

Satisfaction with treatment of atopic dermatitis in children

Satysfakcja z leczenia atopowego zapalenia skóry u dzieci

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ABSTRACT

KEY WORDS:

atopic dermatitis,
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SŁOWA KLUCZOWE:

atopowe zapalenie skóry,
satysfakcja z leczenia.

Introduction. Atopic dermatitis is a frequent chronic skin disease in children. The major clinical manifestations include itching and dryness of the skin. The pathomechanism of skin changes results from an interaction of genetic and environmental factors as well as impairments of skin barrier function and immune response. Despite chronic treatment the disease is characterized by exacerbation and remission periods and lowers the quality of life of patients and their families.

Objective. To evaluate treatment satisfaction in children with atopic dermatitis, identify components of medical care which contribute to treatment satisfaction, and evaluate the relationship between satisfaction and adherence to a doctor's recommendations.

Material and methods. One hundred and nineteen children (6 months to 12 years old, mean age 4.9 years) with atopic dermatitis were enrolled in the study. The doctor performed physical examinations and history taking and filled in questionnaires evaluating the course and exacerbation of the disease, the type of administered therapy and diagnostics. The patients' parents completed two questionnaires: a questionnaire assessing satisfaction with the therapy (the type of recommended therapy, adherence to recommendations, contact with the doctor, obtained information, degree of psychological support, role of parents in taking decisions regarding the therapy) and a quality of life questionnaire.

Results. The authors observed that 56% of parents were dissatisfied with the administered treatment, and 40% failed to adhere to at least one therapeutic recommendation. Parents of children with mild atopic dermatitis significantly more often stop using emollients. It was also observed that lack of treatment satisfaction in children with severe atopic dermatitis whose parents are insufficiently educated contributes to decreased adherence. The authors identified independent factors of lack of treatment satisfaction: failure to obtain enough psychological support (OR = 20.00), failure to obtain reliable information on the disease (OR = 5.91), failure to actively get engaged in the treatment procedure (OR = 5.31), dissatisfaction with the contact with the doctor (OR = 4.9), dissatisfaction with the diagnostics (OR = 4.93) and severe course of the disease (OR = 2.82).

Conclusions. Elimination of risk factors of dissatisfaction with the treatment might potentially improve the adherence to chronic treatment in atopic dermatitis.

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STRESZCZENIE

Wprowadzenie. Atopowe zapalenie skóry (AZS) jest częstą przewlekłą chorobą skóry u dzieci. Głównymi objawami klinicznymi są suchość skóry i świąd. Patomechanizm zmian skórnych jest wynikiem interakcji między czynnikami genetycznymi, środowiskowymi, zaburzeniami funkcjonowania bariery skórnej a odpowiedzią immunologiczną. Pomimo stosowania przewlekłego leczenia choroba przebiega z okresami zaostrzeń i remisji, obniża jakość życia pacjentów i ich rodzin.

Cel pracy. Próba zdefiniowania składowych opieki medycznej, które mają wpływ na uzyskanie satysfakcji z leczenia oraz określenie zależności między zadowoleniem z leczenia a przestrzeganiem zaleceń lekarskich. Ocena zadowolenia ze stosowanego dotychczas leczenia AZS u dzieci.

Materiał i metodyka. W badaniu wzięło udział 119 dzieci w wieku od 6 miesięcy do 12 lat (średnia wieku – 4,9 roku) chorych na AZS. Lekarze przeprowadzali badanie podmiotowe, przedmiotowe oraz wypełniali kwestionariusz dotyczący przebiegu i nasilenia choroby, rodzaju stosowanej terapii oraz diagnostyki. Rodzice wypełniali 2 kwestionariusze dotyczące satysfakcji z leczenia (rodzaj zalecanej terapii, przestrzeganie zaleceń, kontakt z lekarzem, uzyskane informacje, stopień wsparcia psychologicznego, udział rodziców w podejmowaniu decyzji terapeutycznych) oraz kwestionariusz oceny jakości życia.

Wyniki. Stwierdzono, że 56% rodziców było niezadowolonych ze stosowanego leczenia, a 40% nie przestrzegało przynajmniej jednego z zaleceń terapeutycznych. Rodzice dzieci z lekkim przebiegiem choroby znamiennie częściej rezygnowali ze stosowania emolientów. Niezadowolenie z leczenia w grupie dzieci o ciężkim przebiegu AZS i niedostatecznej edukacji rodziców determinuje pogorszenie przestrzegania zaleceń lekarskich. Zidentyfikowano niezależne czynniki ryzyka niezadowolenia z leczenia, takie jak: nieudzielenie dostatecznego wsparcia psychologicznego (OR = 20,00), nieuzyskanie dostatecznych informacji dotyczących choroby (OR = 5,91), niedostateczne uczestniczenie w procesie leczenia (OR = 5,31), niezadowolenie z kontaktu z lekarzem (OR = 4,9), niezadowolenie z przeprowadzonej diagnostyki (OR = 4,93) oraz ciężki przebieg choroby (OR = 2,82).

Wnioski. Redukcja czynników ryzyka niezadowolenia z leczenia umożliwia poprawę stosowania się do zaleceń lekarskich w przewlekłej terapii AZS u dzieci.

INTRODUCTION

Atopic dermatitis (AD) is a chronic inflammatory diseases of the skin, accompanied by pruritus. It is often observed in children and adults living in industrialized countries. Forty-five percent of children develop AD within the first 6 months of life, 60% within the first year of life and 85% before the age of 5 [1]. The pathomechanism of skin changes results from an interaction between genetic and environmental factors as well as impairments of the skin barrier function and immune response [1].

In all patients with AD, irrespective of age, the most prominent clinical symptom is generalized dryness of the skin, which is a result of increased

transepidermal water loss and disturbances of lipid metabolism. The damage to the skin barrier makes irritating and allergenic substances penetrate easily. A complex cellular and humoral immune response leads to inflammation. In some patients food or inhaled allergens are significant elements in the pathomechanism of the disease. Atopic dermatitis patients require chronic care of the skin and periodic anti-inflammatory treatment, and they should avoid factors provoking exacerbations of symptoms. Despite chronic treatment, the disease is characterized by exacerbation and remission periods and lowers the quality of life of patients and their families.

Professional studies on AD, psoriasis and other chronic dermatological diseases in adults indicate

that making a patient satisfied with treatment is a complicated process. The most important element contributing to this satisfaction is effectiveness of the administered therapy, which should be accompanied by good contact with medical personnel, active participation of the patient in taking therapeutic decisions, his/her sufficient knowledge of the disease, skin care methods and potential adverse effects of administered medication [2–13]. Studies of adult psoriasis patients confirm that there is a significant correlation between treatment satisfaction and satisfaction with life in general [14, 15], self-perception and perception of the world [15], and the role of emotions in the way of the patient's acting and thinking [16]. Fulfillment of patients' preferences regarding the management of psoriasis improves their satisfaction with the therapy [14, 16]. Both these factors correlate with improved adherence to medical recommendations, which is a key element in the care of chronic dermatological diseases [17]. Studies carried out on patients with psoriasis confirmed that the application of therapy, significant decrease of disease exacerbations and improved quality of life do not always contribute to improved satisfaction with treatment. Improved satisfaction is not always associated with clinical improvement. The increase of treatment satisfaction might result from improvement of the course of the disease and fulfillment of other expectations of the patient [3, 18–20].

Studies conducted on satisfaction with treatment in adult patients affected by chronic skin diseases demonstrated that their improved satisfaction leads to improved adherence and improved effectiveness of the treatment [10, 21]. Similar results were obtained in the CONDA-SAT study conducted on children with moderate and severe AD [22].

Satisfaction with treatment is regarded as an important indicator of good quality health care. Identification of factors which make the patient feel satisfied with the applied therapy may improve medical care in the management of AD in children.

OBJECTIVE

The aim of the study was to evaluate satisfaction of children and their families with complex treatment of AD. The study attempted to identify major components of medical care which increase treatment satisfaction and to evaluate the association between treatment satisfaction and adherence to the doctor's recommendations.

MATERIAL AND METHODS

One hundred and nineteen children, aged 6 months to 12 years (mean age: 4.9 years), with AD diagnosed with the application of Hanifin and Rajka criteria,

were enrolled in the study [23]. Each patient's parents gave written consent for their child to be enrolled. Detailed characteristics of all eligible patients are shown in Table 1. Doctors completed Questionnaire No. 1 evaluating the course and exacerbation of the disease, the type of recommended therapy (emollients, glucocorticosteroids, calcineurin inhibitors, antihistamines and elimination diet) and diagnostics. To estimate total consumption of skin care products, mainly for economic reasons, we distinguished emollients (trade products) and magistral preparations (ointments and creams prepared in the pharmacy). The Rajka and Langeland score was used to evaluate exacerbations of skin changes [24].

The patients' parents filled in two questionnaires: Questionnaire No. 2 regarded satisfaction with the implemented therapy: the type of recommended therapy, adherence to recommendations, contact with the doctor, obtained information on the disease and methods of skin care, degree of psychological support, and role of parents in taking decisions regarding the therapy; Questionnaire No. 3 evaluated the quality of life of children with AD. Since the Polish version of the English version of the Infants' Dermatitis Quality of Life Index [25] was unavailable, we prepared our own questionnaire. It allowed us to

Table 1. Basic characteristics ($N = 119$)

Tabela 1. Charakterystyka podstawowa ($N = 119$)

Parameter	Result
Age, mean (SD) [years]	4.9 (3.5)
Male gender	62 (52.1)
Weight, mean (SD) [kg]	20.9 (12.5)
Height, mean (SD) [cm]	109.7 (25.3)
Duration, median (quartile range) [years]	3 (1.5–6)
Rajka score, median (quartile range) [points]	5 (4–6)
Diagnostics, n (%):	
Skin prick tests	60 (50.4)
slgE	66 (55.5)
Patch skin tests	9 (7.6)
Giving up allergy diagnostics	22 (18.5)
Treatment, n (%):	
Emollients	114 (95.8)
Magistral drugs	77 (64.7)
Topical glucocorticosteroids	91 (76.5)
Calcineurin inhibitors	62 (52.1)
Antihistamines	77 (64.7)
Diet	66 (55.5)

make a quantitative evaluation of parameters which are key for the quality of life of children with AD and present them on a VAS scale.

The authors analyzed psychometric parameters of the questionnaire regarding the quality of life. They did not observe a ceiling-basement effect. They estimated the Cronbach's α coefficient, which confirmed coherence of the set of scales and thus the reliability of the quality of life questionnaire. Both the above observations allowed us to apply the questionnaire in further analyses.

Statistical analysis

Fisher's exact test and the χ^2 test were used for categorical variables, and the Mann-Whitney test was used for continuous variables.

The associations between dependent, dichotomous variables and groups of independent variables were analyzed using logistic regression. First, logistic regression was used to assess the relationship between dependent variables and each independent variable in a univariate model. A stepwise forward procedure was then used to select variables. Predictors with p levels of at least 0.1 estimated in univariate models were included in multivariate regression analyses. All statistical analyses were performed using Statistica 8.0. The null hypothesis was rejected if $p < 0.05$.

RESULTS

It was confirmed that 56% of the studied patients are dissatisfied with the implemented therapy, 35% do not consider the therapy optimal, and 42% are not satisfied with the obtained information regarding atopic dermatitis-related disorders and skin care methods. Forty-eight (40%) parents of enrolled children admit to discontinuing at least one treatment recommendation made by the doctor in charge (Table 2). This non-adherence referred to magistral preparations and topical glucocorticosteroids, whereas antihistamines were administered in 19.3% of children although they had not been recommended (Table 2). The authors observed that the willful decision on giving up the recommended therapy depended on exacerbations of disease. Parents of children with mild AD (Rajka score ≤ 4 points) significantly more often admitted stopping the recommended therapy (Table 2). The authors analyzed this observation in particular groups of administered drugs and noted statistical significance only for emollients (Table 2).

It was observed that in children with AD, whose parents had been sufficiently informed (they claimed to be satisfied with the obtained information regarding atopic dermatitis-related disorders and skin care

methods), the parents' lack of treatment satisfaction was not associated with worse adherence; patients with mild AD stopped adhering to medical recommendations significantly more frequently (Table 3). Patients who had not been sufficiently informed about the disease and were dissatisfied with the therapy appeared to fail to adhere to medical guidelines significantly more frequently; adherence did not depend on the degree of disease severity (Table 3). These observations confirm the results of the interactions in logistic regression analysis. In the group of patients satisfied with the obtained information on the disease, its severe course (Rajka score > 4) decreased the risk of neglecting recommendations (OR = 0.29; 95% CI: 0.11–0.79; $p = 0.0154$). In the group of patients not fully satisfied with the obtained information on the disease, lack of satisfaction with the therapy increased the risk of non-adherence to the doctor's guidelines, irrespective of the degree of disease severity (OR = 10.0; 95% CI: 1.2–86.0; $p = 0.036$).

The authors identified independent risk factors of dissatisfaction with treatment of AD in children. Patients with moderate and severe AD (OR = 2.82) rather than patients with mild AD demonstrate a higher risk of dissatisfaction with treatment. Other factors which significantly contribute to treatment dissatisfaction refer to inadequate psychological support, i.e. receiving little support (OR = 7.89), receiving insufficient support (OR = 20.00) and failure to receive any support (OR = 12.5), failure to obtain information regarding atopic dermatitis-related disorders and skin care methods (OR = 5.91), failure to fully participate in the therapy (OR = 5.31), dissatisfaction with the contact with the doctor (OR = 4.9) and lack of satisfaction with diagnostic tests (OR = 4.93) (Table 4).

An analysis of the group of children with mild AD (Rajka and Langeland score ≤ 4 points) indicates that the increased risk of dissatisfaction results from not receiving sufficient information on atopic dermatitis-related disorders and skin care methods (OR = 10.33), cessation of diagnostics (OR = 7.2) and unsatisfactory contact with the doctor (OR = 6.67).

In the group of patients with moderate/severe AD (number of points in the Rajka and Langeland score: 4.5–9) the factors that most increase the risk of dissatisfaction with treatment include: not full engagement in the treatment (OR = 24.67), failure to obtain sufficient psychological support (OR = 18.00), failure to obtain sufficient information on atopic dermatitis-related disorders and skin care methods (OR = 4.89) and unsatisfactory contact with the doctor (OR = 4.10).

Exacerbations of symptoms of AD and increase of the Rajka score affected the quality of life of patients. The authors did not observe significant correlations between the quality of life and the degree

Table 2. Associations between adherence to medical recommendations and exacerbation of symptoms according to the Rajka score
Tabela 2. Analiza zależności pomiędzy przestrzeganiem zaleceń a nasileniem dolegliwości w skali Rajki

Variable	Total		Rajka score ≤ 4		Rajka score > 4		P-value
	n	%	n	%	n	%	
Emollients:							
Adherent to recommendations	108	90.8	44	84.6	64	95.5	0.043
Non-adherent to recommendations:	11	9.2	–	–	–	–	
Lack of treatment despite recommendations	11	9.2	8	15.4	3	4.5	
Treatment despite lack of recommendations	0	0	–	–	–	–	
Magistral preparations:							
Adherent to recommendations	98	82.4	42	80.8	59	88.1	0.199
Non-adherent to recommendations:	21	17.6	–	–	–	–	
Lack of treatment despite recommendations	18	15.1	10	19.2	8	11.9	
Treatment despite lack of recommendations	3	2.5	–	–	–	–	
Topical corticosteroids:							
Adherent to recommendations	99	83.2	43	82.7	59	88.1	0.284
Non-adherent to recommendations:	20	16.8	–	–	–	–	
Lack of treatment despite recommendations	17	14.3	9	17.3	8	11.9	
Treatment despite lack of recommendations	3	2.5	–	–	–	–	
Calcineurin inhibitors:							
Adherent to recommendations	109	91.6	48	92.3	64	95.5	0.361
Non-adherent to recommendations:	10	8.4	–	–	–	–	
Lack of treatment despite recommendations	7	5.9	4	7.7	3	4.5	
Treatment despite lack of recommendations	3	2.5	–	–	–	–	
Antihistamines:							
Adherent to recommendations	96	80.7	47	90.4	64	95.5	0.229
Non-adherent to recommendations:	23	19.3	–	–	–	–	
Lack of treatment despite recommendations	8	6.7	5	9.6	3	4.5	
Treatment despite lack of recommendations	15	12.6	–	–	–	–	
Diet:							
Adherent to recommendations	99	83.2	45	86.5	62	92.5	0.220
Non-adherent to recommendations:	20	16.8	–	–	–	–	
Lack of treatment despite recommendations	12	10.1	7	13.5	5	7.5	
Treatment despite lack of recommendations	8	6.7	–	–	–	–	
Total:							
Adherent to recommendations	71	60	26	50.0	45	67.2	0.044
Non-adherent to recommendations	48	40	26	50.0	22	32.8	

– not analyzed due to insufficient number of observations.

Table 3. Correlation between adherence to recommendations and satisfaction with treatment, severity of symptoms in the Rajka score and quality of life in patients with sufficient (sufficient education – P1) and insufficient (insufficient education – P2) satisfaction with obtained information regarding atopic dermatitis-related disorders and skin care methods. The authors compared patients treated according to recommendations and patients treated not according to recommendations, depending on P1 and P2 and irrespective of (P3) the degree of satisfaction with obtained information regarding the disease

Tabela 3. Analiza zależności pomiędzy przestrzeganiem zaleceń a satysfakcją z leczenia, nasileniem dolegliwości w skali Rajki oraz jakością życia u pacjentów deklarujących wystarczającą (wystarczająca edukacja – P1) i niewystarczającą (niewystarczająca edukacja – P2) zadowolenie z uzyskanych informacji dotyczących istoty zaburzeń w AZS oraz sposobu pielęgnacji skóry. Dokonano porównań pomiędzy pacjentami leczonymi zgodnie z zaleceniami oraz pacjentami leczonymi niezgodnie z zaleceniami w zależności (P1 i P2) oraz niezależnie (P3) od stopnia zadowolenia z uzyskanych informacji o chorobie

Variable	Sufficient education (i)						Insufficient education (ii)						Total					
	Treatment according to recommendations			Treatment not according to recommendations			Treatment according to recommendations			Treatment not according to recommendations			Treatment according to recommendations			Treatment not according to recommendations		
	n	%		n	%		n	%		n	%		n	%		n	%	
Satisfaction with treatment	22	53.7	20	71.4	9	30.0	1	5.0	31	43.7	21	43.8	0.1375	0.0304	0.9924			
Lack of satisfaction with treatment	19	46.3	8	28.6	21	70.0	19	95.0	40	56.3	27	56.3						
Mild atopic dermatitis	14	34.1	18	64.3	12	40.0	8	40.0	26	36.6	26	54.2	0.0137	1.0000	0.0583			
Moderate/severe atopic dermatitis	27	65.9	10	35.7	18	60.0	12	60.0	45	63.4	22	45.8						
Higher quality of life (QL < medians)	26	63.4	22	78.6	13	44.8	10	50.0	39	55.7	32	66.7	0.1791	0.7214	0.2325			
Worse quality of life (QL > medians)	15	36.6	6	21.4	16	55.2	10	50.0	31	44.3	16	33.3						

Are you satisfied with the information regarding atopic dermatitis-related disorders and skin care methods for your child? i) very satisfied, ii) not fully satisfied (dissatisfied).

of adherence to the doctor’s recommendations (data not shown).

Quantitative evaluation of the amount of applied emollients in the group of patients with mild AD who were not satisfied with the recommended therapy indicates that the amount of used emollients was significantly smaller (Fig. 1).

DISCUSSION

Satisfaction with treatment is an important indicator of good quality health care [4, 26, 27]. Improved treatment satisfaction of patients with chronic skin diseases contributes to better adherence to medical recommendations and improves the effectiveness of the therapy [10, 21]. Medical adherence is the willingness and ability of the patient to follow recommended therapy and attend medical appointments when scheduled [28]. According to Lee and Maibach, the term non-adherence, also called non-compliance, refers to a failure to follow recommendations, application of wrong doses, making wrong breaks in the administration of a drug, improper dosage of a drug, missing doses and premature termination of the therapy [29]. Non-adherence is the main reason why treatment of chronic skin diseases is unsuccessful [30–33]. Patients more often prematurely terminate topical rather than systemic therapy [33, 34]. Low adherence/compliance worsens the course of the disease and increases the cost of health care [30].

Poor adherence is a serious problem in treating AD in children. American studies with the application of electronic monitoring showed that in this group of patients the mean adherence rate for treatment with topical drugs, noted in an 8-week observation period, was very low (32%) [35]. In available databases the authors did not find studies on risk factors of treatment dissatisfaction in children with AD. Studies conducted on adult populations confirmed that independent determining factors for satisfaction with treatment of AD include professional competence of medical personnel, their sensitivity towards patients and severity of the disease [11].

An analysis of the conducted studies allowed the identification of independent factors which cause the increased risk of treatment dissatisfaction of parents/guardians of children with AD. The factors include a failure to give sufficient psychological support, failure to give sufficient information on atopic dermatitis-related disorders and skin care methods (insufficient knowledge), not full engagement in the treatment process, dissatisfaction with the contact with the doctor, lack of satisfaction with diagnostic tests, and a severe course of AD. It seems surprising, but moderate and severe course of AD contributes

Table 4. Risk factors of lower satisfaction with treatment of atopic dermatitis in the single-factor logistic regression model**Tabela 4.** Ocena czynników ryzyka mniejszego zadowolenia z leczenia AZS w modelu jednoczynnikowym regresji logistycznej

Independent variables	OR ^a	95% CI		P-value
Moderate/severe atopic dermatitis vs. mild atopic dermatitis	2.82	1.03	7.72	0.0440
Age (continuous variable)	0.99	0.86	1.12	0.8371
Being male	1.37	0.55	3.39	0.4949
Disease duration	0.91	0.78	1.06	0.2265
Diagnostics:				
Skin prick tests	0.88	0.26	2.92	0.8326
slgE	0.89	0.26	3.07	0.8534
Patch skin tests	0.52	0.06	4.45	0.5465
Giving up allergy diagnostics	1.34	0.24	7.51	0.7429
Prescribed drugs:				
Emollients	1.44	0.28	7.28	0.6591
Magistral preparations	0.92	0.35	2.43	0.8627
Topical corticosteroids	0.73	0.27	1.96	0.5347
Calcineurin inhibitors	0.87	0.33	2.30	0.7835
Antihistamines	1.16	0.39	3.40	0.7932
Diet	1.25	0.45	3.48	0.6662
Lack of treatment despite recommendations:				
Emollients	0.36	0.04	2.99	0.3416
Magistral preparations	0.42	0.08	2.32	0.3189
Topical corticosteroids	1.20	0.28	5.14	0.8055
Calcineurin inhibitors	0.75	0.08	6.98	0.7997
Antihistamines	0.91	0.08	10.23	0.9394
Diet	0.27	0.03	2.26	0.2274
Question 1: I was partly engaged vs. actively engaged	5.31	2.03	13.88	0.0007
Question 2: I would like to engage partly vs. engage actively	0.45	0.10	2.10	0.3092
Question 3: No vs. yes	41.25	8.94	190.36	< 0.0001
Question 4: Partly satisfied/dissatisfied vs. very dissatisfied	5.91	2.14	16.33	0.0006
Question 5: Partly satisfied/dissatisfied vs. very dissatisfied	4.90	1.83	13.08	0.0015
Question 6: Partly satisfied/dissatisfied vs. very dissatisfied	4.93	1.91	12.71	0.0010
Question 7: Obtained sufficient support:	ref			
Obtained little support	7.89	1.46	42.58	0.0163
Did not obtain sufficient support	20.00	3.68	108.58	0.0005
Did not obtain any support	12.50	2.40	65.00	0.0027
Question 8: Need support:	ref			
Do need much support	0.31	0.08	1.22	0.0943
Do not need any support	0.40	0.14	1.16	0.0920

P1: Did you participate in taking the decision regarding the therapy for your child? P2: Would you like to participate in taking the decision regarding the type of treatment of atopic dermatitis administered to your child? P3: Do you find the administered treatment optimal? P4: Are you satisfied with the information regarding atopic dermatitis-related disorders and skin care methods? P5: Are you satisfied with the contact with the doctor? P6: Are you satisfied with the diagnostic tests or the doctor's decision to cease diagnostics? P7: Did you obtain proper psychological support from medical personnel with regard to the skin disease your child is affected by? P8: Do you need psychological support with regard to the skin disease your child is affected by? Ref – referential category. ^aDependent variable: The patient states that he/she is fully satisfied/partially satisfied vs. partially satisfied/unsatisfied.

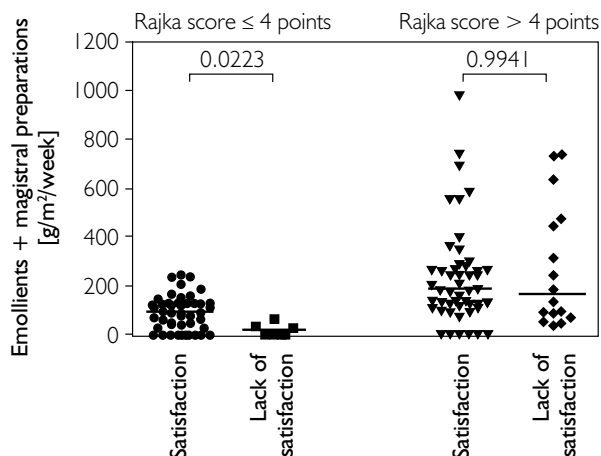


Figure 1. Amount of administered emollients and magistral preparations ($\text{g}/\text{m}^2/\text{week}$) depending on the degree of disease severity and satisfaction with treatment

Rycina 1. Zużycie emolientów oraz leków recepturowych ($\text{g}/\text{m}^2/\text{tydzień}$) w zależności od ciężkości przebiegu choroby oraz od stopnia zadowolenia z leczenia

to a three-fold increase in risk of dissatisfaction, and the other factors increase that risk five up to twenty times.

Causes of treatment dissatisfaction presented in the study are similar to causes of decreased adherence/compliance in AD and psoriasis observed in other studies on this problem. A therapeutic intervention, i.e. providing parents with more information on atopic dermatitis-related disorders and skin care methods (Therapeutic Patient Education – TPE), results in an increase in adherence, decrease of SCORAD, better quality of life [36–39] and higher satisfaction with treatment [12]. Improved doctor-parent interaction increases adherence, effectiveness of the therapy and treatment satisfaction of AD [21, 40]. A good relationship between the doctor, the child and his/her parents increases adherence. It allows one to create therapy tailored for a particular patient and parents but also reduces the number of potential adverse effects [41, 42] and facilitates identification of problems related to chronic AD and solving them [42, 43]. A meta-analysis of studies on adherence to the treatment of AD showed that a good doctor-patient relationship is the most important factor determining high adherence and satisfaction with the therapy [10]. Professional literature on active involvement of patients in making therapeutic decisions (shared decision-making – SDM), containing information on therapeutic preferences of the patient and chosen treatment method, demonstrated that the SDM pattern, repeatable during subsequent appointments, is an effective method for a long-term increase in the satisfaction with treatment in patients with a chronic disease and allows them to adhere to medical recommendations [13].

An analysis of the information given in the questionnaires indicates that 50% of parents of children affected by mild AD admit that they fail to adhere to at least one of the given therapeutic recommendations and in the group of children with moderate/severe AD the percentage is 32.8%. In most cases parents, without consultation with the doctor, stop using topical glucocorticosteroids and emollients. The authors observed that parents of children with mild AD more often willfully discontinued the recommended therapy; the observation was statistically significant only for emollients. The authors did not confirm that discontinuation of administration of emollients, magistral preparations, topical glucocorticosteroids, calcineurin inhibitors, recommended diet or antihistamines was a risk factor of dissatisfaction with treatment.

The analysis of the relationship between treatment satisfaction and the administration of emollients and magistral preparations, with special consideration given to the amount of the applied drug, showed that satisfied parents of children with mild AD administered proper doses of emollients more frequently (above $200 \text{ g}/\text{week}$, which means they apply the drug at least twice a day). The authors observed statistical significance between the adherence to emollient therapy and satisfaction with it only in children with mild AD. In the group of children with severe AD adherence depends on disease exacerbations. A relationship between satisfaction with the treatment and the quality of life was not observed. The professional literature contains one publication (CONDA-SAT study) on a relationship between satisfaction with treatment, adherence and quality of life in children with moderate and severe AD. The authors of the study confirmed that patients who were highly satisfied with the treatment adhered to recommended therapy more willingly and symptoms of the disease abated [22].

The assessments of the treatment satisfaction of parents/guardians of children with AD should be included in medical practice because treatment satisfaction is a significant factor which contributes to long-lasting continuation of therapy based on evidence-based medicine (EBM) and thus decreases the probability of implementing an alternative therapy [44].

CONCLUSIONS

An evaluation of satisfaction with treatment of AD in children is a simple tool which allows a doctor to draw initial conclusions regarding adherence to the recommended therapy. Higher treatment satisfaction in children with mild AD is a significant factor which contributes to long-lasting continuation of the emollient therapy. Insufficiently educated parents

more often report lack of satisfaction with treatment; they rarely adhere to medical recommendations in severe AD. Unsatisfactory psychological support, insufficient disease education and lack of parents' active engagement in a therapy more significantly increase dissatisfaction with treatment than disease severity itself.

Conflict of interest

The authors declare no conflict of interest.

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