



Research Article

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Non-prescription Skin Lightening Preparations; Their Use & Hazards in Iraq

H. Aljunaiyeh , A. Naif *, K. Kadhim

Department of Dermatology & Venereology, college of medicine, University of Thi-qar, Iraq

ABSTRACT

Background: the use of skin lightening preparations is a common practice in Iraq, the long-term use of these products can lead to serious complications.

Objective: to shed light on the most important complications of the long-term use of these products.

Methods: from February 2014 till February 2016, a cross-sectional study was done, all the patients suspected of having complications from long term use of skin lightening preparations were questioned & examined thoroughly about their practice.

Results: a total of five hundred eighty-four patients (456 females & 128 males) presented to the outpatient clinic with skin changes suggestive of side effects of long term use of skin lightening preparations based on the history and examination. Most of the skin lightening preparations were topical corticosteroids alone or mixed in different formulations. The most common complication encountered was contact dermatitis of the face (81%) of the cases.

Conclusion: The complications arising from misuse of skin lightening preparations constituted a major part of this practice & needs proper attention, care & prevention.

Keywords: *skin lightening preparations, hazards, skin beaching preparations.*

INTRODUCTION

The use of skin-whitening products appears to be a common habit in many parts of the world & a lot of studies were conducted especially among dark-skinned women in Africa (3,4), Philippines [1], India [2], China [3, 4] & Iraq [5, 6]. to investigate the effect of skin lightening preparations in women living in these countries & African women living in Paris. In fact, reading of non- medical newspapers and surfing the internet sites now suggested that skin lightening has been widely practiced on all continents [7]. In South Africa, the total sales volume of skin lighteners was estimated in 1986 at £30 million [8].

The social perception that lighter skin is more beautiful & attractive has inspired women & men of all ages to use preparations that can lighten their color since fair skin is considered as a standard of elegance, beauty & higher social level [9, 7, 2]. Unfortunately, some of the various cutaneous side effects of skin lightening such as widespread stretch marks and exogenous ochronosis may be permanently disfiguring [7, 10] or these products may have other deleterious health effects as Barr et al., (1972) found that nephrotic syndromes in adult patients in Nairobi were due to the use of topical mercurial [11] & other severe systemic side effects have also been related to the use of mercury derivatives [12, 10, 13]. It has also been suggested that the percutaneous absorption of topical glucocorticoids used in skin lightening could be involved in the increasing prevalence of diabetes and hypertension observed in a group of Senegalese women practicing skin lightening compared with control subjects [7, 13].

In spite of the wide use of this practice in Iraq & the region, there has been no satisfactory attempt to assess the whole range of the cutaneous complications of the use of lightening products. The aim of our study was therefore to

increase the knowledge about the dermatological consequences of this practice, through reporting the modalities of cosmetic use of bleaching products; describe the wide range of dermatological complications of this practice; and finally evaluate its impact on the practice of dermatology in this country.

PATIENTS & METHODS

A cross-sectional study was conducted from February 2014 till February 2016 in AL-Hussain teaching hospital in Al-Nassiriya city, south of Iraq.

The patients included in the study were women & men with a definite use of skin lightening products for the sake of fairness of color or dealing with minor blemishes of the skin of face & other areas of the body. This study was assessed and approved by the ethics committee before instituting this study.

A careful detailed history was taken from all the patients regarding their practice of skin lightening through a standardized questionnaire, in addition the patients were asked to bring the products they have been using to the consultation clinic.

The questionnaire focused on the type of preparations used, the site of application, the age of the patients when starting the practice, the duration of use & if they were still using them, the type of complications noticed & the duration of them, along with general information about their age, job, marital status, & the level of education.

A thorough examination was done in each case regarding the sites involved, the types of lesions noticed, their morphology, extent & any associated lesions.

Only the complications noticed on the face were studied in spite of the fact that many of the patients had other systemic illnesses that the researchers were not able to study either due to the lack of a statistical link (no control group) or a chronological link (no longitudinal study). Pregnant women and those taking a systemic steroid for the last two months were excluded from the study.

RESULTS

A total of 584 patients including 456 women & 128 men (fig 1), with the average age of 30 (ranged from 6-54 years), all living in Nassiriah city, south of Iraq, were considered to have skin manifestations related to the use of skin lightening products

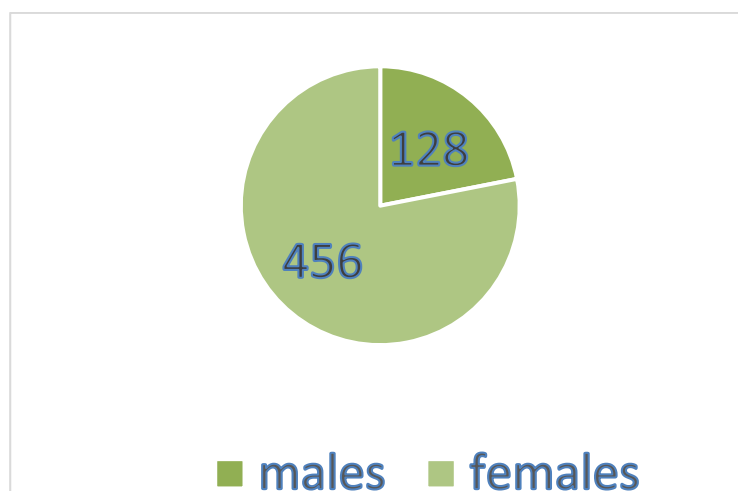


Figure 1. sex distribution of patients in the study

Three hundred eighty-one (65%) patients admitted to be still using these products, 96 (16%) claimed that they had been trying to quit for a few weeks (recent users), and 107(18%) were past users with definitive withdrawal of this practice (fig 2).

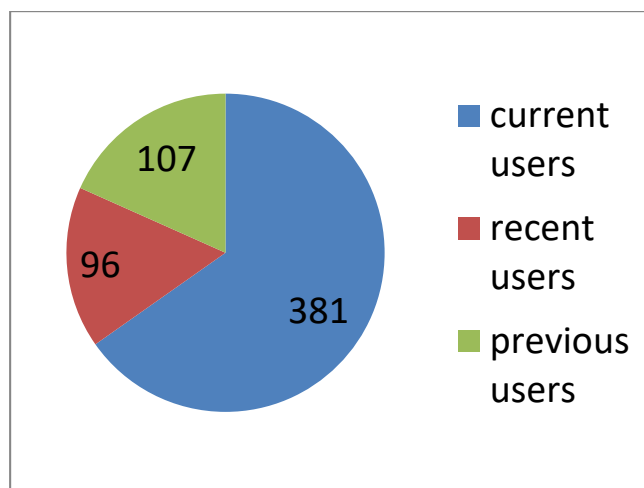


Figure 2. The percentage of patients using skin lightening preparations

The average age of starting skin lightening practice was 17 years, the average duration of the practice at the time of the study was 17 months (range 2-48 months).

Among the females, the majority of the patients including 238 (53%) were married, 92(20%) were single, 45 (9%) were divorced & 81(18%) were engaged, while in the males group the majority including 74 (58%) were single, 33 patients (26%) were married & 21 patients(16%) were engaged (table 1).

Table 1. the marital status of patients

Marital status	Female	Male
Married	238(52%)	74(58%)
Single	92(20%)	33(26%)
Engaged	81(18%)	21(16%)
Divorced	45(10%)	0
Total	456	128

The majority of women including 291(63.8%) were either illiterate, or with a simple education only (housewives), 95 women (20.8%) were students in different levels from secondary through postgraduate level of education, and 70 women (15.3%) were employees, mostly teachers; among the men 76 (59.3%) of them were working men with very limited education (barely can read & write), & 52 (40.6%) were students (table 2).

Table 2. the occupation & education level of patients

Occupation	Female	Male
Unemployed	291(64%)	0
Students	95(21%)	76(59%)
Employed	70(15%)	52(41%)
Total	456	128

Among the women most of them, including 382 (83.7%) used these products on their face only, the remaining used them on both face & hands. Forty (8.7%) & 34 (7.4%) of them used the preparations on inner thighs, perianal area & genitalia; respectively. While among men, all (100%) applications were on the face (table3).

Table 3. sites of application of the lightening preparations

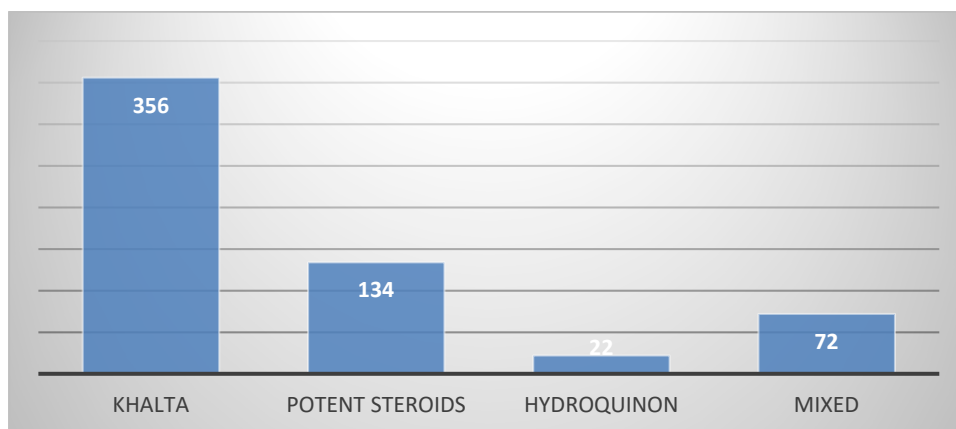
Site of application	Female	Male
Face only	382(84%)	128(100%)
Face and hands	40(9%)	0
Inner thighs	34(7%)	0
Total	456	128

Twenty eight different commercial brands were reported for a famous locally used lightening product called the “Khalta”(figure 3), it was used by 356 patients (61%) & was prepared sometimes by the patient her/himself by diluting a (super) potent topical glucocorticoid into a larger container of a lightening cream, or was bought as a readymade form available cosmetic shops & some pharmacies under different names. Its composition was variable & a pharmacological analysis of one famous brand found 0.04% clobetasol propionate, & hydroquinone at the concentrations of between 4% & 8.7%.

**Figure 3.** famous brands of locally available “khalta”

One hundred thirty-four patients (23%) used potent topical glucocorticoids alone, such as betamethasone, mometasone, clobetasol & triamcinolone.

Hydroquinone alone was used in a small percentage 22(4%) of cases, while the remainder 72(12%) of patients used all the available preparations & switched from one preparation to another (figure 4).

**Figure 4.** the type of preparations used by patients in the study

Regarding the skin complaints of these patients (figure 5), the majority including 473(81%), developed dryness & scaling of the face associated with erythematous patches mainly affecting the cheeks, perioral area & eyelids in a picture similar to irritant contact dermatitis of the face (figure 6).

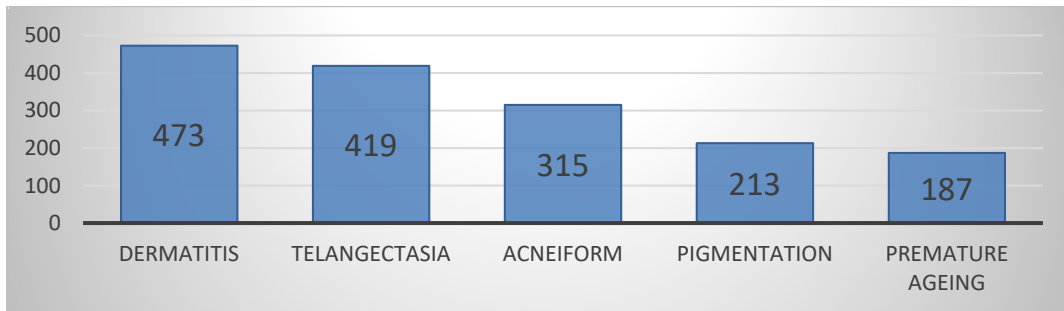


Figure 5. the most common complications in patients with lightening preparation misuse



Figure 6. Two patients has dermatitis with dryness, erythema & scales

Four hundred nineteen (71.75%) patients developed telangiectasia & persistent erythema mainly on the malar eminences giving a butterfly appearance with easy flushing & intolerance to heat and sunlight, & were misdiagnosed & treated as rosacea or photodermatitis (figure 7).



Figure 7. Telangiectasia & erythema

A significant proportion of 315 (53.9%), especially young patients, developed acneiform rash mostly on the face (figure 8), but some including 72 (22.8%) developed acneiform rash also on the upper trunk of the body, the youngest was a child of 6 years who used her mother's lightening preparation, and developed typical acneiform rash on the forehead.

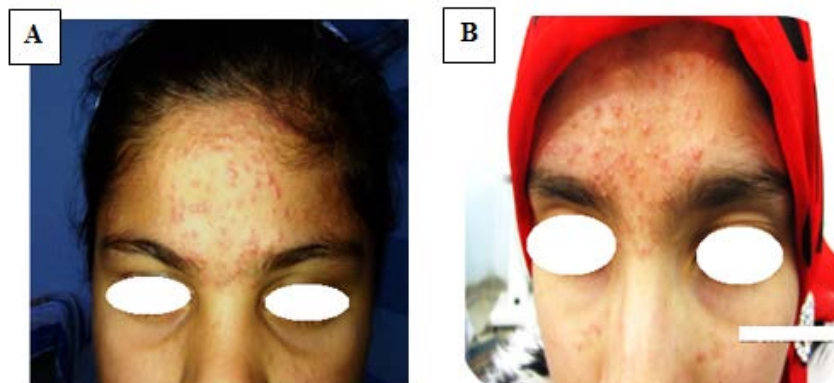


Figure 8. Acneiform rash in 2 girls, the one in A is 6 years old

A bluish- blackish pigmentation similar to acquired ochronosis was seen in 213 (36.4%) of the patients (figure 9), in addition to the areas of hypopigmentation resulting in a dyspigmented mottled appearance.



Figure 9. hyperpigmentation in 2 patients with chronic use of lightening preparations

Premature wrinkling of the face was seen in around 187(32%) patients (figure 10).



Figure 10. Premature wrinkling of the face in a 38-year-old patient

Most of the patients had a mixed picture, complaining that their face is dry, easily irritated, dyspigmented, with easily flushing, and intolerance to heat or sunlight.

DISCUSSION

Dark skin has long been a source of misery to many people especially in the eastern communities, and sun avoidance is a popular habit among some of the pigmented people to avoid further skin darkness. Tremendous efforts were made to find preparations to decrease the pigments which existed when the person was born, or were acquired through the years. Women were the fore-runners, & soon men followed. This has been exactly in contrast to the western world where people are obsessed by the conception of getting a tanned look by taking extensive sun baths along with sun sensitizing preparations or wearing tanning products which seriously increase the risk of skin cancers especially the killing type of malignant melanoma. It seems that no one is satisfied with what God has given them [14].

The use of skin lightening preparations has been known among Africans since the 1960s [15], & since then, a lot of studies concerning this subject were done all over the world [16,1, 2,3, 4], and in Iraq [5, 6].

Some studies [16, 1, 2] focused on women only. In this study, it was found that both men & women used the same practice with a female predominance of about 3.6:1, this was in accordance with other studies showing female predominance [7, 9, 5, 12]. which was quite understandable due to the fact that women are usually more concerned about their beauty & the way they look.

Most of the patients (65%) were still using these products & felt unable to stop them in a form similar to an addictive behavior, which could be associated with a great psychological burden; in fact, they were always trying to find a more potent product to deal with the hyperpigmentation induced by this practice, and this was consistent with the many reports in the literature [7, 2]

In this study, it was found that the average age of starting this practice was 17 years old, which was younger than what was reported in the literature [16, 7, 12]. This might be attributed to the fact of earlier age of marriage for women in this society, it also included a young girl (6 years old) in the study due to complications resulting from the application of her mother's lightening product.

The majority of women (53%) were married, while the majority of men (58%) were single, this coincided with the a study done in Africa [9] & was in contrast to another study [2] where the majority of the patients were unmarried. This might be due to several factors such as the difficulty of access to these products by single women living in conservative families where unmarried women are not allowed to wear make-up & other creams to their faces owing to religious prohibitions. On the contrary, men used these products mainly (58%) before marriage.

Most of the patients (63.8% of women & 58.3 % of men) had a very low education levels, this was in harmony with reports in the literature [2, 7], while the opposite was seen in other studies [9] where educated women used these preparations more frequently owing to their higher economic status.

The current study revealed that the majority of female patients (84%) used the preparations only on the face while almost 16% of them used the products on sites other than the face, namely the hands, the upper inner thighs & genitalia. On other hand, all the male patients (100%) used them exclusively on their face. Some studies [12] showed that the bleaching products were applied to the whole body in 92% of cases, while the face was the main target of bleaching in many others [14, 9, 2]

Regarding the substances used for bleaching, there was a remarkable degree of lack of accuracy in data of this study, since the composition can be misleading and different from its genuine ingredients. The analysis of one product confirmed the presence of super potent steroids & hydroquinone which were not mentioned in the ingredients on the package.

Most of the patients (84%) used corticosteroids either alone (23%) or in combination with other ingredients "Khalta" (61%). Hydroquinone was the second on the list mostly hidden in ready-made formulas sold in cosmetic or barber shops, or even alone in (4%) of cases. This was in contrast to other studies reporting hydroquinone as the major product used for whitening the skin [9, 17]. The current study agreed with more recent studies where steroids appeared as the main agent responsible for the observed complications [16, 10].

Adding further to the inaccuracy of these results was the fact that many of the reported complications induced by these bleaching products were not definite & could occur spontaneously or from other causes such as sun exposure. This diagnosis was based mainly on clinical grounds; however, the observed atypical appearance of the

complications, their chronologic link to skin lightening practices, and their combination with the same patient were suggestive of skin lightening side effects.

The majority of the patients (81%) developed a picture similar to irritant or allergic contact dermatitis which might be attributed to the higher prevalence of topical corticosteroids used by these patients (84%). Many mechanisms were involved including the rebound dilatation of blood vessels, the release of pro-inflammatory cytokines, and the accumulation of nitric oxide, which have been thought to be responsible for the development of erythema, pruritus, and the burning sensation (10). Studies concerning similar objectives done elsewhere had different results. Infection was the most common presentation followed by acne in a study done in Senegal [16], while facial acne was the main adverse effect in another series [9]. Although there was no report of any case of skin infection, facial and truncal acne were very popular especially in the younger age group of patients.

Facial erythema & persistent telangiectasia were seen in nearly 72% of the patients which might also be attributed to the fact that topical corticosteroids were the mostly used skin lightening products in the present study; in addition, the patients were unable to tolerate heat, light & simple trauma such as depilating threads which was similar to other studies done in Iraq [6], & the reporting of five cases of lupus-like eruptions involving the face [16], but it was in contrast to other studies [2, 7].

The younger population of the study developed an acneiform eruption in 54% of the patients, mostly, on the face but also on the upper trunk, which again could be attributed to the high percentage of topical corticosteroids used in this study's population. Only in one study done in Dakar (Senegal), facial acne had the main adverse effect [9] despite the fact that in this particular study, hydroquinone was the major skin lightening agent used.

Pigmentation in a way similar to acquired ochronosis was the most common side effect in many studies [7, 17, 18, 19, 20, 21], but not in others [16, 9], the same complaints were seen in about one third of the patients (36.4%). While some of the patients had areas of mixed hyper & hypo pigmented patches especially in the periocular areas.

Skin atrophy & premature wrinkling was seen in another one third of the patients (32%), mainly among chronic users of bleaching agents, other studies [16, 9, 21] also showed similar changes albeit to a lesser degree, this was probably induced by the action of potent topical steroids included in these preparations. The easy access to these products and steroids without a prescription from a registered physician has allowed many of these drugs to become household names where they have hardly been regarded as drugs anymore [2].

Most of the patients used more than one preparation, & were actually jumping from one preparation to another with an end result of a dyschromic, dry, easily irritated, flushed skin with numerous telangiectasia, along with a prematurely-aged appearance.

This revealed the pathetic misuse of topical products and steroids that has been getting endemic at an increasing pace in Iraq, therefore, there is an urgent need to inform patients of the nature and side effects of these products through the media, and try to ban the advertisements for whitening products on TV and social media, in addition to establishing regulations for drug trafficking especially potent topical corticosteroids and ready-made lightening creams available in cosmetic and barber shops.

The limitations of this study were that the diagnosis of side effects of long-term use of skin lightening products was only based on the clinical ground, and there was no specific test for diagnosis, in addition, there was no accurate data about the exact ingredients and proportions of "Khalta".

CONCLUSION

Fair skin has been a symbol of attraction and beauty in eastern world for centuries, and there has been many ways to get this fairness; one of them has been skin lightening preparations which have many consequences that might be reversible or irreversible. The irreversible side effects of this preparation might be a psychological impact that is worse than the dark skin itself. This study highlighted the widespread misuse of these preparations that requires raising the awareness about the hazards of this practice in the society, and implementing legislations that do not allow the society to have an access to topical steroids and other bleaching products without a prescription from a registered physician. Further studies are needed to explore the best approach to handle these side effects and deal with addictive habit of using skin lightening preparations.

Synopsis: The long term use of skin lightening preparations has been a common practice in Iraq and has many side effects. The most common side effects seen were contact dermatitis, telangiectasia and persistent erythema, acquired

ochronosis-like picture and premature wrinkling of the face in decreasing order. This study showed that the most common skin lightening preparations were topical corticosteroids alone or in mixed formulations.

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