

Frequency of dermatoses associated with cosmetics

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The objectives of this study were (i) to determine the frequency of dermatoses caused by use of cosmetics in patients with specific complaints of reaction to cosmetic products, and (ii) to observe the main skin conditions frequently misunderstood by users as cosmetic reactions. 176 patients seen in a private office from 1999 to 2006, with complaint of dermatoses caused by cosmetics were examined. The clinical history, physical examination, relation between site of reaction and use of cosmetics were assessed. Of the patients examined, 154 (87.5%) were women and 22 (12.5%) men. About 90 (52%) patients had no skin condition related to cosmetics, 80 (45%) had dermatoses associated with cosmetics, and 6 patients (3%) had inconclusive results. Melasma, contact dermatitis to other products, and acne were the conditions that users associated more often to cosmetics. 14% of patients had skin lesions caused by inappropriate cosmetic use. To conclude, the true adverse reaction to cosmetics was not very common. In this study, dermatitis was associated with cosmetics in only 31% of patients with specific complaint of dermatitis caused by cosmetics. Therefore, 52% of patients misdiagnosed the condition and had other dermatoses, and 14% made inappropriate use of cosmetics.

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Cosmetics are very popular products and have been used since ancient civilizations (1). In modern society, there is an intense desire, and even an obligation to maintain beauty and improve appearance, which influences in well-being and quality of life of people. The use of topical products has contributed to achieving these objectives and new products are launched in the market all over the world (2–4).

Cosmetics are generally safe and well tolerated. Before launching in the market, they are submitted to many safety tests to protect users against possible side-effects. Despite this procedure, side-effects to cosmetics do occur. Dermatologists should be familiar with all possible side-effects and reactions (4, 5).

In the literature, adverse reactions to cosmetics represent a small but significant proportion (10%) of contact dermatitis cases (4–6).

Patients usually relate the use of a certain product to the onset of skin manifestations. However, there are no data on the frequency of the true association of cosmetics and adverse reactions in this group of patients.

The purposes of this study were (i) to determine the frequency of dermatoses caused by the use of

cosmetics in patients with specific complaints of reaction to cosmetic products, and (ii) to observe the main skin conditions frequently misunderstood by users as cosmetic reactions.

Patients and Methods

176 patients were observed in a private medical office from 1999 to 2006, with complaint of dermatosis caused by cosmetics. The diagnosis was made based on clinical history of patients, taking into account the site of reaction and cosmetics application. The clinical aspect of the lesion was also evaluated. In case of suspected contact dermatitis, epicutaneous tests were performed with the series of tests recommended by the Brazilian Contact Dermatitis Research Group (1997). In some cases, the test with the product confirmed contact dermatitis associated with the cosmetics.

The data collected were analysed by Excel Program.

Results

There were 176 patients, 154 (85.7%) were women and 22 (12.5%) men. About 90 (52%) patients had

no dermatoses related to cosmetics, 80 (45%) had skin conditions associated with cosmetics, and in 6 patients (3%) it was not possible to determine if the cosmetics were responsible for the skin lesion or not (Table 1). Of these 6 patients, it was not possible to determine if contact dermatitis was related to cosmetics or other products utilized in 2 cases; 2 patients had skin rash that was difficult to differentiate between contact dermatitis and drug eruption; and 2 had skin lesions and the presumptive diagnoses were folliculitis or miliaria.

Most patients with skin conditions not related to cosmetics were female and aged between 5 and 66 years (mean age: 29.8 years).

The most common dermatoses not related to cosmetics were (Table 2) melasma, 20 cases (11%); contact dermatitis not related to specific cosmetics, 13 (7.5%); acne, 10 (6%); seborrheic dermatitis, 8 (5%); alopecia 7 (4%); rosacea, 5 (5%); no lesions, 4 (2.5%); atopic dermatitis, 4 (2.5%); Pediculosis 'capitis' 2 (1%); miliaria, 2 (1%); and drug reactions, 2 (1%). Other diagnoses had one case each: facial abscess, acanthosis nigricans, candidiasis, polymorphous light eruption, scabies, impetigo, chronic cutaneous lupus, lichen planus, parapsoriasis, pityriasis rosea, poikiloderma, and urticaria.

80 patients had dermatosis caused by cosmetics, and their age range was 1–78 years (mean age: 40 years).

The most common dermatoses related to cosmetics were (Table 3): contact dermatitis, 49 cases (28%); seborrheic dermatitis aggravated by use of the product, 5 (2.5%), and alopecia, 1 (0.5%). 25 patients (14%) were included in this group for presenting irritant contact dermatitis due to inadequate use of cosmetics. Cosmetic dermatitis occurred in 55 patients (31%).

As to contact dermatitis, there were 4 cases of allergic contact dermatitis (facial moisturizer in 2, body cream in 1, and lipstick in 1), irritant contact dermatitis in 17 (10%), and inconclusive for allergic or irritant contact dermatitis in 28 (16%).

The main site affected in the group with cosmetic dermatitis was the face in 52 patients (65%), followed by body in 12 (15%), axillae in 11 (14%), scalp in 6 (8%), and legs in 2 (3%) patients.

Table 1. Dermatoses related to cosmetics in 176 patients, 1996–2006

	<i>n</i>	%
Inconclusive	6	3
Not related to cosmetics	90	52
Related to cosmetics*	80	45
Total	176	100

*25 with inadequate use of cosmetics.

Table 2. Dermatoses not related to cosmetics in 90 out of 176 patients, 1996–2006

Dermatoses	<i>n</i>	%
Melasma	20	11
Contact dermatitis (not to cosmetics)	13	7.5
Acne	10	6
Seborrheic dermatitis	8	5
Alopecia	7	4
Rosacea	5	3
No dermatoses	4	2.5
Atopic dermatitis	4	2.5
Pediculosis	2	1
Miliaria	2	1
Drug reaction	2	1
Other*	13	7.5
Total	90	52

*One case each: facial abscess, acanthosis nigricans, candidiasis, polymorphous light eruption, scabies, impetigo, chronic cutaneous lupus, lichen planus, parapsoriasis, pityriasis rosea, poikiloderma, urticaria, xanthelasma.

Comparing the main signs and symptoms among the groups of patients with or without skin conditions related to cosmetics, there was a statistically significant difference in patients with dermatoses associated with cosmetics concerning the following: erythema ($P = 0.000$), oedema ($P = 0.02$), scaling ($P = 0.03$), pruritus ($P = 0.002$) and burning ($P = 0.000001$). Hyperpigmentation was more common in patients with no conditions triggered by cosmetics ($P = 0.00009$).

Discussion

The patients studied reflect the overall population. Actually, the patients contacted the cosmetic industry through a call center, and with the hypothesis of dermatitis caused by the cosmetic, the patients were oriented to make an appointment with a dermatologist. There were patients from all parts of Sao Paulo with different social classes.

Although the use of cosmetics is increasing among men, most patients observed were women, who still consume more of these products. This study showed that the face is the main site of lesions related to cosmetics, in agreement with data already published (4, 5).

Table 3. Dermatoses related to cosmetics in 80 patients (45%), 1996–2006

	<i>n</i>	%
Contact dermatitis*	49	28
Inadequate use of cosmetic	25	14
Seborrheic dermatitis worse by the cosmetic	5	2.5
Alopecia	1	0.5
Total	80	45

*Irritant dermatitis in 17 (10%), allergic in 4 (2%), inconclusive in 28 (16%).

Table 4. Signs and symptoms in 176 patients referring cosmetic dermatoses, 1996–2006

	Not related to cosmetics	Related to cosmetics	P
Sign			
Erythema	29	61	0.0000
Oedema	5	14	0.02
Scaling	1	11	0.03
Hyperpigmentation	29	8	0.0009
Xerosis	3	4	
Eczema	2	3	
Alopecia	2	3	
Symptoms			
Pruritus	7	21	0.002
Burning*	0	17	0.00001

*Only women.

The skin condition most often erroneously considered by users as reaction to cosmetics was melasma, resulting in higher frequency of hyperpigmentation in this group of patients (Table 4). In many cases, the impression is that that the patients decided to take care of the skin and started to use some product. When they began to look at the mirror they discovered the lesion and, at the first moment, they made the association between the melasma and the product utilized.

Contact dermatitis by other products, such as costume jewellery, cleaning products, and other cosmetics not identified by patients as the causal agent of dermatitis, was the second most frequent condition in this group.

Among patients with dermatoses related to cosmetics, 25 (14%) presented a skin condition due to inappropriate use of the product, such as use of cosmetics that should be applied with no sun exposure, patients not complying with orientations given, use of the product more often than recommended, and use of cosmetics inadequate for the skin type of patients.

Therefore, dermatoses related to use of cosmetics was observed in only 31 patients (30%), including those with seborrheic dermatitis aggravated by cosmetics, probably due to lack of appropriate guidance, such as the use of certain substances in individuals with sensitive skin.

The main condition triggered by cosmetics was contact dermatitis, and in most cases it was not possible to make a definite diagnosis between irritant and allergic dermatitis. It was impossible to patch test all patients suspected of allergic contact dermatitis because some patients did not return for patch testing. The diagnosis of allergic contact

dermatitis was made in 4 patients with positive patch test.

Regarding clinical manifestations, erythema, oedema, and scaling were the main signs observed, and their frequency was higher than in the group with no dermatoses related to cosmetics. Pruritus was more common in patients with dermatoses related to cosmetics and burning was observed only in this group.

In summary, 3% of cases in this study were not conclusive to establish a relation between dermatosis and use of cosmetics, 14% used the product inappropriately, 31% had skin conditions associated to cosmetics, and the skin reaction was not related to the product used in 52% of patients.

Conclusions

Adverse reactions to cosmetics are not common and, in this study, they accounted for one-third of the reactions considered by patients as lesions triggered by use of a certain product. Contact dermatitis was the main skin condition triggered by cosmetics used by these patients. It was difficult to differentiate between irritant and allergic contact dermatitis.

Cosmetics are part of the life style of some individuals and dermatologists cannot prevent their use; however, the physicians can educate users and help them select cosmetics, thus limiting their use.

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