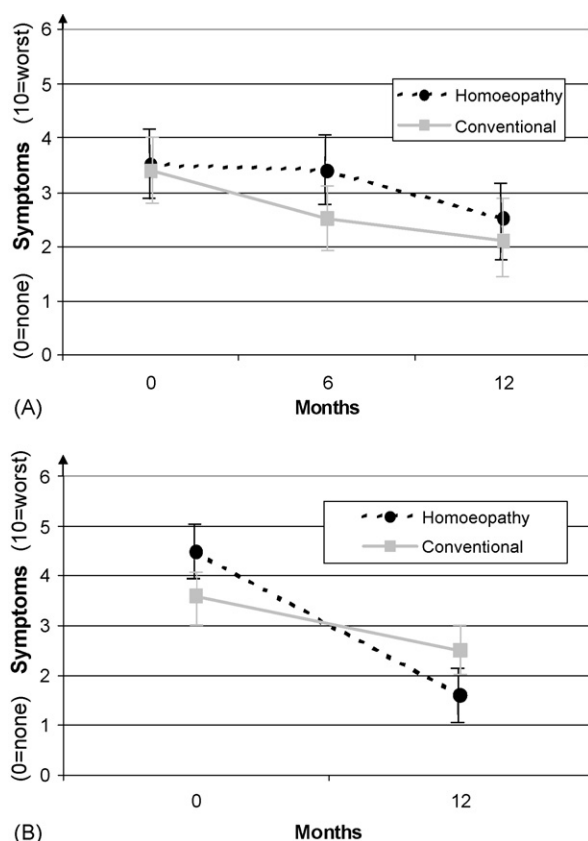


Figure 1 (A) Eczema symptoms, assessed by patients or parents (adjusted). (B) Eczema signs/symptoms assessed by physicians (adjusted). Means and corresponding 95% CI from repeated-measurement models adjusted for additional covariates (sex, age, parent's educational level, logarithm of symptom duration and interaction age $\times$ sex). *n*, see Table 2.

General health-related quality of life

As shown in Table 3, there was broad similarity between the results obtained from the homoeopathically and conventionally treated groups.

KINDL scores did not show significantly different trends between groups in the unadjusted analysis ($p=0.157$). How-

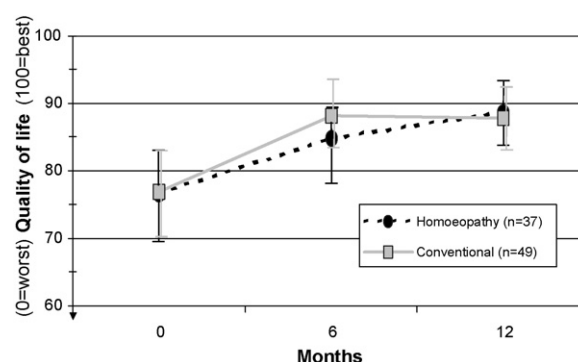


Figure 2 Eczema-related quality of life (ALF-score) for all children. Means and corresponding 95% CI from repeated-measurement models adjusted for additional covariates (sex, age, parent's educational level, logarithm of symptom duration and interaction age $\times$ sex).

ever, after adjustment the trends became significantly different favouring conventional treatment ($p=0.030$).

The KITA-psychosomatic scores did not show significantly different trends between groups ($p=0.236$ unadjusted, $p=0.190$ adjusted), but improved significantly over time for both groups combined in the unadjusted analysis ($p=0.046$). This effect disappeared after adjusting for possible confounders ($p=0.120$). For the KITA-daily activities score, no significant trends were observed.

Safety

Both patients (or parents) and physicians reported no adverse events during the study period for any of the treatment options.

Discussion

Over a period of 12 months, eczema symptoms and eczema-related quality of life as assessed by patients or their parents improved in both homoeopathically and conventionally treated children. There were no relevant differences between the two treatment groups. However, eczema

Table 2 Eczema signs/symptoms assessed by patients (or parents) and physicians on a numerical rating scale from 0 (=no symptoms) to 10 (=worst)

Assessment by	Time (months)	Severity of eczema signs/symptoms unadjusted means (95% confidence interval)	
		Homoeopathic treatment	Conventional treatment
Patients/parents			
(Homoeopathy: <i>n</i> = 38; Conventional: <i>n</i> = 48)	0	3.7 (3.1–4.3)	3.4 (2.8–3.9)
	6	3.3 (2.7–4.0)	2.7 (2.1–3.3)
	12	2.7 (2.1–3.4)	2.1 (1.5–2.7)
Physicians			
(Homoeopathy: <i>n</i> = 47; Conventional: <i>n</i> = 62)	0	4.5 (3.9–5.0)	3.6 (3.1–4.1)
	12	1.8 (1.3–2.3)	2.6 (2.2–3.0)

Table 3 Eczema-related and general health-related quality of life scores; unadjusted and adjusted means and corresponding 95% confidence intervals (95% CI) from repeated-measurement models (adjusted for sex, age, parent's educational level, logarithm of symptom duration and interaction age × sex)

Type of quality of life (QoL)	Time (months)	Quality of life score (0 = worst; 100 = best) unadjusted means (95% CI)		Quality of life score (0 = worst; 100 = best) adjusted means (95% CI)	
		Homoeopathic treatment	Conventional treatment	Homoeopathic treatment	Conventional treatment
Eczema-related QoL (ALF) all children	0	76 (71–82)	77 (72–82)	77 (70–83)	77 (71–83)
Homoeopathy (n = 37)	6	84 (79–89)	88 (82–91)	85 (80–90)	88 (84–93)
Conventional (n = 49)	12	87 (82–91)	87 (83–91)	89 (84–93)	88 (83–92)
General QoL (KINDL) only children age 8–16	0	69 (61–76)	70 (65–75)	71 (64–79)	68 (63–72)
Homoeopathy (n = 7)	6	61 (53–70)	70 (65–76)	59 (49–69)	70 (64–77)
Conventional (n = 16)	12	69 (61–76)	72 (67–77)	67 (57–76)	71 (66–77)
General QoL (KITA) "Psychosomatic" only children age 1–7	0	68 (62–74)	72 (66–77)	67 (61–74)	71 (64–77)
Homoeopathy (n = 9)	6	77 (70–83)	73 (67–79)	76 (69–83)	75 (68–82)
Conventional (n = 33)	12	74 (68–80)	73 (67–79)	76 (69–82)	71 (65–78)
General QoL (KITA) "daily activities" only children age 1–7	0	61 (54–68)	62 (55–69)	60 (52–68)	64 (57–72)
Homoeopathy (n = 29)	6	65 (57–74)	63 (55–70)	65 (56–74)	65 (56–74)
Conventional (n = 33)	12	65 (59–72)	63 (56–69)	65 (57–72)	63 (56–70)

signs/symptoms as assessed by the doctors improved more under homoeopathic than conventional treatment.

This investigation is, to our knowledge, the first long-term prospective cohort study to compare homoeopathic and conventional treatment of eczema in children. Our chosen study design reflects regular primary health care, where patients with chronic diseases often make choices of their preferred treatment, thus providing a more realistic picture of eczema therapy than can be expected from a randomized controlled trial (RCT). However, to assess the efficacy of homoeopathy as a treatment option for eczema large RCTs are also necessary, but have not been conducted successfully.¹⁹ Results from prospective cohort studies supplement rather than challenge the findings of RCTs. One concern in non-randomized observational studies is bias. To reduce hidden bias to a minimum due to patients' self-selection, we assessed possible differences between treatment groups at baseline as well as between patients lost to follow-up and those with complete data first, before performing multivariable analyses to adjust for potentially confounding factors.

In our study, we focussed on patient-oriented outcomes rather than biomarkers, such as immunoglobulin E (IgE) measurements, which can be elevated in children with eczema or other allergic diseases, but have shown only a limited correlation with the severity of eczema symptoms or eczema-related quality of life.^{27–29} Researchers and clinicians have become aware that such physiological measures do not provide a complete view of the impact of atopic diseases on an individual's physical, social or emotional well-being.^{30,31} The quality of life of children with eczema is affected in numerous ways: sleep disturbances from itching, the necessity to wear special clothes, avoidance of certain activities such as swimming, frequent skin care and doctor's visits.² We included both a disease- and a general health-related instrument to assess the treatment effects on the QoL of the children. In the adjusted analyses we found only a significant effect for the general health-related QoL, showing a greater improvement in the conventionally treated 8–16-year-old children. The children in this age group had mostly filled out the corresponding KINDL questionnaire themselves, while the KITA for the age group <8 years was usually answered by the parents, sometimes together with the child. QoL is difficult to measure, especially in very young children; this problem is exacerbated by the presence of a chronic disease with episodes of varying intensity and duration. At the beginning of our study, the KITA was the only general health-related instrument validated in German and used for the first time in children with eczema.²⁵ Further testing in other clinical populations is needed. The atopic disease-related QoL assessed by ALF showed significant improvements for both treatment groups, but only in the unadjusted analyses. There were no significant differences after adjustment for potential confounders. The ALF questionnaire was developed for the present study and showed good internal and external validity for this patient population; however, more studies with atopic children are needed to assess its value as an instrument to measure QoL in connection with atopic disease.²³

The ability to quantify symptom severity is essential in order to monitor patient progress and treatment effec-

tiveness. To assess severity of eczema signs/symptoms in our study we used Numerical Rating Scales from 0 to 10. This instrument has been found to be a simple and valid method that can easily be applied in both interviews and questionnaires.²⁶ The SCORAD (SCORing Atopic Dermatitis) or the EASI (Eczema Area and Severity Index) are validated scoring systems for eczema but represent only the condition of the skin at the time of the examination.^{32,33} In our long-term study, we intended to assess the eczema signs/symptoms for a period of 12 months and therefore did not demand that the physicians apply these scoring systems in our study. Answering the eczema signs/symptoms questionnaires, the physicians were to consider the whole 12 months since including the patient in the study. The application of measures such as SCORAD or EASI are, however, time-consuming and, therefore, usually not part of regular primary health care. Their application seem to be better suited for cross-sectional studies or large-scale clinical trials assessing eczema in shorter intervals.³⁴

An important feature of our study was that the reference therapy was not placebo, but rather the conventional therapy as prescribed under regular primary health care conditions by a conventional practitioner of the patient's choice. Conventional therapy can therefore be regarded as an active control. In view of the unclear mechanism of homoeopathic treatment, it is noteworthy that the outcome was at least similar (by parents' assessment) or significantly superior (by physicians' assessment) to conventional treatment.

Conclusions

Comparing homoeopathic with conventional treatment over a long period (12 months) in everyday practice, both therapy groups improved similarly regarding perception of eczema symptoms and disease-related quality of life (assessed by patients or parents). According to ratings by the physicians, children with eczema improved more under homoeopathic than conventional treatment.

This investigation is, to our knowledge, the first long-term prospective cohort study to compare homoeopathic and conventional treatment of eczema in children. Further research is needed regarding the comparison of these therapy options for patients with eczema in relation to different study settings and patient populations as well as economic evaluations.

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