Dyschromia Management: The Case for Depigmentation

To provide patients optimal outcomes, clinicians must be aware of strategies for repigmentation and depigmentation therapy.

BY SEEMAL DESAI, MD

When patients present to the dermatologist with dyschromia, it is important for the physician to establish both the nature of the pigmentary change as well as the patient’s degree of dissatisfaction and their personal treatment goals. These are important considerations that will guide therapeutic selection.

GUIDING PRINCIPLES

Pigmentary disorders can often be a conundrum to even the most trained and astute clinician. The overlying guiding principle in approaching a patient with pigmentary abnormalities is to identify and distinguish disorders of hypo/depigmentation versus those of hyperpigmentation.

The prototypical acquired depigmented cutaneous disorder is vitiligo. It is important to remember that this disease is one of the few that truly is depigmented and not hypopigmented. Though vitiligo evolves through a variety of different phases in its evolution, the underlying pathology is that of melanocyte destruction and loss, and therefore amelanotic clinical findings. In patients with skin of color, for example, it may be difficult to distinguish true depigmentation from just “light skin” or hypopigmentation, but there are a number of disorders that still have melanin, just a decreased amount of it, and therefore would be considered acquired hypopigmented disorders and not depigmented (Table 1).

In any of these conditions, but especially in stigmatizing conditions like vitiligo, the doctor-patient relationship is of paramount importance. There is, of course, a cosmetic component to the problem of dyschromia, and the condition can have cultural implications. Patients may be embarrassed about the appearance of uneven skin tone, even when speaking with medical professionals. In many cultures this is considered an ostracizing illness. For females, the implications of vitiligo can be particularly severe. Ample research indicates that vitiligo has a negative impact on affected individuals’ quality of life and that it produces emotional stress.

Keep in mind that patients’ experiences can be varied, and all medical specialties are not necessarily prepared to manage vitiligo and other dyschromias effectively. Patients may have felt that previous care providers were dismissive or disinterested. These providers may have been unfamiliar with treatment or simply discouraged treatment. Many dermatologists discourage treatment for patients with dyschromia, specifically vitiligo. Patients may be frustrated if previous treatments were ineffective or not offered.

It is important, therefore, to take a positive approach with patients. Take time to validate patients’ concerns and educate them about their specific diagnoses. There are misconceptions about pigmentary disorders, some of which can be stigmatizing to affected individuals.

Let patients know that treatment options are available and often effective. At the same time, establish realistic

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**TABLE 1. CONDITIONS LINKED TO DECREASED MELANIN**

- Tinea Versicolor
- Sarcoidosis
- Hansen’s disease
- Mycosis Fungoides
- Idiopathic Guttate Hypomelanosis
- Progressive Macular Hypomelanosis
- Pityriasis Alba
expectations for the necessary duration of therapy and potential outcomes.

Dermatologists who are not adept at treating vitiligo and other dyschromias should refer patients to a colleague who is, rather than try to convince a motivated patient not to treat their condition. Most patients come to the office because they want treatment. With that said, some patients simply want a confirmation of their diagnosis and the reassurance that their condition is not grave and will opt not to pursue treatment. Educate such patients about UV avoidance and protection strategies.

**TREATMENT OPTIONS: REPIGMENTATION**

The conventional approach to treating vitiligo has been to attempt to encourage repigmentation of depigmented patches. Several topical agents and devices have been used with varying degrees of success. Outcomes may depend on factors such as the anatomic location of the treatment areas and the extent of body surface area involved.

Topical calcineurin inhibitors are commonly used for the treatment of vitiligo based on clinical experience, as well as small controlled trials. In one trial involving 15 patients with 40 target lesions, twice-daily treatment with topical tacrolimus resulted in excellent (>75 percent) repigmentation in two lesions, moderate (>25-50 percent) and poor (one-25 percent) repigmentation in four lesions each. There was no response in five lesions. Response to once-daily treatment was less robust. Best response to treatment was seen in the facial region. Of course, there are numerous studies that support the usage of these drugs in vitiligo, and it’s therapeutic importance should not be discounted.

Topical vitamin D analogues are also used for the management of vitiligo, often in combination with phototherapy. A small case series showed that the use of 0.005% calcipotriene plus NB-UVB phototherapy provided significant repigmentation. The study evaluated three male patients with chronic vitiligo that had been stable for between three and 10 years. Previous therapy, including trials of topical steroids and calcipotriene for at least two years, did not result in significant repigmentation. The patients applied calcipotriene twice daily and underwent excimer laser treatment twice per week. All three patients achieved greater than 75 percent repigmentation (two patients required 22 treatments or less; one required 40 treatment sessions). Again, these results should be reviewed cautiously, mainly due to cohort size, but do provide another possible treatment option.

Phototherapy has been a mainstay of treatment for vitiligo. Currently, most clinicians favor NB-UVB for its safety relative to BB-UVB or UVA, although there is some evidence that BB-UVB may be more effective than NB-UVB. Access to phototherapy and the need for frequent office visits may limit the utility of this treatment.

Surgical treatment or autologous melanocyte transfer is also available for the management of dyspigmentation, although this treatment is not widely available and may have practical limitations for some patients. Recently, research has shown that the use of NB-UVB prior to and after melanocyte transplantation may support better long-term results. Four hundred thirty-seven patients were enrolled, and the majority of patients had good results. However subjects who received UVB therapy before and after transfer responded best. Roughly 80 percent of patients had more than 90 percent repigmentation; 94.8 percent of patients experienced 50 percent or greater repigmentation.

A novel, investigational repigmentation agent has shown promise. Based on observations of decreased circulating and lesional skin levels of α-melanocyte-stimulating hormone (α-MSH) among patients with vitiligo, researchers investigated the potential efficacy of treatment with afamelanotide, a potent, long-lasting synthetic analogue of α-MSH.

Four subjects were treated three times weekly with NB-UVB; in the second month they began receiving a series of four monthly implants of 16mg afamelanotide. Afamelanotide induced faster and deeper repigmentation in each case. Patients experienced follicular and confluent areas of repigmentation within two days to four weeks after the initial implant, and all patients experienced diffuse hyperpigmentation.

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**PRACTICAL POINTER**

Despite the variety of options available to encourage repigmentation, some patients will not have satisfactory results with any of these. An alternative approach to treatment is to depigment the surrounding skin and thus create an even skin tone, which may be more cosmetically acceptable to the patient. Management of dyschromia requires a patient-focused approach based on understanding the patient’s needs and providing appropriate education and support. Patients with vitiligo may require more than one treatment approach.
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20% Monobenzone topically

- Start with a small “zone”
- i.e. one arm treated for three to four months
- Stinging is usually NOT an allergic reaction
- Recheck “zone” in person & via photos in two to three months
- Can then treat other arm, face, neck
- Have patient apply cream BID for three to four days
- Do NOT apply at bedtime
- Hair may or may not depigment, but eyes WILL NOT
- A contact dermatitis is the most common side effect
- Small “guttate” areas of repigmentation possible and OFTEN seen
- Treat with 20%, 40% cream, LN2 or dermabrasion

**TABLE 2. PRINCIPLES OF DEPIGMENTATION THERAPY**

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TREATMENT OPTIONS: DEPIGMENTATION

Despite the variety of options available to encourage repigmentation, some patients will not have satisfactory results with any of these. Consider that studies often consider 75 percent repigmentation as the threshold for “Very good” or “Excellent” response. While this is a remarkable degree of improvement from an objective point of view, the patient may not be satisfied. He or she will nonetheless have areas of dyschromia and thus uneven tone.

An alternative approach to treatment is to depigment the surrounding skin and thus create an even skin tone, which may be more cosmetically acceptable to the patient. Options for depigmentation therapy include 88% phenol, laser therapy, cryotherapy, and Monobenzyl ether of hydroquinone (MBEH or monobenzone). Application of phenol on large areas is toxic to the liver and kidneys. Laser therapy can be painful and expensive, while cryotherapy poses a scarring risk. These are limitations that most certainly need to be considered and discussed thoroughly with the patient. Monobenzone 20% topically applied is safe, effective, and readily available for depigmentation therapy. In fact, this medication has been available since the 1950s. Monobenzone, which acts by inducing necrosis of melanocytes, may be used in combination with tretinoin, which may accelerate its effects.

Allergic contact dermatitis (ACD) is the most common, though infrequent, side effect of monobenzone therapy. It is common for patients to experience stinging upon application, which is distinct from ACD and may diminish with continued use.

Monobenzone can be used at concentrations of 20% or 40%. Usually, I initiate therapy with the 20% concentration. When initiating therapy with monobenzone, it is wise to implement therapy in a small anatomic zone. For example, the patient could treat one arm for three to four months to gauge the response to treatment before applying monobenzone to other body areas. Recheck the treatment “zone” in person and via photos in two to three months.

Monobenzone cream should be applied twice daily three or four days per week, but should not be applied at bedtime. Advise patients that this topical cream can affect any part of the skin it comes in contact with. Therefore, it is important to tell patients not to use this product at bedtime, and risk the medication transferring from one area of their body to another in their sleep. Advise patients that monobenzone may depigment hair, though it does not always do so. Assure them that the agent will not affect the pigmentation of the eyes.

Occasionally patients develop small “guttate” areas of repigmentation. These can be treated with monobenzone, either at the 20% concentration or increasing to the 40% concentration. Alternatively, liquid nitrogen or dermabrasion may be appropriate for these discrete treatment areas.

A PATIENT-FOCUSED APPROACH

Management of dyschromia requires a patient-focused approach based on understanding the patient’s needs and providing appropriate education and support. Patients may require psychological counseling to help them deal with their condition. Psychological evaluation is recommended prior to implementation of depigmentation therapy.

Patients with vitiligo may require more than one treatment approach. For some, the best option is to undertake depigmentation, in order to produce an even skin tone. Monobenzone is a safe and effective agent for depigmentation that provides good results.

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