

## The Usage of Hypoallergenic Cosmetics in Patients with Atopic Dermatitis

**Jasna Zeljko Penavić, Dubravka Šimić, Ivona Petrušić, Marija Kraljević, Ana Marija Sulić**

Department of Dermatology and Venerology, University Clinical Hospital Mostar, Bosnia and Herzegovina

### Corresponding author:

Assist. Prof. Jasna Zeljko Penavić, MD, PhD  
Department of Dermatology and Venerology  
University Clinical Hospital Mostar  
Kralja Tvrtka bb  
88 000 Mostar  
Bosnia and Herzegovina  
[jasnazeljko58@gmail.com](mailto:jasnazeljko58@gmail.com)

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**ABSTRACT** The aim of this study was to investigate how many patients with atopic dermatitis applied hypoallergenic cosmetics compared with topical corticosteroids. The study included 41 patients with atopic dermatitis (AD) who were treated from June 1 to July 1, 2017 at the Department of Dermatology and Venerology, Clinical Hospital Mostar. According to the data analyzed, 46.34% of patients used hypoallergenic cosmetics while 24.39% used them periodically. 32.7% patients used topical corticosteroids and 17.07 % used them periodically. 19.51 % of the patients with atopic dermatitis used alternative products, while 17.07% used them periodically. Out of the total number of patients, most of the patients used neutral products. 78.05% used neutral cosmetic products, and 19.51 % used them periodically. 65.85 % patients used sunscreens and 24.40 % used them periodically. The majority of patients used neutral cosmetic products and sunscreens. There was no statistically significant difference in the frequency of the use hypoallergenic cosmetics compared with topical corticosteroids ( $\chi^2 = 1.802$ ;  $df = 2$ ;  $P=0.405$ ). Women used sunscreens more often ( $\chi^2 = 16,02$ ;  $df = 1$ ;  $p = <0,05$ ).

**KEY WORDS:** atopic dermatitis, hypoallergenic cosmetics

### INTRODUCTION

Hypoallergenic cosmetics are a special group of cosmetic products in which the formulation of the product and the mode of production reduce the risk of allergic reactions while still achieving full cosmetic effect. Hypoallergenic cosmetics are products that manufacturers claim produce fewer allergic reactions compared with other cosmetic products and they are suitable for people with sensitive skin. These products usually do not have a scent and the formulation is simple without adding unnecessary materials. Hypoallergenic creams contain just a third of ingredients that are usually in standard creams, because more ingredients mean a greater possibility of side-effects (1).

The entire production and control of hypoallergenic cosmetics must follow the standards of the pharmaceutical industry. Each product must have instructions for use and a description of the product together with its composition, date of manufacture, and the expiration date, guaranteeing that the product is safe during its period of application (2).

Atopic dermatitis (AD) is a chronic inflammatory skin disease caused by genetic predisposition (3). It is characterized by itching, dry skin, inflammation, and a typical clinical picture, depending on the patient's age which is often associated with other atopic diseases. Atopic dermatitis is a disease with high prevalence (4). There are two types of AD: the "intrinsic"

type of AD (non-allergic form) that is not associated with other atopic diseases and allergic ("extrinsic") atopic eczema/dermatitis syndrome (AEDS) which is associated with IgE (5).

It is estimated that about 2% of population has AD (6). The last decade has seen an increase in the number of patients with AD in Europe, and it is estimated that the prevalence is 20% (7).

Various environmental factors affect the clinical expression of AD: allergens, irritants, climatic and geographical conditions, bodily constitution, psychological stress, and secondary infections (8).

The clinical presentation varies from mild to severe. Skin changes can be acute and chronic. The lichenification (ashen, brown, or gray patches with flat papules), thickened areas in the ribs, neck, and eyelids, and chronic facial edema are usually seen in the chronic stage of the disease (9). Generally, acute lesions are characterized by intense itching with erythematous papules, followed by excoriations, erosions, and serous exudate. Patients often experience all three stages of skin changes. Itching is also an important factor in the emergence of typical eczema in these patients (10).

Although there is currently no cure for AD, there are different types of interventions which help control symptoms. The treatment consists of proper skin hydration, avoidance of exposure to allergens, using topical anti-inflammatory drugs, antihistamines, and antibiotics. The goal of the treatment is to prevent the formation of dry skin, alleviate itching, prevent complications, and simultaneously apply treatment creams (corticosteroids, antibiotics, immunomodulators, and antihistamines) on changed skin.

Most commonly used medications are local corticosteroids in the form of fat or cream which have anti-inflammatory activity and also alleviate itching (11).

Systemic immunosuppressants are used in resistant forms, local immunomodulators in mild atopic dermatitis, and one of the new forms of treatment involves exposure to ultraviolet (UV) light (12,13).

The aim of this study was to examine how many patients with AD applied hypoallergenic cosmetics compared WITH topical corticosteroids

## MATERIALS AND METHODS

### Study population

The study included 41 patients who were treated from July 1 to June 1 2017, at the Department of Dermatology and Venerology, Clinical Hospital Mostar.

The mean age of all included patients was 36.02 (Standard Deviation (SD) = 20.08). Age is expressed

as mean and standard deviation. The mean age for men was 32.11 (SD=23.83), and for women the mean age was 37.13 (SD=20.15). The youngest male patient was 1 year old and the oldest was 73 years old. The youngest female patient was 8 years old and the oldest female patient was 80 years old.

The age of patients was well-balanced between sexes and there was no statistically significant difference in the age to sex balance (Student's t test  $t = -0.634$ ,  $df=39$ ,  $P=0.53$ ).

Of 41 patients, 9 (22%) were men and 32 (78%) were women. There was a statistically significant difference in patient sex ( $\chi^2=12.902$ ,  $df=1$ ,  $P<0.05$ ).

### Test materials

The data were collected using a questionnaire. It consisted of questions about usage of hypoallergenic emollients and washing products, corticosteroids, and alternative therapy in patients with atopic disease. It was completed by patients while they were on examination at Department of Dermatology and Venerology, Clinical Hospital Mostar.

### Statistical analysis

All data collection was stored in MS Excel 11.0 (Microsoft Corporation, Redmond WA, USA). SPSS 23.0 (SPSS, Chicago, IL, USA) was used on statistical analyses. Frequency distributions and percentages were used to describe categorical variables. Descriptive statistics were used for continuous variables (mean and standard deviation). Chi-square test was used for quantitative analysis.

## RESULTS

The study included 41 patients with atopic dermatitis. Table 1 shows usage of different types of cosmetic products among patients with atopic dermatitis.

46.34% patients used hypoallergenic cosmetics and 24.39% patients who used them periodically. Out of total number of patients, 29.27% did not use hypoallergenic cosmetics at all.

31.70% patients used topical corticosteroids and 17.07% used them periodically. Most of the patients (51.22%) did not use topical corticosteroids at all.

19.51% patients used alternative products and 17.07% patients used them periodically. Most of the patients (63.42%) did not use alternative products at all.

Out of total number of patients, most of the patients used neutral products. 78.05% used neutral cosmetic products and 19.51% used them periodically. Only 2.44% did not use neutral cosmetic products at all.

**Table 1.** Usage of different types of cosmetic products among patients with atopic dermatitis

Type of products	YES (%)	NO (%)	Periodically (%)
Hypoallergenic cosmetics	46.34	29.27	24.39
Topical corticosteroids	31.71	51.22	17.07
Alternative products	19.51	63.42	17.07
Neutral cosmetic products	78.05	2.44	19.51
Sunscreens	65.85	9.75	24.40

65.85% patients used sunscreens and 24.40% used them periodically. 9.75 % patients did not use sunscreens at all.

The majority of patients used neutral cosmetic products and sunscreens.

There was no statistically significant difference in frequency of use of hypoallergenic cosmetics compared with topical corticosteroids ( $\chi^2=1.802$ ;  $df=2$ ;  $P=0.405$ ).

## DISCUSSION

This study included 41 patients with atopic dermatitis. Out of the total number of patients, there were 32 women and 9 men. There was a statistically significant difference between groups according to sex. Additionally, this study showed there was a difference in prevalence of atopic dermatitis according to sex. Other studies also showed higher prevalence of atopic dermatitis among men (7). This study showed higher prevalence of atopic dermatitis among women, but there were more women who participated in the study.

The prevalence of atopic dermatitis has increased by 3-4 times over the last three decades (14). This study was carried out to investigate the frequency of

the use of hypoallergenic cosmetics among people with atopic dermatitis at the Department of Dermatology and Venerology, Clinical Hospital Mostar.

Research has shown that atopic dermatitis occurs at all ages (1-80 years). The mean age of our sample was 36 years. Previous studies showed that atopic dermatitis is common among the young population.

Most of the patients used neutral cosmetic products and sunscreens. A significant number of patients also used hypoallergenic cosmetics. Newer studies showed that continuous use of hypoallergenic cosmetics has anti-inflammatory and anti-irritative effects on the skin, prevents adhesion of *Staphylococcus aureus*, regenerates hydrolipid film, and alleviates dryness of the skin and itching. Usage of hypoallergenic cosmetics is useful for prevention of exacerbation, progression, and treatment of atopic dermatitis (15).

There was no statistically significant difference in the frequency of usage of hypoallergenic cosmetics compared to topical corticosteroids. Topical corticosteroids are often used and applied in the acute stage of the disease when it is the only effective treatment of choice. Topical steroids have some side-effects, so it is very important for patients with atopic dermatitis to know how to use them properly. There is a term "steroid phobia" which denotes the fear of using steroids. Patients with steroid phobia do not use prescribed medical treatment with local corticosteroids for unjustified reasons. Many parents or patients have steroid phobia and are not willing to use corticosteroids even for severe forms of atopic dermatitis, which is certainly the result of a misconception, because under the supervision of a doctor it is the only correct choice of therapy.

**Table 2.** Answers about using different types of products in patients with atopic dermatitis according to sex

Type of product	Answer			$\chi^2$	
	Sex	YES	NO		Periodically
Hypoallergenic cosmetics (emollients and washing products)	Male	1 (2.44%)	6 (14.63%)	2 (4.88%)	<b>P=0.309</b>
	Female	11 (26.83%)	13 (31.70%)	8 (19.51%)	
Topical corticosteroids	Male	2 (4.88%)	4 (9.76%)	3 (7.32%)	<b>P=0.864</b>
	Female	5 (12.20%)	17 (41.46%)	10 (24.39%)	
Alternative products	Male	2 (4.88%)	6 (14.63%)	1 (2.44%)	<b>P=0.860</b>
	Female	6 (14.63%)	20 (48.78%)	6 (14.63%)	
Neutral cosmetic products	Male	8 (19.51%)	0 (0.00%)	1 (2.44%)	<b>P=0.647</b>
	Female	24 (58.54%)	1 (2.44%)	7 (17.07%)	
Sunscreen	Male	5 (12.19%)	3 (7.32%)	1 (2.44%)	<b>P=0.022</b>
	Female	22 (53.66%)	1 (2.44%)	9 (21.95%)	

There was a statistically significant difference in the usage of sunscreens: women used sunscreens more often ( $\chi^2=16,02$ ;  $df=1$ ;  $P<0.05$ ).

There was a statistically significant difference in the use of sunscreens. Sunscreens are statistically significantly more commonly used by women, but it should be taken into consideration that this study included more female patients.

Proper exposure to sunlight is important for the skin care of patients with atopic dermatitis. In addition to mechanical protection, products with high protective mineral factors should be used daily to avoid burns, skin dryness, and the appearance of inflammatory skin lesions.

Treatment of atopic dermatitis still remains a highly responsible, difficult, and demanding job today, which is why physicians have to increase patient compliance by adjusting the treatment to the patient and prompting them to regularly apply the appropriate therapy and follow skin care instructions. Regular skin care with hypoallergenic products in patients with atopic dermatitis is effective not only in prevention but also during systemic therapy (16).

This study had its limitations. Only a small number of patients were involved in the study. In future research, it would be interesting to involve a larger number of patients. Future work should involve a greater number of patients under the age of 15, which would give even more credible data, since atopic dermatitis is most common at earlier ages.

## CONCLUSION

Patients with atopic dermatitis who were included in this study mostly used neutral cosmetic products and sunscreens. Most of the patients also used hypoallergenic cosmetics. Women used sunscreens more often. There was no statistically significant difference in the use of hypoallergenic cosmetics and topical corticosteroids.

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