

Use of Complementary and Alternative Therapies in Outpatients with Atopic Dermatitis from a Dermatological University Department

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Keywords

Atopic dermatitis · Complementary therapy · Alternative therapy · Treatment

Abstract

Background: Treatment of atopic dermatitis (AD) may be challenging, therefore some patients seek complementary and alternative medications (CAM). We determined prevalence and predictors for CAM use in a hospital cohort of AD patients. **Material and Methods:** Between January 1, 2012, and December 31, 2017, AD patients referred to the dermatological outpatient clinic at Bispebjerg Hospital were included in the study. Information on CAM use, demographics and disease characteristics were obtained by questionnaire, and associations were determined by χ^2 and t test separately for children (<16 years) and adults (≥ 16 years). **Results:** In total 441 filled in the questionnaire on AD, and 433 patients responded to the questions about CAM use: 198 children and 235 adults. A total of 137 (31.6%) had used one or more CAM. CAM use in children was significantly associated with prior use of ≥ 2 conventional treatments ($p = 0.047$) and topical calcineurin inhibitors ($p = 0.021$), a higher number of affected eczema sites ($p < 0.001$) including more frequent affection of the face and extremities, a higher SCORAD score ($p = 0.045$), and low mean overall self-rated health ($p = 0.003$).

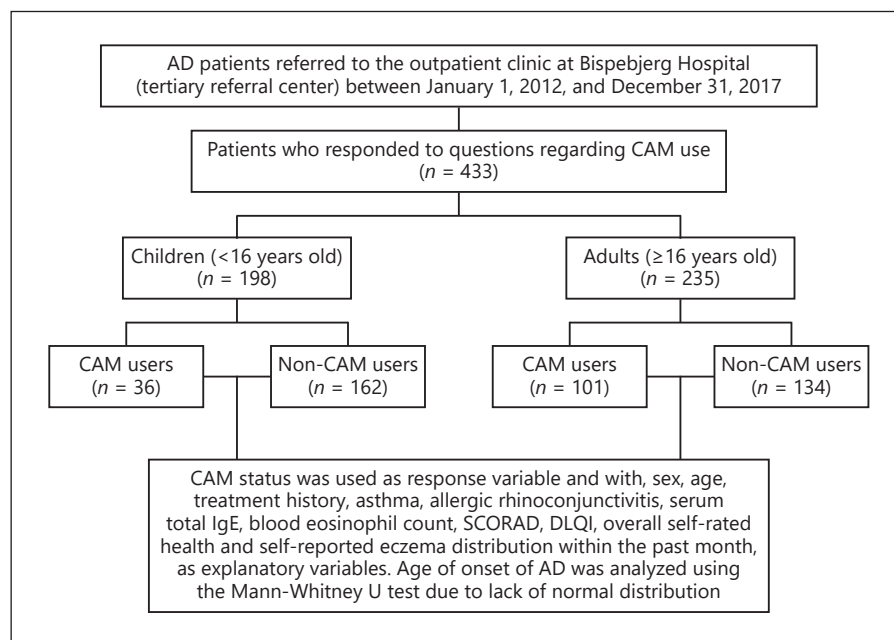
CAM use in adults was significantly associated with lower age of onset of AD ($p = 0.004$), comorbid allergic rhinoconjunctivitis ($p = 0.039$), frequent use of moisturizing cream ($p = 0.024$), facial and neck eczema ($p = 0.005$) and high educational level ($p = 0.043$). **Conclusion:** CAM use is frequent in both children and adult AD patients. CAM users are characterized by long disease duration, a significant disease burden and by having a longer education. The high prevalence of CAM may indicate that patients' expectations regarding treatment of AD are not redeemed in the conventional health care system.

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Introduction

The chronic course of atopic dermatitis (AD) [1] merits efficient treatment, and clinical guidelines include numerous topical and systemic treatment options. AD is a complex disease, and treatment approaches may differ from one patient to another. The variability in treatment procedures together with the chronicity of the disease might stimulate an interest in complementary or alternative medications and treatments (CAM) [2]. Although CAM is not supported by scientific evidence [3, 4], it has been in great demand for decades [5] and shown to be

Fig. 1. Flowchart of the Methods. AD, atopic dermatitis; CAM, complementary and alternative medication; SCORAD, Scoring Atopic Dermatitis; DLQI, Dermatology Quality of Life Index.



more frequently used in chronic patients [6]. CAM use in dermatology is believed to be most frequent among AD patients but other diseases, including psoriasis and acne, are also associated with prevalent CAM use [7, 8]. In dermatology CAM users have been characterized as mainly female and over 50 years of age [9, 10]. However, most studies focus on which CAM options are being used and their efficacy, whereas little knowledge exists on what characterizes CAM users among AD patients [11, 12]. The aim of the present study was to examine the use of CAM in children and adult patients with AD and to characterize CAM users as compared to non-CAM users.

Methods

For further details, see the online supplementary material (see www.karger.com/doi/10.1159/000496274 for all online suppl. material) (Fig. 1).

Results

A total of 433 patients fulfilled the inclusion criteria and were included in the study: 241 females (55.7%) and 192 males (44.3%). Of these 198 were children and 235 were adults.

A total of 137 (31.6%) had previously used one or more CAM: 18.2% of the children and 43.0% of the adults, respectively. In children, homeopathy (5.6%) and reflexology

(3.0%) were the most prevalent CAM options, whereas in adults, acupuncture (15.7%), homeopathy (9.4%) and reflexology (8.5%) were the most prevalent. All treatments are reported in Table 1. Grouping CAM into botanical/herbal, mind-body (massage) and nutritional therapies showed that each therapy group was used by 2.5, 8.6 and 5.6% of children and 3.4, 21.3 and 7.2% adults, respectively.

In the child cohort CAM users were characterized by concomitant use of ≥ 2 conventional treatments ($p = 0.047$), including use of topical calcineurin inhibitors ($p = 0.021$), severer disease as assessed by the Scoring Atopic Dermatitis (SCORAD) score ($p = 0.045$) and a higher number of affected eczema sites ($p < 0.001$), particularly more frequent facial eczema and eczema on the extremities, and by a lower self-rated health ($p = 0.003$), compared to non-CAM users (Table 2).

In the adult cohort CAM users were characterized by having earlier onset of AD ($p = 0.004$), more frequent use of moisturizing cream ($p = 0.024$), more allergic rhinoconjunctivitis ($p = 0.039$), more frequent face and neck eczema ($p = 0.005$) and a higher educational level ($p = 0.043$), compared to non-CAM users (Table 3).

Discussion

This study of consecutive outpatients with AD from a tertiary referral center showed that almost one third of the patients used CAM: 18.2% of the children and 43.0%

Table 1. Prevalence of treatments used by AD patients

	Children (n = 198)	Adults (n = 235)	Total (n = 433)
<i>CAM</i>			
Acupuncture	2 (1.0)	37 (15.7)	39 (9.0)
Homeopathy	11 (5.6)	22 (9.4)	33 (7.6)
Reflexology	6 (3.0)	20 (8.5)	26 (6.0)
Other ¹	8 (4.0)	24 (10.2)	32 (7.4)
Diets	2 (1.0)	6 (2.6)	8 (1.8)
Naturopathy	2 (1.0)	6 (2.6)	7 (1.6)
Oils	2 (1.0)	5 (2.1)	7 (1.6)
Kinesiology	2 (1.0)	4 (1.7)	6 (1.4)
Healing	1 (0.5)	4 (1.7)	5 (1.2)
Nature medicine	0 (0)	3 (1.3)	4 (0.9)
Allergy company (allergy diets)	1 (0.5)	2 (0.9)	3 (0.7)
Lactic acid and bacteria	3 (1.5)	0 (0)	3 (0.7)
Light and laser	0 (0)	3 (1.3)	3 (0.7)
Vitamins/minerals	1 (0.5)	2 (0.9)	3 (0.7)
Chinese tea	1 (0.5)	1 (0.4)	2 (0.5)
Chiropractor	0 (0)	2 (0.9)	2 (0.5)
Creams (Aloe vera and natural)	1 (0)	1 (0.4)	2 (0.5)
Fish oil	2 (1.0)	0 (0)	2 (0.5)
Use of 2≤ CAM	8 (4.0)	29 (12.3)	37 (8.5)
<i>Conventional treatments</i>			
Topical corticosteroids	174 (87.9)	219 (93.2)	393 (90.8)
Topical calcineurin inhibitors	51 (25.8)	104 (44.3)	155 (35.8)
Penicillin	21 (10.6)	73 (31.1)	94 (21.7)
UV light	5 (2.5)	67 (28.5)	72 (16.6)
Other ²	28 (14.1)	32 (14.9)	60 (13.9)
Prednisolone	6 (3.0)	50 (21.3)	56 (12.9)
Azathioprine	1 (0.5)	28 (11.9)	29 (6.7)
Methotrexate	0 (0)	10 (4.3)	10 (2.3)
Cyclosporine	0 (0)	8 (3.4)	8 (1.8)

Percentage of total in parentheses. AD, atopic dermatitis; CAM, complementary and alternative medications and treatments; topical calcineurin inhibitors: tacrolimus/pimecrolimus. ¹ CAM with only one user: Aloe vera, Ayurveda (holistic medicine), Epsom salt bath, oat bath, Herbalife/powder diets, iris scan, massage, meditation, steam bath, thought field therapy, Tibetan treatment (not specified) and yoga/mindfulness, name not recalled or denoted in questionnaire as various. ² Conventional therapy with only one user: antifungal creams/shampoos, antihistamines, disinfecting baths (tar and potassium permanganate), antibiotics, Bucky radiation, fucidin cream, mycophenolate mofetil, pain medication, photopheresis and alitretinoin.

of the adults, respectively. Both children and adult CAM users were characterized by having facial eczema and by having received several different conventional treatments (children) or used moisturizers to a higher degree (adults). Among children, CAM users had severer disease as indicated by increased SCORAD and number of affected eczema sites, and a lower self-rated health than non-CAM users. Adult CAM users had an earlier onset of the AD and were better educated than non-CAM users.

CAM use prevalence in children was lower in our population compared to the literature. Silverberg et al. [12] and Hughes et al. [18] reported CAM use in more than 40% of American and Irish children, respectively. Kim et al. [11] found even larger proportions in tertiary hospitals, with almost two thirds of patients reporting CAM use, which they relate to societal acceptance and tradition for use of CAM in Korea. Thus, national differences and traditions seem to be closely associated with the use of CAM. However, differences in prevalence could some-

Table 2. Disease characteristics in children with AD based on their use of CAM

Variables	Non-CAM <i>n</i> = 162	CAM <i>n</i> = 36	Total <i>n</i> = 198	Crude <i>p</i> value
Age of onset of AD, years	1.2 (2.1)	0.5 (0.5)	1.1 (2.0)	0.654
Sex				
Male	86 (53.1%)	18 (50.0%)	104 (52.5%)	0.854
Female	76 (46.9%)	18 (50.0%)	94 (47.5%)	
Conventional treatments (≥2)				
No	113 (70.2%)	18 (51.4%)	131 (66.2%)	0.047
Yes	48 (29.8%)	17 (48.6%)	65 (33.2%)	
Moisturizing cream (>1 time/day)				
No	51 (31.7%)	6 (16.7%)	57 (28.9%)	0.103
Yes	110 (68.3%)	30 (83.3%)	140 (71.1%)	
Topical corticosteroids	141 (87.0%)	33 (91.7%)	174 (87.9%)	0.579
Topical calcineurin inhibitors	36 (22.4%)	15 (41.7%)	51 (25.9%)	0.021
UV therapy	5 (3.1%)	0 (0%)	5 (2.5%)	0.587
Systemic therapy	18 (11.1%)	8 (22.9%)	26 (13.2%)	0.094
Asthma	44 (27.2%)	12 (33.3%)	56 (28.3%)	0.540
Allergic rhinoconjunctivitis	29 (18.0%)	9 (25.0%)	38 (19.3%)	0.354
Eczema				
Face and neck	133 (82.1%)	35 (97.2%)	168 (84.8%)	0.020
Trunk	107 (66.0%)	28 (77.8%)	135 (68.2%)	0.235
Upper extremity	143 (88.3%)	36 (100.0%)	179 (90.4%)	0.027
Lower extremity	139 (85.8%)	36 (100.0%)	175 (88.4%)	0.010
Total number of eczema sites	8.0 (4.0)	10.1 (2.7)	8.3 (3.9)	<0.001
SCORAD (mean)	32.5 (17.6)	39.0 (15.4)	33.6 (17.4)	0.045
Area	17.1 (19.2)	25.7 (18.5)	18.6 (19.3)	0.018
Itch (VAS)	4.7 (2.9)	6.1 (2.5)	5.0 (2.9)	0.012
Sleep (VAS)	3.2 (3.2)	4.8 (2.8)	3.5 (3.2)	0.005
CDLQI	6.9 (4.4)	8.1 (3.5)	7.1 (4.3)	0.300
Self-rated health (0–4)	2.9 (0.9)	2.4 (0.9)	2.8 (1.0)	0.003

All binomial variables are denoted as frequency and percentage in parentheses. All continuous variables are denoted as mean with standard deviation in parentheses. *p* values represent the difference between frequencies for binomial variables and means for continuous variables. AD, atopic dermatitis; CAM, complementary and alternative medications and treatments; topical calcineurin inhibitors: tacrolimus/pimecrolimus; systemic therapy: methotrexate, prednisolone, penicillin, azathioprine, cyclosporine; SCORAD, Scoring of Atopic Dermatitis; CDLQI, Children's Dermatology Life Quality Index (>4 years of age); VAS, visual analogue scale. Missing data for each variable (missing): conventional treatment (2), moisturizing cream (1), topical calcineurin inhibitors (1), systemic therapy (1), allergic rhinoconjunctivitis (1), SCORAD (9), area (10), itch (10), sleep (13), CDLQI (9), self-rated-health (1).

what be caused by question phrasing and choice of study population. Our questionnaire included no mentioning of specific CAM options. In addition, we included outpatients from a tertiary referral center whereas Silverberg et al. [12] used data from a national health survey representing the American background population.

Acupuncture, reflexology and homeopathy were the most prevalent CAM choices in our population. A large population study by Tindle et al. [19] from 2005 also showed acupuncture to be frequent but with herbal therapy as the most widely used. Another study by Jensen [20]

from 1990 also found homeopathy and herbal remedies among the most common CAM options. Again, it may be assumed that also choice of CAM is related to local culture.

Variables associated with CAM use in the present study, such as early onset of AD, increased number of affected eczema sites, higher SCORAD score and use of more different conventional treatments all indicate that CAM users have severer disease. However, the value of the increased use of conventional treatments could potentially be a type 2 error due to inaccurate data on penicillin

Table 3. Disease characteristics in adults with AD based on their use of CAM

Variables	Non-CAM (n = 134)	CAM (n = 101)	Total (n = 235)	Crude p value
Age of onset of AD, years	6.4 (11.0)	3.0 (5.5)	4.9 (9.2)	0.004
Sex				
Male	52 (38.8%)	36 (35.6%)	88 (37.3%)	0.622
Female	82 (61.2%)	65 (64.4%)	147 (62.6%)	
Conventional treatments (≥2)				
No	42 (31.6)	29 (28.7%)	71 (30.3%)	0.669
Yes	91 (68.4)	72 (71.3%)	163 (69.7)	
Moisturizing cream (>1 time/day)	2.3 (0.6)	2.5 (0.4)	2.4 (0.5)	
No	51 (38.1%)	24 (23.8%)	75 (31.9%)	0.024
Yes	83 (61.9%)	77 (76.2%)	160 (68.1%)	
Topical corticosteroids	123 (91.8%)	96 (95.0%)	219 (93.2%)	0.328
Topical calcineurin inhibitors	54 (40.3%)	50 (49.5%)	10 (44.3%)	0.161
UV therapy	36 (26.9%)	31 (57.4%)	67 (28.5%)	0.522
Systemic therapy	54 (40.6%)	43 (42.6%)	97 (41.5%)	0.763
Asthma	60 (44.8%)	49 (48.5%)	109 (46.4%)	0.571
Allergic rhinoconjunctivitis	69 (51.9%)	66 (65.3%)	135 (57.7%)	0.039
Eczema				
Face and neck	118 (88.1%)	99 (98.0%)	217 (92.3%)	0.005
Trunk	103 (76.9%)	83 (82.2%)	186 (79.1%)	0.336
Upper extremity	125 (93.3%)	93 (93.0%)	218 (93.2%)	1.000
Lower extremity	104 (77.6%)	74 (73.3%)	178 (75.7%)	0.444
Total number of eczema sites	8.6 (3.5)	9.0 (3.3%)	8.8 (3.4)	0.338
SCORAD (mean)	34.2 (18.6)	35.6 (17.9)	34.8 (18.3)	0.567
Area	24.0 (23.1)	24.7 (23.7)	24.3 (23.3)	0.828
Itch (VAS)	5.6 (2.9)	5.1 (2.8)	5.4 (2.9)	0.442
Sleep (VAS)	3.5 (3.4)	3.2 (3.2)	3.3 (3.3)	0.274
DLQI	9.8 (6.2)	10.3 (6.4)	10.0 (6.3)	0.524
Self-rated health (0–4)	2.3 (1.0)	2.3 (0.9)	2.3 (1.0)	0.877
Education exceeding high school				
No	63 (48.5%)	34 (34.3%)	97 (42.4%)	0.043
Yes	67 (51.5%)	65 (65.7%)	132 (57.6%)	

All binomial variables are denoted as frequency with percentage in parentheses. All continuous variables are denoted as mean with standard deviation in parentheses. *p* values represent the difference between frequencies for binomial variables and means for continuous variables. AD, atopic dermatitis; CAM, complementary and alternative medications and treatments; topical calcineurin inhibitors: tacrolimus/pimecrolimus; systemic therapy: methotrexate, prednisolone, penicillin, azathioprine, cyclosporine; SCORAD, Scoring of Atopic Dermatitis; DLQI, Dermatology Life Quality Index; VAS, visual analogue scale. Missing data for each variable (missing): conventional treatment (1), systemic therapy (1), allergic rhinoconjunctivitis (1), upper extremity (1), education exceeding high school (6), total number of eczema sites (1), SCORAD (11), area (13), itch (13), sleep (14), DLQI (8), self-rated-health (3).

indications. Therefore, this finding should be considered the least indicative of severe disease in children. In the adult cohort CAM users more often had allergic rhinoconjunctivitis, also contributing to an increased disease burden. Thus, persistent disease and difficulty in treating AD may explain the increased use of CAM [21]. This is in agreement with a previous report where CAM use was shown to be related to disease severity in asthma patients

[22]. However, Hughes et al. [18] found no difference in disease severity between CAM users and non-CAM users in children attending a public dermatology outpatient clinic. They did not perform a severity score on the children but used number of hospital admissions due to AD as a crude measure for disease severity. The lack of detail in such an estimate might partly explain their results, which they also address in their discussion [18].

Our data identified facial eczema as being associated with CAM use, particularly in the adult population. To our knowledge no previous studies have reported on facial eczema prevalence in relation to CAM use. Facial eczema could indicate a more negative influence of AD, as shown in the child cohort by the impact on self-rated health compared to non-CAM users. It may constitute a significant disease burden for the patient, and previous studies have documented that facial skin disease affects quality of life significantly more in a negative direction than other locations [13, 23–25], which could be speculated to drive CAM use. Facial eczema is challenging and not always satisfyingly treated by conventional treatments, therefore patients with facial eczema may be willing to try any possible solution.

Self-rated health was low in children using CAM but not in adults. The significance of this can be subject to some bias given that the guardian usually filled in the questionnaires for the child, and the lower self-rated health found in children could indicate that caretakers tend to overestimate the influence of the disease. Self-rated health was not associated with CAM use in the adult group, indicating that having lived with AD longer adults are more likely to have learned how to manage symptoms or cope with disease and flares, without looking for supplementary therapy. Another explanation might be that AD is severer in childhood and declines with age [26].

Our data showed a higher educational level in adult CAM users compared to non-CAM users. Silverberg et al. [12] found a significantly higher frequency of CAM use among American patients with after-high-school education versus lower-than-high-school education, agreeing with our results. Accordingly, a previous study by Madsen et al. [27] found that high maternal income as well as longer parental education was associated with CAM use in Danish children, however not exclusively for AD. This finding is unanticipated since academics would be expected to rely on scientifically based therapy, which is fundamentally the opposite of CAM. It could be speculated that educated people may be more impatient, independent and solution-minded, which could explain CAM use as a response to failure from conventional treatment. Studies involving patients with hand eczema found that higher-educated patients had less knowledge of skin protection measures compared to those with lower education [28]. These studies support that patients with higher education may not comply with health care recommendations.

Although our findings characterize CAM users as well-educated patients with a significant disease burden, reasons for CAM use remain uncertain. The extensive

treatment history in CAM users agrees with the findings by Aguiar Júnior et al. [29], who relate CAM use to lack of efficacy from guideline therapy. Contrarily, Astin [30] primarily related CAM use to personal beliefs and values more than dissatisfaction with conventional medicine. Although an extensive treatment history may be a proxy for disease severity, it may also reflect a personal interest in seeking out new possible therapies.

The strength of our study is a well-defined cohort divided purely on CAM use allowing us to compare between groups, stratified by age. A limitation of the study is that patients were not asked about reasons for CAM use and persistency, duration and effectiveness of CAM use. This limits our options to correlate specific behavior, education and disease characteristics. However, disease severity, disease duration and lack of efficacy from conventional therapy have been shown to be major motivational factors for CAM use, agreeing with our data [2, 18, 20]. More and larger CAM-specific data sets, as used previously for allergic contact dermatitis [10], are warranted to elucidate this issue. Recently it has been suggested that CAM use may change due to the introduction of newer targeted treatments with better results [31], and this should be explored in future studies. The fact that not all patients responded to the questionnaire, and in particular not responded to the questions regarding CAM, may be a possible bias.

The fact that almost one third of AD patients were identified as CAM users illustrates the importance to be aware of CAM, since it is often not outspoken. CAM users can be characterized as patients with an extensive treatment history, severe eczema and longer education. Although reasons for CAM use remain to be further explored, the high prevalence of CAM use may indicate that patients' expectations regarding treatment of AD are not redeemed in the conventional health care system.

Key Message

Patients with severe, difficult to treat atopic dermatitis often use complementary and alternative therapies.

Statement of Ethics

The authors have no ethical conflicts to disclose.

Disclosure Statement

The authors have no conflicts of interest to declare.

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