White skin, dark skin, black skin

Pigmentation is an important skin function, determined by genetics but also influenced by certain lifestyle choices, including sun exposure. Another contributing factor can be skin disease. Human skin comes in all shades, from milky white to black and any color in between. Dermatologists are in fact less concerned about skin color than phototype, which is a measure of skin fragility faced with sun exposure. The following table shows what we call the Fitzpatrick classification, named after a famous American dermatologist. Phototypes V and VI represent brown and black skin.

<table>
<thead>
<tr>
<th>Type</th>
<th>Sunburn</th>
<th>Suntan</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Always</td>
<td>Never</td>
</tr>
<tr>
<td>II</td>
<td>Always</td>
<td>Never</td>
</tr>
<tr>
<td>III</td>
<td>Rarely</td>
<td>Rarely</td>
</tr>
<tr>
<td>IV</td>
<td>Never</td>
<td>Always</td>
</tr>
<tr>
<td>V</td>
<td>Mediterranean, Asian, Indian</td>
<td></td>
</tr>
<tr>
<td>VI</td>
<td>Black</td>
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</tr>
</tbody>
</table>

However, pigmentation is not only a matter of photoprotection; there is a psychosocial dimension. People sometimes refer to race, ethnic group or ethnicity rather than phototype. In many cultures, skin color is so important that people try to make theirs lighter, which can cause serious problems.

Pigmentation is therefore important. It can also change the appearance of certain skin diseases, for example atopic dermatitis, which affects children and adults of all skin colors. Here, we will look at how atopic dermatitis can affect skin that is not white, but a variety of shades ranging from brown to black.
In terms of diagnosis, dark skin is like any other

Many epidemiological studies have been carried out on the incidence of atopic dermatitis in numerous populations, including populations with dark skin living in Africa, in the USA or in Europe. The results vary, but generally show atopic dermatitis to be equally common in all populations, whatever the country or skin color. Recourse to treatment is more common in certain groups, but this is probably due as much to social as to ethnic considerations. So atopic dermatitis is just as frequent on white skin—sometimes called Caucasian skin—as on Asian, Hispanic, African or Polynesian skin.

Today, we diagnose atopic dermatitis based on criteria established by a British group led in 1994 by Professor Hywel Williams. What are these criteria?

- Above all, chronic pruritus. If there is no itching, no scratching, there is no atopic dermatitis;
- Presence in skin folds;
- A personal or family history of asthma or hay fever;
- Dry skin;
- Visible, typically oozing, eczema;
- Onset before the age of two.

As you can see, the issue of color appears nowhere among these criteria; a child who scratches their skin and whose skin folds are affected—which is characteristic—usually has atopic dermatitis, regardless of their skin color.

Some clinical signs manifest themselves differently on dark skin

Atopic dermatitis is associated with a number of clinical signs analyzed effectively by the SCORAD tool, which we have been using for more than 20 years. This score is determined by the intensity of five clinical signs, to which we generally add an evaluation of skin dryness.

Some of these signs are pretty much the same, regardless of skin color:

- Thickening of the skin, or edema;
- Oozing;
- Excoriation;
- Dryness, in particular to the touch.

But there are two signs that do not look the same on white skin as on dark skin:
- **Erythema, or redness.** Redness is clearly visible only on white skin. If skin is slightly pigmented, redness may be seen in good lighting. On black skin, however, it is very hard to see.

- **Lichenification.** This is a thickening of the skin caused by chronic scratching. On white skin, this thickening is visible in the form of a pink to dark pink color, dryness and a superficial criss-cross pattern. Dark skin is usually hyperpigmented, which makes the skin that has become thicker look darker than the surrounding skin. There are also more unusual forms of lichenification, for example made up of small papules isolated one from the other.

**Pigmentation is a fragile function**

The skin’s natural color, which is dictated by a function called melanogenesis (producing melanin, the pigment in the skin), is fragile and can be altered by numerous things. The most common is sun exposure, which stimulates pigmentation.

As you know, people with white skin find a suntan attractive. The fact that it exposes them to accelerated skin aging and increases their risk of developing cancer is another problem entirely.

In populations with Asian or dark skin, the reverse is true, people are not at all interested in having a tan, since most want their skin to be as light as possible.

This is why patients and parents of affected children find it very difficult to live with the kind of pigmentation disorders (dyschromia) associated with skin diseases like atopic dermatitis. So we must do everything we can to minimize them.

**Atopic dermatitis and hyperpigmentation**

Inflammation and scratching trigger pigmentation. The simple fact of scratching, even in the absence of eczema, can cause brown plaques, for example on the back.

Lichenification caused by eczema is often hyperpigmented on dark skin. This hyperpigmentation is temporary and with treatment we see a gradual improvement. Topical corticosteroids have a beneficial effect in these patients, thanks both to their anti-inflammatory action and their depigmenting action, despite this being merely a side effect. So you must be careful not to use them over too long a period.
Atopic dermatitis and hypopigmentation

In some cases, inflammation causes depigmentation rather than hyperpigmentation, making skin appear either lighter or completely white. To be honest, we are still not sure why certain skin diseases have a pigmenting action (acne, lichen planus, etc.) and others a depigmenting action (seborrheic dermatitis, eczematids, guttate parapsoriasis, etc.). In any case, both situations are possible in atopic dermatitis.

Post-inflammatory depigmentation can be mild and temporary. Examples include achromic eczematids, pityriasis alba and scurf, seen on children’s faces and particularly common in atopic children. In children with dark skin, it creates light patches with indistinct edges that can be slightly squamous, usually on the cheeks.

Sometimes this depigmentation is more severe and lasts longer. In cases involving very prolonged scratching, total depigmentation can occur, called vitiligoides, especially on the legs. This is rare and seen only in severe cases of atopic dermatitis in adults.

Topical corticosteroids and pigmentation

Topical corticosteroids are anti-inflammatories and, used properly, offer the best protection from the consequences of prolonged eczema, including pigmentation disorders.

But topical corticosteroids also have depigmenting properties, associated not only with their anti-inflammatory action.

Some people wanting to depigment their skin voluntarily do so using strong topical corticosteroids, without there being any reasonable clinical indication and at the risk of suffering complications.

In the case of atopic dermatitis, a common problem in patients is an irrational fear of topical corticosteroids, called corticophobia. One reason for this corticophobia is a fear of depigmentation.

However, depriving a child of effective topical corticosteroid treatment exposes them to the consequences of eczema and chronic scratching, including pigmentation disorders, even more visible in children with dark skin. Therefore, fear of pigmentation disorders is simply another reason for using topical corticosteroids.

It goes without saying that you must monitor such treatment and avoid prolonged use. This will help to prevent depigmentation and to preserve an even skin color.
Other treatments

Topical corticosteroids are the most common form of treatment for atopic dermatitis.

Tacrolimus (a calcineurin inhibitor) is helpful for its anti-inflammatory effect. It has a complex, and probably quite modest, action on pigmentation, apparently opposite to that of corticosteroids. Tacrolimus is therefore used to treat certain types of depigmentation. But it must not be considered an inducer of hyperpigmentation.

In some cases of severe atopic dermatitis in adolescents and adults, phototherapy may be recommended. Although it is not usually indicated for people with dark skin, especially if they are unhappy about hyperpigmentation.

In conclusion

Atopic dermatitis is common in all populations, regardless of skin color. But in people with dark skin, inflammation can cause pigmentation disorders. You must therefore take special care to provide early and effective treatment for eczema flare-ups, in order to limit inflammation and its consequences. And you will obviously avoid excessive use of topical corticosteroids, as they can have a depigmenting effect.

Figure legends

Fig.1: Typical case of atopic dermatitis in an infant with dark skin. Eczema is easily recognizable, despite the erythema being barely visible.
Fig. 2: Typical example of a plaque on the arm. A trained eye will recognize erythema, concealed by discrete hyperpigmentation. Note the abdominal depigmentation, a temporary sequel of a previous flare-up. This case is a good illustration of the fragility of pigmentation, which is affected in various ways by atopic inflammation.

Fig. 3: Typical case of atopic dermatitis in an infant with black skin.

Fig. 4: Eczema in elbow folds, with various types of dyschromia, some clear and some darker.
Fig. 5: Hyperpigmented lichenification, seen frequently in cases of chronic eczema.

Fig. 6: Pigmented lichenification in elbow folds. The contrast is particularly clear when compared with normal skin, relatively light on the inside of the arms.

Fig. 7: Pigmented lichenification in the neck folds of an atopic adult.
Fig. 8: A papulo-vesicular type of eczema, made up of small isolated papules, particularly common in people with dark skin.

Fig. 9: Achromic eczematids.

Fig. 10: Depigmented eczema plaque.
Fig.11: A mottled appearance characteristic of widespread achromic eczematids.