

Vitiligo (This is just my personal opinion) - Revised on August 29, 2024

What is Vitiligo?: Vitiligo is a general term for depigmented patches on the skin and mucous membranes caused by acquired immune abnormalities, accumulation of peroxides, abnormalities in keratinocytes and fibroblasts, lipid peroxides, type IV collagen, intercellular signaling substances, and genetic predisposition. It is said that 1% of the total population in Japan is affected. It is important to differentiate it from congenital depigmented nevi, post-inflammatory hypopigmentation, tinea versicolor, and senile leukoderma. There are three types: the refractory progressive non-segmental type (generalized type), the segmental type that appears along the nerve pathways on either side of the body, and the localized type that does not change much in one place. In the latest international classification, it is divided into Non-segmental type and Segmental type. In the generalized type, one in three people has an autoimmune disease (predisposition) such as collagen disease or thyroid disease, but there are more people who are pre-symptomatic than those who actually develop the disease. It is often asked whether vitiligo is hereditary, but while the predisposition to develop vitiligo is inherited, vitiligo itself is not. In the case of the segmental type, symptoms often stabilize after a few years of progression. After that, it becomes resistant to treatment, so graft treatments such as SBT (described later) are indicated. Although recurrence is rare after more than ten years, it can be almost completely cured with grafting. The generalized type is refractory, but the longer it is left untreated, the more resistant it becomes to treatment (chronic vitiligo).

Treatment: Treatment is based on three main principles: correction of immune abnormalities, increase in the number of pigment cells, and promotion of melanin production. Steroids and Protopic ointment are used to correct immune abnormalities, and recently, topical JAK inhibitors and anti-PDE4 antibody ointments have been used. Oral treatment mainly involves IPD. It corrects the excessive response of the intercellular signaling substance IL4. For pigment regeneration, ultraviolet light therapy, active vitamin D3 ointment, prostaglandin ointment, and traditional calcipotriol solution are used. Papral cream and dried ginger oil are effective for removing peroxides. For the removal of harmful substances (unknown substance X that is thought to prevent the migration of normal pigment cells in the vitiligo area), my personal opinion is that 1% L-menthol cream or epidermal peeling with a carbon dioxide laser may be effective. Stress, which should not be forgotten as a trigger for vitiligo, can also lead to dramatic recovery by alleviating or eliminating stress. The relationship between stress and vitiligo has been reported in a large cohort study (retrospective study) from Northern Europe.

Phototherapy: Narrowband UVB (NB-UVB), excimer light, and excimer laser ultraviolet irradiation therapy are effective treatments for refractory skin diseases such as psoriasis and vitiligo, and are covered by insurance. At our clinic, 91.4% of all patients have started pigment regeneration or are close to complete recovery. It has the greatest effect during vitiligo treatment, combining immunosuppressive and pigment regenerative effects. Compared to older treatments, it has significantly fewer side effects and is highly safe, making it suitable for children. Recent cohort studies have shown that the incidence of skin cancer due to ultraviolet irradiation therapy is no different from that of non-irradiated groups. Additionally, colored light irradiation with LED (light-emitting diode) treatment devices, such as red, blue, and yellow light, increases enzyme activity within pigment cells and activates melanin production. Approximately 30 or more irradiations are the treatment guideline.

New Ultraviolet Irradiation Therapy: The VTRAC (excimer lamp), the best targeting UVB irradiation device (excimer light), shows excellent effects on vitiligo, psoriasis, palmoplantar pustulosis, and multiple alopecia areata. With a maximum power of 4500mJ, it is 180 times more powerful than conventional narrowband UVB irradiation devices and twice as powerful as excimer lasers, with excellent skin permeability and the ability to irradiate only the lesion, making it highly safe. Please visit our clinic to experience it. We have also introduced the latest small, high-performance excimer lamp called the 308 excimer system. Furthermore, with the advent of Korean-made titanium

sapphire lasers (311nm) and excimer lasers (308nm), ultraviolet therapy is shifting from lamps to lasers (all covered by insurance).

Oral Treatment: Traditional oral treatments included herbal medicines and immunomodulators such as cepharanthine, but statistically, there is little evidence of their effectiveness, and they are considered to be of little use. However, 30 years ago, a report from Fukushima Medical University showed that out of seven patients with generalized vitiligo who took IPD (formally known as IPD), three showed dramatic pigment regeneration, and one of the remaining four had halted progression of vitiligo. The mechanism of action is to slowly normalize the excessive initial part of the allergic reaction (IL4), acting as a constitutional improvement agent (originally a constitutional improvement drug for atopic dermatitis and asthma). Since this report, I have prescribed IPD to almost all patients with progressive vitiligo, and many patients experience a resurgence of vitiligo when they stop taking it during a stable state, or see new or expanding vitiligo stop when they resume taking it. Therefore, it seems to have about a 50% effectiveness. The advantage of oral medication is the prevention of new or expanding vitiligo. Although long-term oral administration is required, there have been no reports of serious side effects. Rash, urticaria, headache, abdominal pain, malaise, constipation, diarrhea, drowsiness, and taste abnormalities occur in about 1% of cases. There is also a dry syrup for children. Other treatments include Hochu-ekki-to and other herbal medicines, vitamins C and E, folic acid, and foliamin for their antioxidant effects, although these are less effective. In the rapid expansion phase of vitiligo, mini-pulse therapy with oral steroids is also effective.

Topical Treatment: Topical steroids are necessary for progressive vitiligo. Weak steroids are often prescribed for the face, but since vitiligo does not become steroid-dependent like atopic dermatitis, the first-choice drug is Topical Cream, which is expected to be effective, except around the eyes. Tacrolimus ointment, an immunosuppressant, is also effective but slightly weaker than steroids. Tacrolimus ointment is contraindicated for sun exposure, but there are reports that its effect is enhanced when used in combination with narrowband therapy, although there are also reports that it does not change. Several papers on this evidence have been published in recent years. In my opinion, I agree with the latter report. Additionally, active vitamin D3 ointment has been used in Europe and the United States for about 30 years, and more than 80% of patients have shown effectiveness. The mechanism of action is to increase the local calcium ion concentration, thereby increasing melanin production activity and promoting the proliferation of melanocytes. Please note that it is only effective when used in combination with sun exposure or ultraviolet therapy. Consider natural sun exposure in daily life as a blessing for vitiligo treatment. Of course, sunscreen is necessary during excessive sun exposure such as at the beach or sports events. Several types of D3 ointment are available in Japan, but in my opinion, Bonalfa High Ointment (100 times the concentration of regular D3) is the best. Prostaglandin ointment can also have dramatic effects on refractory vitiligo (none of these are covered by insurance).

New Topical Treatments for Vitiligo: Research over the past 20 years has shown that one of the reasons vitiligo is difficult to cure is the accumulation of hydrogen peroxide and reactive oxygen species in the vitiligo area due to decreased catalase enzyme activity (recent findings show a decrease in the surrounding normal area rather than the vitiligo area), making pigment regeneration difficult due to their cytotoxicity and inhibition of melanin polymerization. The treatment involves delivering catalase or reactive oxygen species-decomposing enzymes to the skin. Although there are topical agents with pseudo-catalase activity overseas, inquiries to the manufacturer have so far gone unanswered. A few years ago, I had the opportunity to learn about a drug called Papral, and thanks to the generosity of the pharmaceutical manufacturer, I received 10 doses each of the oral solution, lotion, and cream. This is a mixture of platinum and palladium nanocolloids, with platinum having catalase-like activity to decompose peroxides, and palladium reducing oxidized platinum to reactivate it, providing a groundbreaking antioxidant effect.

In practice, the cream was most effective, with about 70% of patients with refractory vitiligo showing pigment regeneration when applied twice daily to the refractory area. As the number of cases increased, patients with remarkable effects maintained their effectiveness. In my opinion, Papral is expected to be more effective in the early stages of vitiligo. Incidentally, thanks to the special generosity of the pharmaceutical company, it is available at half the market price, 4400 yen for 46g. Recently, there have been reports that combined treatment with topical JAK inhibitors and ultraviolet irradiation is effective. Furthermore, we discovered that combined treatment with topical anti-PDE4 inhibitors and ultraviolet irradiation has an efficacy rate of 85% to 90% in over 250 vitiligo patients

About SBT: At our clinic, we perform suction blister therapy (SBT) for selected cases (limited to non-progressive vitiligo). Here is an overview of SBT. A 10cc syringe is attached and suction is applied with a vacuum pump. There is a dull pain like pinching, and when small blisters form, a unique tingling pain begins. By lying down for 2-3 hours, clean blisters are formed. On the other hand, the same procedure is performed on the normal skin on the inside of the arm, and the normal skin is placed on the skin after the vitiligo is removed and fixed for a week to engraft. The right side shows vitiligo after SBT. Even in vitiligo areas where no pigment regeneration was observed with conventional treatments, this new treatment shows beautiful pigment regeneration not only in the grafted area but also around it. It takes time for all vitiligo to be completely cured, but it will be a blessing for those who had given up. This treatment is possible from around 8 years old and is indicated for those with segmental vitiligo who have had no progression for several years. Please note that this is a self-funded treatment and costs 10,000 yen per site. Recently, with carbon dioxide laser epidermal ablation, it has become possible to accurately remove the vitiligo area in a precise pattern, significantly improving the engraftment rate of grafts. However, surface anesthesia with ODT or local anesthesia by injection may be necessary. There is no scar formation with SBT, so please rest assured.

Patterns of Pigment Regeneration in Vitiligo: There are three patterns. Pigment regeneration from the normal edge, follicular conformity, and a pattern that appears diffusely overall. It is easier to regenerate when accompanied by redness from phototherapy, but redness is not necessarily required. There are also composite pigment regeneration patterns of these three. Follicular conformity is considered the most efficient, but in practice, composite pigment regeneration is the fastest and most effective, although the pattern of pigment regeneration cannot be chosen.

Further New Treatment Attempts: We have started working on a new vitiligo treatment method that cycles through seven colors of LED light (self-funded treatment).