PIGMENTARY DISORDERS

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Melanin and Pigmentary Disorders

Abnormalities in pigmentation are common and frequently produce considerable stress in the patient since they affect appearance. Some of these concerns are purely cosmetic and other pigmentary changes, as with lupus, can signal serious underlying disease. Pigmentary disorders all relate to the amount of the skin pigment melanin. Disorders having excess melanin are known as hyperpigmentary or hypermelanotic diseases. Those with too little melanin or loss of melanin are termed hypopigmentary or hypomelanotic. Hair contains melanocytes and pigment loss here can cause loss of hair pigment with white hair. Melanin is contained within cellular organelles called melanocytes. These are pigment-producing cells found in the basal layer of epidermis. The melanin is then transferred out of the melanocyte packaged in melanosomes to the keratinocyte in the outer layer of epidermis. In caucasians, melanocytes are bound to the cell membrane of the keratinocyte and are of smaller size. In people of color, the melanosomes are dispersed throughout the cell body (cytoplasm) of the keratinocyte and are larger than in whites. Asians and red-haired persons have a slightly different chemical type of melanin.

Melasma

Melasma is a very common hyperpigmentary disorder that affects sun-exposed areas in women. Sun exposure and tanning make it worse. The hyperpigmented areas occur on the cheeks, central face, forehead, upper lip and chin. It can occur in men but males compose only 10% of cases. It is usually related to hormone excess, as in pregnancy, oral contraceptive pill use, and endocrine disorders. It may be associated with some cosmetics, some medications (dilantin, oral contraceptives) and severe liver disease. In women taking oral contraceptives, about 30% develop melasma. Postmenopausal women on estrogens do not usually develop melasma. It is treated with skin lightening agents, camouflage makeup, strict avoidance of tanning, and stopping any potential causative medicines.

Vitiligo

This disease causes loss of pigment by destroying melanocytes. The cause is actually unknown, although genetics is frequently postulated as a cause since 30% of people with vitiligo have an affected family member somewhere in their family tree. Affected families have an increased incidence of graying of the hair. All races are affected but it is more noticeable in darker complexions.

Men and women are equally affected. One to two million Americans have vitiligo and it is found in 1-2% of the world's population. The most common age of onset is the first two decades of life. Sometimes spontaneous remission occurs and repigmentation is seen. The most common areas affected are the face, back of the hand, wrists, armpits, central abdomen and genitalia. Childhood vitiligo is seen in children under 12 years and is different from the other type in that depigmentation frequently occurs in long segments.

Treatment is very difficult. Some treatments include PUVA (psoralens plus ultraviolet A light exposure), topical steroids, surgical treatments of various grafting or micrografting types. Stem cell therapy may have potential for the future.

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Tinea Versicolor

Tinea versicolor is also called Pityriasis versicolor and is a superficial infection of the stratum corneum caused by the yeast, Malassezia furfur. It is found throughout the world and in all races, although it favors tropical climates. It also tends to be more severe in the tropics. The small circular hypopigmented lesions are most commonly found on the torso and may be very numerous. Affected areas do not tan well and become more noticeable in the summer or with tanning. Eradication of the infection is difficult and recurrence rates within two years are 60-80%. Topical antifungal medicine is used to treat the infection.

Injury or Inflammation

Any injury to the skin may result in pigmentary changes. These can cause increased or decreased areas of pigment production. Inflammation may be conceptualized as a type of injury so this also may lead to pigmentary abnormalities. This is an uncommon but well-recognized complication of laser therapy in plastic surgery.

Pigmentary abnormalities due to injury seem to be more common in individuals with more natural pigment than in fair-skinned individuals.

Acanthosis Nigricans

This is a disorder of increased pigment. A velvety hyperpigmentation occurs in large patches. The patches are found, in descending order of frequency, in the axillae (armpits), neck, groin, breast folds, inner elbows, back of the knees, and around the mouth. Interestingly, the patient usually refers to the appearance of the initial lesion as a “dirty area”, although it is certainly not dirty. Skin thickening occurs as the disease advances. There is an association with obesity and the disease worsens as the patient gains weight. Acanthosis nigricans occurs in 13% of African Americans, 6% of Latin Americans, and about 1% of Caucasians.

There is a variant of Acanthosis Nigricans disorder with onset in adulthood that is associated with internal malignancies. The rapid onset of this disorder or large, generalized lesions should prompt the physician to search for the underlying malignancy.

Medicines such as insulin, nicotinic acid, diethylstilbestrol, glucocorticoids, oral contraceptive pills, and methyltestosterone can be associated with the development of acanthosis nigricans.

Treatment is weight loss if the cause is obesity. In all other types, treatment is extremely difficult although various topical therapies (topical retinoids, topical corticosteroids) have been tried.

Café-au-Lait Macules

These larger areas are brownish in color (café-au-lait or coffee-with-cream color). They have irregular margins and may be from 0.2 to 20 cm in diameter. They have an association with a potentially serious genetic disease, neurofibromatosis.

Product Recommendations

iS CLINICAL® products that help treat pigmentary disorders include: SUPER SERUM™ ADVANCE+ and ACTIVE SERUM™.

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