Is There a Need to Educate Patients with Atopic Dermatitis in Baseline Therapy?

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ABSTRACT

Introduction: The baseline therapy of atopic dermatitis (AD) includes emollient therapy, prevention of triggering factors and proper patients' education. Appropriate level of education about AD among patients is crucial for successful treatment of the disease.

Aims: To compare and evaluate the level of knowledge about baseline therapy in atopic dermatitis (AD) between the adults with AD and the parents of children with AD.

Materials and methods: Adult patients with AD (n=180) and parents of children with AD (n=106) completed an original questionnaire covering issues of emollient therapy and bathing. For statistical comparison a chi – square test was used with significance level of 0,05.

Results: With significance level of 0,05, the chi – square test showed a statistically significant difference comparing both groups. 52,38% adults and 68,73% parents proved to know the principles of basic therapy ($p<0,05$). 55,00% adults and 50,00% parents have not been informed how to apply emollients appropriately ($p>=0,05$). 75,56% and 74,53%, respectively, seek additional education about it ($p>=0,05$). 63,89% adults and 49,06% parents have not been informed about the principles of bathing ($p<0,05$). 70,00% and 74,54%, respectively, expect more comprehensive explanation of bathing rules ($p>=0,05$).

Conclusions: Adults with AD have lesser knowledge about baseline therapy than parents of children with AD. Both groups express a very strong need for education about baseline therapy in AD.

KEY WORDS: atopic dermatitis, emollients, education

INTRODUCTION

Atopic dermatitis (AD), also known as atopic eczema, is a chronic skin disorder associated mainly with skin inflammation and severe pruritus (1,2). AD is much more prevalent among children (15-30%) than adults (2-10 %) (3). Emollient therapy is the first line treatment and, together with appropriate bathing techniques, is the baseline therapy in AD (4). Therefore, it is important to emphasize early patient education in order to increase the effectiveness of therapy and alleviate the course of AD. The aim of this study was to show and compare education levels on baseline therapy between adult patients and parents of children with AD.

Aims

Bearing in mind that baseline therapy is fundamental for successful treatment of AD, we aimed to assess the level of baseline education among patients (adults and caregivers of children with AD).

PATIENTS AND METHODS

A total of 286 questionnaires were completed by study participants, 180 among adults with AD and 106 among parents of children with AD. Among the adults, 84.44% (n=152) were women, and the age range was 17-46 years of age. The questionnaires were collected from patients treated for AD at the

Department of Dermatology, Venereology and Allergology in Gdansk as well as via the Internet in a forum for AD societies. To minimize the risk of answers given by random Internet users, the survey was published only on this particular forum, in agreement with the administration of the forum.

The questionnaire was identical for both groups and consisted of 20 thoroughly written questions

Table 1. Emollient therapy questionnaire – questions used in the assessment and the answers given by respondents

	Possible answers	Adults' answers *N* (%)	Caregivers' answers *N* (%)
Frequency of emollient therapy per day			
	1-2	91 (51)	53 (50)
	2-3	34 (19)	25 (24)
	3-4	12 (7)	15 (14)
	4-5	12 (7)	9 (8)
	unable to answer	31 (17)	4 (4)
Time elapsed between the end of bathing and applying emollients			
	Immediately after the bath	118 (66)	88 (83)
	After 5 minutes	34 (19)	13 (12)
	After 10 minutes	15 (8)	3 (3)
	After 15 minutes	6 (3)	1 (1)
	After 20 minutes	7 (4)	1 (1)
Amount of emollients used per week			
	50-100 grams	49 (27)	32 (30)
	100-250 grams	58 (32)	29 (27)
	250-500 grams	19 (11)	11 (10)
	more than 500 grams	1 (1)	4 (4)
	unable to answer	53 (29)	30 (28)
The way of applying emollients on skin			
	evenly on the whole skin	105 (58)	90 (85)
	topically on the inflamed areas only	75 (42)	16 (15)
Awareness of wet-wrap therapy			
	yes	116 (64)	87 (82)
	no	64 (36)	19 (18)
Source of information about emollient therapy			
	a medical doctor	119 (66)	80 (75)
	the Internet	48 (27)	20 (19)
	another patient	1 (1)	3 (3)
	others than above	12 (7)	3 (3)
Informing the patient by a medical doctor about the crucial role of emollient therapy in the treatment of AD			
	yes	141 (78)	87 (82)
	no	39 (22)	19 (18)
Informing the patient by a medical doctor on how to apply emollients properly			
	yes	81 (45)	53 (50)
	no	99 (55)	53 (50)
Need for extra support from medical staff in matters of emollient therapy			
	yes	136 (76)	79 (75)
	no	44 (24)	27 (25)

divided into 2 sections. Section 1 comprised 9 questions related to emollient therapy, and section 2 with 11 inquiries addressed bathing. Every question in the survey was a single-choice type, and only the questionnaires with all answers provided were taken into account. To perform a statistical comparison between the two groups, 14 questions which covered treatment aspects highlighted in guidelines having strong evidence supporting them were analyzed. The correct answers were selected according to the newest guidelines released by the European Academy of Dermatology and Venerology and the Polish Dermatological Society (4,5). The chi-square test was used for statistical comparison, and the significance level was set at 0.05. The remaining 6 inquiries examined the educational needs of patients, their level of satisfaction with the help provided by medical doctors, as well as their sources of information about AD treatment.

The study was approved by the Independent Bioethics Committee for Scientific Research at the Medical University of Gdansk.

Table 1 and Table 2 show both the questionnaire with the questions used in assessment and the answers given by respondents.

RESULTS

Emollient section

32.22% of adults and 46.27% of parents of children with AD were aware of the correct frequency of emollient therapy per day ($P<0.05$). We found that 65.56% adults and 83.02% caregivers knew when to apply emollients after taking a bath ($P<0.05$). The correct amount of emollients used per week was known by 10.56% of adults and 30.19% of parents ($P<0.05$). The metod of applying emollients on skin was appropriately perceived by 58.34% of adults and 84.91% of parents ($P<0.05$). 64.44% of adults and 82.08% of parents knew that they could benefit from wet-wrap therapy ($P<0.05$). Among both groups, the main source of information about emollient therapy was a medical doctor ($P<0.05$). 78.33% of adults and 82.08% of parents were informed about the crucial role of emollients in AD therapy ($P\geq0.05$). However, only 45.00% and 50.00%, respectively, had been told by a medical doctor how to apply emollients properly ($P\geq0.05$). Thus, 75.56% of adults with AD and 74.53% of parents of children affected by AD still expressed the need for extra support from medical staff with respect to emollient therapy ($P\geq0.05$).

Bathing section

17.67% of adults with AD and 30.19% of parents of children with AD knew what the temperature of water during bathing should be ($P<0.05$). Approximately 15% of adults and 27.36% of parents were aware of the appropriate duration of bathing ($P<0.05$). 72.22% of adults and 92.45% of caregivers used dedicated washing agents for atopic skin ($P<0.05$). Regular soaps and their detrimental effect on skin condition were known by 80.00% of adults and 93.40% of parents ($P<0.05$). 74.44% of adults and 86.79% of parents reported not using either sponges or brushes when bathing ($P<0.05$). Towels made of soft materials were chosen for everyday care by 58.89% of adults and 88.68% of parents ($P<0.05$). 82.22% of adults and 100.00% parents appropriately dried the skin with gentle towel rubbing ($P<0.05$). The harmful effect on the skin barrier caused by SLS (sodium lauryl sulphate) found in many washing agents was known by 69.44% of adults and 65.09% of parents ($P\geq0.05$). Adding extra agents when bathing (such as sodium hypochlorite) was practiced by 33.89% of adults and 51.89% of parents ($P<0.05$). 63.89% of adults and 49.06% of parents had not been informed about the principles of bathing ($P<0.05$). 70.00% of adults and 74,54% of parents expected a more comprehensive explanation of bathing rules from medical staff ($P\geq0.05$).

In total, only 52.38% of adults and 68.73% of parents were found to know the principles of basic therapy ($P<0.05$).

DISCUSSION

The role of therapeutic education has been widely discussed, and it has proven to be successful for many dermatological skin disorders, including AD, as well as in multiple non-dermatological diseases (6,7). It is clear that the terms "emollient therapy" or "bathing principles" are immensely broad and cover many aspects which can be difficult to follow and implement in everyday life. However, examining the most relevant assumptions of baseline therapy in AD, we found that patients with AD were not aware of all the basic principles of emollient therapy and bathing. When comparing the group of adults with AD with the group of parents whose children were affected by AD, it was the parents who showed higher awareness of baseline therapy for AD. For all but one question assessing the awareness, the parents demonstrated better knowledge. The reason for this may stem from AD being one of the skin diseases with the greatest influence on a child's quality of life (8). As Lawson et al. showed, children with AD have lower quality of life in their families, with a positive relationship between the severity of symptoms and the severity of the deterioration (9). Moreover, AD may disrupt the social life of families in multiple ways, which explains the increased focus placed on children by their

Table 2. Bathing questionnaire – questions used in the assessment and the answers given by respondents

	Possible answers	Adults' answers *N* (%)	Caregivers' answers *N* (%)
The temperature of the bath			
	10-20 °C	6 (3)	3 (3)
	21-30 °C	30 (17)	32 (30)
	31-40 °C	64 (35)	44 (42)
	41-50 °C	8 (4)	22 (21)
	the temperature is not measured	72 (40)	5 (5)
Duration of the bath			
	Less than 5 minutes	27 (15)	29 (27)
	5-10 minutes	101 (56)	65 (61)
	15-20 minutes	42 (23)	8 (8)
	25-30 minutes	8 (4)	2 (2)
	the time is not measured	2 (1)	2 (2)
Using dedicated washing agents for atopic skin			
	yes	130 (72)	98 (92)
	no	50 (28)	8 (8)
Using regular soap			
	yes	36 (20)	7 (7)
	no	144 (80)	99 (93)
Using either a sponge or a brush			
	yes	46 (26)	14 (13)
	no	134 (74)	92 (87)
Awareness of detrimental effect of SLS (sodium lauryl sulfate) on skin condition			
	yes	125 (69)	69 (65)
	no	55 (31)	37 (35)
Using additional agents when bathing (i.e. potassium permanganate, sodium hypochlorite, paraffin wax, olive oil, Dead See minerals, or others)			
	yes	61 (34)	55 (52)
	no	119 (66)	51 (48)
Using soft towels rather than coarse ones			
	yes	106 (59)	94 (89)
	no	74 (41)	12 (11)
Rubbing with the towels gently rather than firmly			
	yes	148 (82)	106 (100)
	no	32 (18)	0 (0)
Informing the patient by a medical doctor on how to take baths properly			
	yes	65 (36)	54 (51)
	no	115 (64)	52 (49)
Need for extra support from medical staff in matters of emollient therapy			
	yes	126 (70)	79 (75)
	no	54 (30)	27 (25)

caregivers in this case (9). However, AD causes enormous difficulties for adults as well – sleep deprivation, the financial costs of treatment (emollients, medications, diet restrictions, etc.), work absence due to physician appointments, everyday time-consuming therapy, and lack of knowledge represent just a few of them (10). Lack of medical support and, consequently, negative treatment experiences may lead to distrust in physicians and lower the treatment outcomes in many domains, such as the physical, psychological, economic, or social (10,11).

Emollients are recommended as the baseline therapy in AD as well as a basis for the subsequent additional therapeutic options for severe AD (5,6,12). Emollients prevent both exacerbation and relapses of AD (5). The role of the steroid-sparring effects of emollients in infants has been widely assessed and demonstrated by Grimal et al. in a randomized controlled study (13), and their properties of reducing the risk of developing AD in infants in at-risk groups during the first weeks of life was acknowledged by Horimukai et al. (14) and Simpson et al. (15). Emollients are especially recommended for maintaining epidermal function in patients with the mild form of AD from the very first years of their life (16). However, the sole application of emollients regardless of the frequency of use, its consistency, amount, and ingredients or current skin state may not only result in no improvement but may also lead to inflammation and increased risk of bacterial or viral infection (6).

According to the European Task Force Atopic Dermatitis (ETFAD) position paper, the European Dermatology Forum and Polish interdisciplinary diagnostic and therapeutic recommendations for AD, emollients should be applied at least twice per day and immediately after bathing (5,6,12). As the immediate moisturizing effect seemed to be well known by patients, the vast majority used emollients only once per day. Regular application of emollients (at least twice a day) ensures more lipid replenishment and decreased transepidermal water loss (TEWL) in the stratum corneum (SC) for a longer period of time (17). However, a greater challenge for medical doctors has arisen, since almost 90% adults with AD apply either too small or too large amounts of emollients. Combining irregular emollient application with inappropriate amounts used may simply be ineffective. However, applying emollients on areas in the acute inflammatory phase without previous TCS treatment is not only ineffective, but may also lead to the exacerbation of disease (18). According to the present survey, adults had a higher tendency to place emollients on inflamed skin areas than parents of children. Since medical doctors remain the primary source of information about emollient therapy, appointments and meetings with parents should be of utmost importance, providing abundant professional advice and medical support. Physicians should explain that long term therapy with emollients improves xerosis (19), enhances skin hydration (20), helps with epidermal barrier regeneration (21), prolongs eczema-free time (22), and may even prevent infants in at-risk groups from developing AD (14). Another crucial piece of information to share with parents and patients with AD is the decreased number of flares and reduced need for topical corticosteroid (TCS) usage during proper use of emollients and so-called "emollients plus". TCS usage remains a hot topic among patients (13). Patients must be encouraged by medical doctors to regularly use emollients as their effectiveness is clear, leading to a slowdown in the atopic march, and sometimes even terminating it (23,24).

The subject of bathing and influence of water on AD is still debatable, and the guidelines are more variable than in terms of emollient therapy (25). The ETFAD position paper and the Polish interdisciplinary diagnostic and therapeutic recommendations for AD highlight the temperature of the water, duration of bathing, and additional antiseptics to be added (6,12). A temperature of 27-30 °C and a duration of up to a maximum of 5 minutes is practiced by only approximately 25% patients. Although it has been confirmed that sodium hypochlorite significantly reduces *Staphylococcus aureus* colonization on AD skin, alleviates pruritus, especially in infants and children, and reduces the need for TCS, only approximately 42% of patients from the present survey added antiseptics such as sodium hypochlorite to the water (26,27). It is encouraging that the vast majority of subjects enrolled in the present study (86.70%) did not use alkaline soaps in their daily bathing routines, minimizing irritation to the skin (16). The damaging effects of SLS on SC (such as elevated TEWL and increased SC pH) were also recognized by the study subjects (16,28). When discussing the topic of bathing, it is important to focus on the potential mechanical damage that could be inflicted on the skin – caused by excessive rubbing with sponges and brushes during bathing or during subsequent drying with a coarse towel using firm pressure. Lai San Wong et al. reported that repetitive frictional trauma notably increases TEWL, at the same time decreasing the lactate, serine, and natural moisturizing factor (NMF) levels in SC responsible for hydration of the skin (29). According to our results, the prevailing majority of patients with AD do not use sponges or bathing brushes and choose soft towels to dry their skin a gentle way.

Although many position papers and guidelines provide an abundance of crucial information concerning emollient therapy and bathing, some issues still, to the best of our knowledge, require further research. These include, for instance, the frequency of bathing (5,30) or the type of water used for bathing (31,32) that still remain an unanswered question.

The limitations of the present study include the fact that more questionnaires could have been administered, providing more data for analysis and thus making the results more representative. Additionally, most of the data were collected online, there was no oversight on how the respondents filled out the questionnaires, and the respondents were also unable to directly ask questions when answering the questions. During the surveys collected at the Department of Dermatology, Venereology and Allergology, some possible queries were raised by the responders that could have been clarified, which may have influenced the final answers. Lastly, vast majority of responders were women, since there is a tendency for women rather than men to answer questionnaires, especially online. It is possible that if more fathers of the children had taken part in the study the final results would have differ somewhat, presenting a contrasting view on how fathers perceive baseline therapy for AD.

Bearing in the mind patient welfare in all cases and the complexity of baseline therapy, medical doctors should efficiently transfer the knowledge about baseline therapy to patients to help them in the struggle with AD. Comprehensive explanation of the tremendous importance of emollients and appropriate bathing should always be included during medical consultations, as well as providing a comfortable space for patients to ask questions if any arise. Patients should be informed that compliance with baseline therapy recommendations will reduce the number of exacerbations and help maintain a long-lasting remission state.

CONCLUSION

Our study indicates there is an overwhelming need among both adults with AD and among parents of children with AD for additional education with respect to baseline therapy in AD. Despite adults with AD having less knowledge about emollient therapy and bathing than parents of children with AD, both groups should be given more educational support with regard to baseline therapy for AD. By improving both adherence and compliance, we can increase the effectiveness of therapy.

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