

Vitiligo (pronounced /ˈvɪtɪləˈɡoʊ/) or leukoderma is a chronic skin disease that causes loss of pigment, resulting in irregular pale patches of skin. The precise cause of vitiligo is complex and not fully understood. There is some evidence suggesting it is caused by a combination of auto-immune, genetic, and environmental factors. The population incidence worldwide is considered to be between 1% and 2%. [1]

According to Diseases Database: "A disorder consisting of areas of macular depigmentation, commonly on extensor aspects of extremities, on the face or neck, and in skin folds. Age of onset is often in young adulthood and the condition tends to progress gradually with lesions enlarging and extending until a quiescent state is reached."

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Half of people with vitiligo develop patches of de-pigmented skin appearing on extremities before their 20s. The patches may grow, shrink, or remain constant in size. Patches often occur symmetrically across both sides on the body. Occasionally small areas may repigment as they are recolonised by melanocytes. The location of vitiligo affected skin changes over time, with some patches re-pigmenting and others becoming affected.

Vitiligo may also be caused by stress that affects the immune system, leading the body to react and start eliminating skin pigment.

Vitiligo on the scalp may affect the color of the hair (though not always), leaving white patches or streaks. It will similarly affect facial and body hair.

[edit] Symptoms

Some symptoms are:

- * white patches on the skin, including the face, limbs, torso, and groin
- * purple or golden brown patches on mucous membranes and around the eyes, nostrils, and mouth
- * uveitis
- * premature graying of hair
- * sun sensitivity

[edit] Disease mechanism

Vitiligo is associated with autoimmune and inflammatory diseases, commonly thyroid overexpression and underexpression. Jin in the New England Journal of Medicine reported a study comparing 656 people with and without vitiligo in 114 families, which found several mutations (single-nucleotide polymorphisms) in the NALP1 gene. [2] [3] The NALP1 gene, which is on chromosome 17 located at 17p13, is on a cascade that regulates inflammation and cell death, including myeloid and lymphoid cells, which are white cells that are part of the immune response. NALP1 is expressed at high levels in T cells and Langerhan's cells, white cells that are involved in skin autoimmunity.

Among the inflammatory products of NALP1 are caspase 1 and caspase 5, which activate the inflammatory cytokine interleukin-1?. Interleukin-1? is expressed at high levels in patients with vitiligo. There are compounds which inhibit caspase and interleukin-1?, and so might be useful drugs for vitiligo and associated autoimmune diseases. Of the 656 people, 219 had vitiligo only, 70 had vitiligo with autoimmune thyroid disease, and 60 had vitiligo and other autoimmune diseases. Addison's disease (typically an autoimmune destruction of the adrenal glands) may cause vitiligo.

In one of the mutations, the amino acid leucine in the NALP1 protein was replaced by histidine (Leu155->His). The original protein and sequence is highly conserved in evolution, and found in humans, chimpanzee, rhesus monkey, and bush baby, which means that it's an important protein and an alteration is likely to be harmful.[3]

The following is the normal DNA and protein sequence in the NALP1 gene: TCACTCCTCTACCAASerLeuLeuTyrGlnSLLYQ In some cases of vitiligo the first leucine is altered to histidine, by a Leu155?His mutation:

TCACACCTCTACCAASerHisLeuTyrGlnSHLYQ (Leucine is nonpolar and hydrophobic; histidine is positively charged and hydrophilic, so it is unlikely to serve the same function.[4] [5])

The normal sequence of the DNA code for NALP1 of TCACTCCTCTACCAA is replaced in some of these vitiligo families by the sequence TCACACCTCTACCAA, [6] which respectively code for the amino acid sequence of the normal NALP1 protein SLLYQ being replaced by SHLYQ.[7]

[edit] Psychological effects

Vitiligo can have a significant effect on the psychological well being of the patient.[8] This is especially true for darker skinned patients as the contrast between pigmented and depigmented skin can be quite drastic.

In some cultures there is a stigma attached to having vitiligo. Those affected with the condition are sometimes thought to be evil or diseased and are sometimes shunned by others in the community. People with vitiligo may feel depressed because of this stigma or because their appearance has changed dramatically. Other people with vitiligo experience no negative psychological effects at all.[citation needed]

[edit] Treatment

There are a number of ways to alter the appearance of vitiligo without addressing its underlying cause. In mild cases, vitiligo patches can be hidden with makeup or other cosmetic camouflage solutions. If the affected person is pale-skinned, the patches can be made less visible by avoiding sunlight and the sun tanning of unaffected skin. However, exposure to sunlight may also cause the melanocytes to regenerate to allow the pigmentation to come back to its original color.

The traditional treatment given by most dermatologists is corticosteroid cream.[9]

Phototherapy may also be beneficial. Using exposure to long-wave ultraviolet (UVA) light from the sun or from UVA, together with Psoralen, called "PUVA", Or with UVB Narrowband lamps (without Psoralen), can help in many cases. Psoralen can be taken in a pill 1-2 hours before the exposure or as a Psoralen soaking of the area 1/2 hour before the exposure. Lately, PUVA is being more and more replaced with exposure UVB Narrowband light at a wavelength of 311-313 nanometers. This treatment does not involve Psoralen since the effect of the lamp is strong enough. The source for the UVB Narrowband UVB light can be special fluorescent lamps that treat large areas in a few minutes, or high power fiber-optic devices in a fraction of a second.

Studies have also shown that immunomodulator creams such as Protopic and Elidel also cause repigmentation in some cases, when used with UVB Narrowband treatments.[10][11]

Alternatively, some people with vitiligo opt for chemical depigmentation, which uses 20% monobenzone (monobenzylether of hydroquinone). This process is irreversible and generally ends up with complete or mostly complete depigmentation.

In late October of 2004, doctors successfully transplanted melanocytes to vitiligo affected areas, effectively repigmenting the region. The procedure involved taking a thin layer of pigmented skin from the patient's gluteal region. Melanocytes were then separated out and used to make a cellular suspension. The area to be treated was then ablated with a medical laser, and the melanocyte graft applied. Three weeks later, the area was exposed to UV light repeatedly for two months. Between 73 and 84 percent of patients experienced nearly complete repigmentation of their skin. The longevity of the repigmentation differed from person to person.[12]

In early 2008 scientists at King's College London discovered that piperine, a chemical derived from black pepper can aid repigmentation in skin, especially when combined with UV therapy produces a longer lasting and more even pigmentation than previous treatments [2].

A study has shown that orally-taken Ginkgo biloba can be effective in arresting the progression of slowly-spreading vitiligo [3].

[edit] Support organizations

Support groups and organizations are available to help people learn more about vitiligo, understand treatment options, and find support from other people with vitiligo.

Vitiligo Support International is the largest vitiligo organization in the world. The nonprofit organization provides free access to online message boards, chat rooms, frequently asked questions, information and articles, as well as a patient-referred doctor search. The group advocates on behalf of patients, conducts patient conferences and has local support groups.

The National Vitiligo Foundation (NVF) is a 501(c)(3) nonprofit organization that provides access to online resources, physician listings, frequently asked questions (etc); funds research through grants and sponsors local support groups and workshop style conferences.

The American Vitiligo Research Foundation Inc. (AVRF) is a non-profit, tax-exempt charity that aims to increase public awareness about vitiligo and to help those affected by vitiligo, focusing specifically on children and their families. It supports finding a cure through alternatives to animal research.

[edit] Famous people with vitiligo

* Amitabh Bachchan, Leading South Asian Celebrity, diagnosed with the condition in the 1980s. In fact the patches on the hand are quite visible in a number of movies, such as Agneepath.

* Gautam Singhanian, the Managing Director of the Raymond Group of India is a known patient of vitiligo.

* Michael Jackson, revealed he suffers during an interview on The Oprah Winfrey Show in 1993, after being diagnosed in the early 1980s.

* Graham Norton, who has white patches in his hair as a result of vitiligo.[13]

* Lee Thomas, a news anchor and entertainment reporter for WJBK (Fox) Detroit.[14][15][16]

* Bryan Danielson, professional wrestler, revealed on May 19, 2007 in an interview for F4W.[citation needed]

- * Doc Hammer, artist and co-creator of The Venture Bros. has vitiligo on his scalp, causing his hair to grow two different colors.[citation needed]
- * John Henson, comedian and co-host of Watch This![citation needed]
- * Kara-Louise Horne from Big Brother 8 suffers a mild case of vitiligo visible on her forehead. It also runs into her hairline resulting in a blonde patch of hair.[citation needed]
- * Krizz Kaliko, singer/rapper of the Strange Music record label. He has even named his debut album after the condition, Vitiligo.[17]
- * Thomas Lennon, of Reno 911!, as evidenced by close-ups of his hands, hips and face during the bike lock scene of episode "The Investigation Continues." [citation needed]
- * Hedvig Lindahl, Swedish football player.[citation needed]
- * Joe Rogan, actor/comedian/host.[citation needed]
- * Liam J. Holland, British Director/Producer/Editor.
- * J.D. Runnels, of the Chicago Bears.[citation needed]
- * Sisqo, solo and lead singer of Dru Hill reports having vitiligo.[citation needed]
- * Fez Whatley, of the Ron and Fez show has vitiligo patches on his face.[citation needed]
- * Tempestt Bledsoe
- * Merritt Chappie, famous stylist in the Dallas- Fort Worth area.
- * Yvette Fielding, an English broadcaster, actress and multi-millionaire.
- * Ralph Pagano, renowned chef of MOJO HD's Pressure Cook series, has visible vitiligo on his left hand.
- * Dan Amsinger, actor on Battlestar Galactica has it on his face and legs.
- * Richard Hammond, Top Gear Presenter (Jet Car Crash).
- * Eddie Panlilio, governor of the Philippine province of Pampanga, has vitiligo patches on his face.
- * Eric Crim, Elite power lifter, holder of many world records in the 85kg weight division.

[edit] Vitiligo in domestic animals

Vitiligo is sometimes considered a cosmetic defect in the Rottweiler Vitiligo along with poliosis is seen as a familial trait in domestic animals. It is especially common in Arabian horses (called Arabian Pinky Syndrome) and in Rottweiler dogs. It may also cause constant itching in very rare cases.

[edit] See also

- * Alphas
- * Albinism
- * Leucism
- * Melanism
- * Pityriasis alba - the most common and benign cause of pale patches on children's faces.

[edit] References

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2. ^ Gregersen PK (2007). "Modern genetics, ancient defenses, and potential therapies". *N. Engl. J. Med.* 356 (12): 1263-6. doi:10.1056/NEJMe078017. PMID 17377166.
3. ^ a b Jin Y, Mailloux CM, Gowan K, Riccardi SL, LaBerge G, Bennett DC, Fain PR, Spritz RA (2007). "NALP1 in vitiligo-associated multiple autoimmune disease". *N. Engl. J. Med.* 356 (12): 1216-25. doi:10.1056/NEJMoa061592. PMID 17377159.

4. ^ List of Amino Acids and Their Abbreviations
5. ^ The Genetic Code (DNA)
6. ^ Ensembl Transcript Report Ensembl Transcript ID: NST00000262467
7. ^ Ensembl Protein Report Ensembl Peptide: ID ENSP00000262467
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11. ^ Silverberg NB, Lin P, Travis L, Farley-Li J, Mancini AJ, Wagner AM, Chamlin SL, Paller AS (2004). "Tacrolimus ointment promotes repigmentation of vitiligo in children: a review of 57 cases". *J. Am. Acad. Dermatol.* 51 (5): 760-6. doi:10.1016/j.jaad.2004.05.036. PMID 15523355.
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13. ^ Lynn Barber interviews Graham Norton | Food monthly | The Observer
14. ^ Turning White
15. ^ "I'm a black man turning white on television and people can see it," says Thomas, an anchor and entertainment reporter for the local Fox Broadcasting Company affiliate. "If you've watched me over the years, you've seen my hands completely change from brown to white." [1], Fox News
16. ^ 'I'm a black man turning white on television', BrisbaneTimes, December 18, 2007
17. ^ (2007-10-25). Big Krizz Kaliko (FLV). Retrieved on 2008-02-04. "Be looking for my album coming out Spring of 08, it's called Vitaligo, I am the Funkra, you know what I'm saying? Vitaligo that's the pigmentation disease I have in case you don't know."