



VITILIGO: SYMPTOMS, PATHOGENESIS AND TREATMENTS BY USING DIFFERENT THERAPIES

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ABSTRACT:

Vitiligo is an acquired disorder of pigmentation, caused by decreased production of melanin as a result of dysfunction of melanocytes. Hair and, in rare cases, eyes may also lose their colour. Vitiligo is a fairly frequent dermatological condition that has been documented since antiquity. The cause of vitiligo is uncertain however an autoimmune pathophysiology appears to be the most likely explanation. Because vitiligo can have a significant impact, Treatment can be considered and should preferably begin early when the disease is diagnosed because it has an impact on quality of life. The current therapy approaches are aimed at slowing the disease's course and achieving a cure repigmentation. Treatment is similarly problematic; allopathic medications are just suppressive, not therapeutic. A number of novel therapies have shown to have a lot of promise. Therapies include corticosteroids, topical immune modulators, photo (chemo) therapy, surgery, combination therapies and repigmentation of normally pigmented skin. Traditional Chinese medicine appears to be more successful than the modern vitiligo treatment. Vitiligo, melanin, repigmentation, treatment, dermatology are some of the terms used to describe the condition.

KEYWORDS: Vitiligo, melanin, repigmentation, treatment, dermatology.

INTRODUCTION:

Vitiligo is an acquired pigmentation condition that is not communicable, strongly defined white patches of varying form and size that grow in size and number over time. Vitiligo is a long-term skin clinical syndrome characterized by pigment loss in certain areas of the skin. The skin that has been harmed turns white and has sharp edges. The hair on the skin may also turn white. It is really possible that the insides of your mouth and nose will be effected as well. Both sides of the body are usually affected¹. The patches usually start on sun-exposed parts of the skin. People with dark complexion will notice it more. Vitiligo can cause psychological distress and stigmatization for those who have it. Vitiligo has an unknown cause. It's assumed to be induced by an active response that activates a predisposition. There is a condition known as autoimmune disease. A numbers of risk factors exist, including: Hyperthyroidism, alopecia, and other autoimmune illnesses, such as hyperthyroidism and alopecia areata, have a familial history of the condition.² Pernicious anemia is a type of anemia that is caused by a lack of iron the two basic kinds of vitiligo are segmental and non-segmental. The majority of instances are non-segmental, meaning they affect both sides, and the affected skin area often extends during time. About 10% of instances are segmental, meaning they predominantly affect one side of the body, and the affected area of the skin does not often expand over time. Diagnosis can be difficult tissue sample will be used to confirm the diagnosis. Vitiligo has no known treatment. Sunscreen and a good lotion are essential for persons with fair skin. All that is usually advised is eyeliner. Steroid creams or injections are two other therapeutic possibilities. To darken the brilliant

spots, phototherapy is used. Alternatively, efforts to lighten the skin that has not been altered, such as using is possible to try hydroquinone. For those who do not respond to alternative treatments, there are a number of surgical possibilities. In most cases, combining therapies yields superior results. Counseling to provide emotional support may be useful. Globally about 1% of people are affected by vitiligo. In some populations it affects as many as 2±3%. Males and females are equally affected. About half show the disorder before age 20 and most develop it before age 40. Vitiligo has been described since ancient history.³

Melanocytes synthesize melanin from the amino acid tyrosine in the presence of an enzyme called a melanosome. Melanin is a pigment that is required for the formation of skin color. Vitiligo is a skin condition in which areas of skin lose some or all of their melanocytes, resulting in irregular white spots as depicted in Figures 1 (a) and 1 (b).

Vitiligo affects approximately 1% of the world's population. It does not consist of differences in the population due to racial, sexual, or regional differences. According to certain sources, the incidence of Vitiligo is higher than India, Egypt, and Japan. It affects anywhere from 1.25 percent to 6% of the population. Vitiligo normally appears after a period of time more in childhood or young adulthood (20-30 years old), and around 30% have a pleasant familial environment history.⁴

Segmental (SV), Non-segmental (NSV), and Mixed Vitiligo are the three major types of Vitiligo (MV). Vitiligo that originates on one side of the body and stays there is known as segmental vitiligo. It's only rarely linked to autoimmune illness. Except for segmental vitiligo, all kinds of vitiligo are classified as nonsegmental. It is an autoimmune disorder that frequently resembles other autoimmune diseases. Both sides of the body are involved.

In the rare circumstances where Segmental Vitiligo develops Mixed Vitiligo, the two kinds of vitiligo overlap. Clinical lesions are asymptomatic and range in size from a few centimeters to a few meters.

Vitiligo White spots on the hands and wrists, feet, arms, face, lips, axillae, and perioral, periorbital, and per orbital areas is common. A genital skin is the skin of the male reproductive organs. Vitiligo can also affect the body's mucous membranes, including the tissue within the mouth. Nose and mouth it can also have an impact. Treatment of pediatric vitiligo is critical because it has a significant psychosocial and long-term impact on the affected children's and parents' self-esteem.⁵

The white spots of vitiligo do not spread in most cases. However, the white patches may extend to other parts of the body in certain circumstances. In some cases, Persons patches spread slowly in some people and swiftly in others. White is used when there is a lot of physical or chemical tension. Patches rapidly spread Physical or emotional stress causes white patches to spread more quickly. Vitiligo is typically different from normal skin on examination based on pathology. It is, nevertheless, marked by a lack of immune histochemistry can also be used to diagnose melanocytes, as indicated by electron microscopy. Proteins linked to melanocytes Vitiligo's Causes and Treatment Genetic, immunological, and environmental variables all have a role. Environmental variables play a key influence in the development of Vitiligo in clinical terms. Vitiligo is caused by trauma, eczema, chemical irritants, and keratinocyte fragility. As a result, these aspects should also be considered during the process.⁶ Autoimmunity, neurohumoral factors toxic to the skin, and others are among the theories of Vitiligo pathogenesis. Self-destruction of melanocyte via toxic intermediates of melanocyte and emitted by adjacent nerve terminals Melanin synthesis is a process in which melanin is produced. In stress-induced vitiligo, skin lesions are typically limited to the seborrheic area. The In the instance of traumatic vitiligo, lesions are confined to areas of injury or pressure. Depigmented lesions tend to occur in areas of a specific pre-existing dermatitis and it is called dermatitis associated Vitiligo.⁷

Fig. 1(a): Skin produces irregular white spots Fig. 1(b): Skin produces irregular white spots



fig. 1(a): skin produces irregular white spot



fig. 1(b): skin produces irregular white spots

CLASSIFICATION OF VITILIGO:

A] Nordlund Classification: Nordlund established a clinical classification based on distribution and extension of vitiligo lesions.

There are three forms of vitiligo: localised, generalised, and global.

Vitiligo with a specific location: Focused vitiligo (one or more patches in one place but not in a segmental pattern) and segmental vitiligo (one or more maculae in dermatomal pattern) are the two types of localized vitiligo that affects the face (affecting face and distal extremities), mixed (the most common variation with asymmetrical distribution of lesions in typical zones) and vulgaris (the most common variant with a symmetrical distribution of lesions in typical zones) Types of (segmental plus vulgaris or acro facial). Vitiligo is a condition that affects people all over the world. Vitiligo affects over 80 million people worldwide %of the total body mass.

B] Koga Classification: This is a more recent classification subdividing vitiligo into two clinical types: Vitiligo non-segmentalis (Type A) and vitiligo segmentalis (Type B). Type A is the most common. Sutton nevus, thyroid disorders, juvenile diabetes mellitus, pernicious anemia, and Addison's cancer are all common, have a potential lifelong evolution, and are frequently associated with autoimmune. Sutton nevus, hypothyroidism, juvenile diabetes mellitus, pernicious anemia, and Addison's disease are all common, have a potential lifelong advancement, and are frequently associated with auto antibodies as juvenile diabetes mellitus, pernicious anaemia, and Addison's disease. Type B Type B is rarer and has a dermatomal distribution. After rapid onset and evolution it usually exhibits a stable course.⁸

SYMPTOMS:

The most important symptom of vitiligo known is the depigmentation of patches of skin. The patches are modest at first, but they will grow in size with time. The face, hands, and wrists are the most common sites for skin lesions. Patients with this condition frequently experience depression as well.⁹

VITILIGO DIAGNOSIS:

Vitiligo diagnosis is quite challenging to determine the exact type of vitiligo should be able to distinguish between various skin problems such as full depigmentation, hypopigmentation, etc. Pigmentation and the skin's natural color. Vitiligo is difficult to diagnose in persons who have light skin. Audiometer for pure tone and speech, sound-treated room Evoked Response Audiometer, Madsen Cochlear Emission Analyzer, Immittance Meter Vitiligo can be diagnosed with Nickolet Compact four and Wood's light lamp equipment. Audiometer for pure tone and speech, sound-treated room Evoked Response Audiometer, Madsen Cochlear Emission Analyzer, Immittance Meter Vitiligo can be diagnosed with Nickolet Compact four and Wood's lightlamp equipment the colour of the skin's complexion. Wood's light is highly helpful in diagnosing vitiligo inpatients with skin problems. Type I and type II Pure tone and voice audiometer, sound-treated room Immittance Meter, Evoked Response Audiometer, Madsen Cochlear Emission Analyzer Nickolet Compact four and Wood's light lamp equipment can be used to diagnose vitiligo. Vitiligo is more associated to autoimmune diseases. Although these three theories are adequate to explain the mechanisms of vitiligo, the convergence theory proposes that stress, toxic compound accumulation, infection, autoimmunity, polymorphisms, a changed cellular environment, and impaired melanocyte mobility are all elements that lead to the disease and proliferation can all play a role in vitiligo in varying proportions. Vitiligo etiopathogenesis According to some research, vitiligo is caused by autoimmune. According to a study when vitiligo patients' lesion, perilesional, and non-lesional skin samples were compared to A key role was played by immunological infiltrates identified in the skin of normal healthy donors and relevant illness controls. In vitiligo, skin-homing T lymphocytes have been observed in the demise of melanocytes.

A chromatic function for hereditary variables is played by 20% to 30% of patients. However, it is insufficient even though a variety of ideas have been proposed as potential triggers for vitiligo, research clearly suggest that abnormalities in the immune system are to blame. Vitiligo is assumed to be a complex disease, with hereditary susceptibility and environmental variables both believed to play a role. The protein tyrosinase, which is not part of the immune system, is encoded by the TYR gene. But is a significant auto antigen in and a melanocyte enzyme that catalyses melanin production. Vitiligo has spread through the body. The National Institutes of Health states that some believe that sunburns can cause or exacerbate the condition, but that this idea is not well-supported by good evidence.¹⁰

VITILIGO PATHOPHYSIOLOGY:

Vitiligo is a common skin and hair disorder that affects about 4% of the global population. It is defined by confined white spots on the skin that enlarge radially outward with time. On a case by case basis, the progression of vitiligo is unexpected. The disease's natural path is usually one of sluggish progression, but it can quickly stabilize or exacerbate. In vitiligo, some degree of spontaneous or sun-induced repigmentation is common, although total and stable repigmentation is rare. Repigmentation is an uncommon occurrence. The absolute absence of melanin is a distinctive histological picture Melanin-forming cells, or melanocyte, in a dermis and epidermis that is otherwise normal. Vitiligo progression is unpredictable on a case-by-case basis. The disease's normal development is usually slow, although it can abruptly stabilize or exacerbate. Although entire and persistent repigmentation is uncommon in vitiligo, some degree of spontaneous or sun-induced repigmentation is prevalent. Repigmentation is a somewhat rare occurrence. The complete lack of melanin is a distinguishing histological feature. Melanin-producing cells, also known as melanocytes, are found in the normal dermis and epidermis. The neural hypothesis suggests that accumulation of some neurochemical mediator causes decreased melanin production. The autoimmune theory is the most widely held, and it is based on the discovery of melanocyte-specific antibodies capable of causing necrosis in cultured human melanocytes. Due to the availability of procedures for growing normal human melanocytes, recent improvements in melanocyte research have been made. Melanocytes have opened up new avenues in the study of vitiligo. Vitiligo may be caused by intrinsic melanocyte abnormalities, hereditary factors, metabolic or neurotransmitter imbalances, defective free-radical defense mechanisms, and inappropriate growth factor responses. Composite theories have been developed

since each of these hypotheses has its own line of evidence. Offered, combining all ideas to account for all vitiligo data. So many people's descriptions in a recent convergence study, credible contributory aspects to the etiology of vitiligo were also discussed. Different causative factors may act alone or synergistically to cause the demise of a species melanocytes. Vitiligo could be a complex condition caused by a number of reasons that range from patient to patient. The biological behaviour of melanocytes is influenced by the stages of the disease. The issue has been raised whether vitiligo is a disease or a syndrome or a single disease. What are the characteristics of vitiligo macule melanocytes? Cells having structural characteristics of melanocytes are not found in established vitiligo skin, according to ultra structural investigations. Extensive panels of monoclonal antibodies specific for numerous melanocyte antigens were used in histochemical experiments, but no results were found. Indicate any staining of pigment cells in the vitiligo epidermis, even if they are dormant. These facts back up the theory. Melanocytes are killed in vitiligo that has progressed. Vitiligo has a distinctive histologic appearance. Melanocytes and melanin pigment are absent. Hemophagocytosis destroys melanocytes in pictures. If there are any, they are extremely rare. Although complement-fixing antibodies are thought to cause a strong neutrophilic response, In the case of vitiligo skin, there is no such infiltration. In vitiligo shown itchy red borders, just a few mononuclear cells and lymphocytic are detectable along the periphery of the lesion. The histologic picture does not support autoimmunity playing a major role in vitiligo; nonetheless, morphologic studies have shown modest abnormalities in the normally looking skin. Degenerative alterations in melanocytes in the vicinity of vitiliginous skin vacuolar changes of basal cells F7 mild vesiculation in the epidermis H and intradermal and epidermal infiltration of lymphocytes- LT changes seem more prominent in the skin of actively spreading vitiligo than in stable vitiligo.¹¹

EPIDEMIOLOGY:

Despite its widespread distribution, it is particularly prevalent in India, Egypt, and other tropical countries. Vitiligo is difficult to cure because of its cryptic nature, especially when the disease is active and progressing. The distribution of vitiligo among the patients was 53.2% in males (n=74) and 46.8% in females (n=65). Among the total 139 patients 89 (64%) were from urban areas and the remaining 50 (36%) were from rural areas. The Mean \pm SD age of the patients was 25.06 ± 17.6 years. It occurs in all global regions and ethnic groups with same frequency affects 0.1-8.8 % of the population. Half of people who get vitiligo show signs by the age of 20, and 95 percent by the age of 40. Males and females are both affected with a 7 percent frequency; it is common in familial units. Physicians classify vitiligo into several categories.¹²

VITILIGO TREATMENTS:

1] Homeopathy: It is a holistic remedy that works at the full individual. It means that natural health treatment considers the patient as a full person rather than just his ailment. Homeopathic medicines are selected following a thorough personalizing examination and practical exercises that takes into account the patient's symptoms, physically and psychologically constitution, and other variables. A miasmatic inclination (predisposition/susceptibility) is frequently considered in the management of chronic illnesses. The therapeutic affinity of the drugs listed below is an indication only; it is not a complete and definitive list. Treatment for this ailment the symptoms listed next to each drug may or may not be related to this condition. When choosing a remedy in homoeopathy, general symptoms and constitutional indications are also considered. Ars. alb, Ars. sulph.flavum, Bacillinum are all homoeopathic remedies. Graphites, Mercsol, Nat.mur, Nit.acid, Nux vomica, Phos. Sep, Sil, Sulph, Thuja.¹³

2] Yoga Therapy: Kapalbhathi is best done first thing in the morning. If getting up early in the morning is a challenge; it should be done after 3-4 hours of eating. One Inhale lazily and expel strongly when sitting in sukhasana or padmasana. As a result, blood circulation with aeration Even if you are unable to sit in padmasana, you can practice it seated on the floor chair with a straight back. The nostrils should be used for inhalation and exhalation, and the abdominal muscles should be used to put into action Kapalbhathi aerates blood circulation, making it particularly effective for skin conditions such as psoriasis, eczema, allergies, leucoderma and vitiligo. It has a fantastic effect and is a true miracle in the treatment of acne. This treatment had treated a number of mental illnesses, including anxiety, depression, and even schizophrenia asana.¹⁴

3] Treatments based on Ayurveda: Vitiligo is known as Switra in Ayurveda, and it is mostly caused by the Pitta Dosha is considered to be exacerbated. Pitta causes toxins (ama) to build up in the deep

layers of the skin, causing acne. Vitiligo is a skin ailment. Calming unbalanced body energies is a basic treatment for this condition. The blood is cleansed, and medicines are administered to restore the skin's colour. Poor digestion leads to a build-up of toxins in the body. As a result, it is a source of toxins in the body. As a result, repairing digestion is a vital aspect of the body's function (Jiva Ayurveda). Ayurvedic treatment (Shodhana Karma) that incorporates the use of PsoraleaCorylifolia and Eurphorbianerifolia herbal decoctions. Oil massage is the second stage, in which the oil is chosen according to the patient's disease condition (roga). Observation (rogiPariksa). The third stage is to expose the lesions to the sun's rays, depending on the patient's tolerance. The patient (Sooryapadasanthapam). The fourth and last phase is the delivery of an herbal decoction (kwatha). CalliCarpamacrophylla, Ficushispida (malayu), Ficushispida ((priyangu), Coleus vettiveroides (ambhasa), Peusedanumgraveolens (satapuspa), and alkaline extract of Buteamonosperma (palasaksara), as well as an alcoholic jaggery preparation (the preparation is known as in Ayurveda, phanitha) to the sufferer. During the fast, the diet should be salt-free and include buttermilk. Decoction treatment.¹⁵

Many ayurvedic herb formulations those are available. Ayurvedic Herb Formulations (Table 1) Type of Ayurvedic Probable herbs used Formulation Ankollakadi, Avalgujadi, Bakucyadi, Balyadi, Bhallatakadi, Lepa Bhringarajadi, Gandhakadi, Grhadhumadi, Gunjadi, Gunjaphaladi, Katukalabvadi, Man asiladi, preparation) Maricadi, Panca Nimbava, Pathyadi, Patrakadi, Putikadi, Talakadi, Triphaladi, and Vayasyadi Bakucibeeja yoga, Bakuciprayoga, Bhadrodumbarikadi Kashaya (Mixtures) yoga, Dhatriyadi kwata, Kakodumbarikakasaya and Khadiradikashaya Churna (Compound Bakucyadyachurna, Kakodumbarikadi yoga, Powder) Khadirasaradichurna and Pancanimbachurna Ghrita (Paste) Dantiyadighrita, Mahamarkaraghrita, Mahaneelaghrita, Mahatiktakaghrita, Mahavajrakaghrita, Neelakaghrita, Neelighrita, Neelinyadighrita, Somarajighrita and Tiktakaghrita Avaleha (Oral Semisolid Bhallatakavaleha and Vidangadileha preparations) Aragwadhayadyathaila, Citrakadyathaila, Jyotismatithaila, Thaila (Oil Kusta Kalanalathaila, Kustarakasathaila, Laghumaricadyathaila, preparations) MahaVajrakathaila, Manasiladyathaila, Maricadyathaila and Vishathaila Asava Arista (Fermented Kanakabindvarista and Madhwasava preparations) Vati/Gutika (tablets) Swayambhuva Guggulu, Thriphaladi gutika and BrhatSwayambhuva Guggulu Rasousadha Candraprabhavati, Galitakustari rasa, (Formulations Khageswara rasa, Kustebhakesari rasa, containing processed Medanisara rasa, Pittalarasayana, minerals and metallic Talakeshwara rasa and Vijayeswara rasa salts)

4] Traditional Remedies for Treatment of Vitiligo: Psoralea seeds should be steeped in the three days, drink ginger juice or cow's pee. Every day, the fluids should indeed be replaced. The seeds should indeed be dried inside this shade and pulverised afterwards removing the coverings with your hands. For 40 days, one gramme of this powder should be consumed with fresh milk every day. The ground seeds should be used to treat the white areas as well. Babchi seeds are very beneficial when coupled with tamarind seeds. An equal number of both seed should be steeped in water for 3 to 5 days. Then they should be shelled and hung to dry in the shade They should be crushed into a paste and applied for a week on the white spots If the paste causes itching or the white spots turn red and a fluid starts to flow out, it's time to stop using it should be phased out. If there isn't any, Copper in the clay appears to restore skin pigmentation, while ginger juice acts as a milk stimulant, allowing for increased blood flow to the spots. The paste of radish seeds is beneficial in the treatment of leucoderma. 35 g of powdered seeds should be applied to the white spots in vinegar. For the greatest results, the seeds should be properly mashed, mixed with a little light arsenic, and steeped in vinegar overnight. It should be massaged on the leucoderma spots after two hours, when leaves develop. Turmeric and ginger Mustard oil has also been shown to help with the treatment of leucoderma. Turmeric, in the amount of 500 grammes, should be used. At night, they were pummelling and doused in eight kilogrammes of water. It should be cooked in the morning until it is ready to use. It should be applied on white patches every morning and evening for a few months.¹⁶

5] Allopathy:

a) Allopathic topical treatments: It includes a variety of topical steroid and immune modulator formulations. Vitiligopatches can be effectively treated with topically applied steroids. Betamethasone, valerate, triaminolone, and highly strong corticosteroids such as alobetasol and fluticasonepropionate are useful in obtaining. Repigmentation of the skin that is marked or almost complete. Tacrolimus and pimecrolimus are immune modulators. When used topically, they can help

with vitiligo treatment. These can be used to heal both little and large for example wound Eyelids are a difficult area to work with.

b) Surgical therapies: In surgical therapies white patches are treated with the help of different surgeries. It involves different mechanisms of surgery Grafts are implanted into perforations created at the recipient locations in the Autologous Skin Grafts procedure. This sort of grafting is appropriate for patients with segmental vitiligo. Blisters are utilised in blister grafting. Blisters can be caused by a variety of factors, including suction. Alternatively, liquid nitrogen the mechanical split occurs at the dermo epidermal junction, and the graft is secured on the dermoepidermal junction site of the recipient. The disadvantages of this therapy are mostly acobble stone look and a limited treatment area per session. The two methods mentioned above Epidermal cell transplantation can be used to circumvent these restrictions. This method entails applying a melanocyte-rich suspension to the afflicted area and allowing it to graft. The key benefit of this approach is that it only requires one treatment. Micro pigmentation (tattooing) is a permanent cutaneous micro pigmentation procedure. It is accomplished by employing a non-allergic iron, pigment made of oxide. These pigments give color to the skin.

c) Additional therapy options: If there is no treatment, Alternative cover-ups can be utilised if the treatment succeeds. The skin of a leukodermic patient is readily injured. The effect of sunburn lasts for a long period. As a result, to avoid overexposure to the sun and to prevent Sunscreens for sunburn can be used. Cosmetics cover-ups are used to conceal untreated white areas on the skin are quite beneficial.

d) Pigmentation removal: It entails dimming the rest of the body's skin to make the entire body appear white. Permanent melanocytotoxic agents can be utilised for this, such as monobenzyl ester of hydroquinone cream and 4-methoxyphenol.

e) Other Treatment: Drugs Trioxsalen is an orally administered drug. It works by boosting skin pigmentation enhances the skin's resistance to UV light. This medication can induce a cutaneous reaction in some people. Methoxsalen It's possible to use it both orally and topically. The medicine is taken 2-4 times a day in oral dose form (20mg/day).hours before being exposed to the sun It makes you feel sick to your stomach. 0.1 percent as a topical dose to 1% lotion is applied and sun light or UV light exposure is given. It can create a photosensitivity reaction that is Acute, Vesicular, and Cutaneous. The two drug's formulation may induce severe sunburn.¹⁷

CONNECTED PROBLEMS WITH THE TREATMENT:

Vitiligo can be treated using the therapies listed above. But these treatments are not that much effective. These treatments are having longer duration of time may be 2 or more than 2 years with continuous therapy.

Patients become frustrated as a result of these factors and stop receiving treatment. Furthermore, there is less infiltration of the drug photosensitizer through the skin or permeation through oral administration, reducing the therapy's effectiveness. Additionally, it has several extra symptoms and negative effects. Gastric discomfort, dermatological photosensitivity reactivity, Sunburn, Scorching, Itching, Nausea, Tanning, and severe erythema are some of the drug's adverse effects and additional symptoms. Stressful life and other factors like type of clothes smoking habit also affect the treatment negatively.⁴

SOLUTIONS TO THE PROBLEMS THAT MAY BE AVAILABLE:

In oral treatment, the medicine enters the bloodstream and then travels to the epidermis via the bloodstream, whereas in topical treatment, the drug travels directly to the epidermis, making topical therapies

Oral treatments take longer. Permeation of the medication via the skin in topical formulations is currently challenging. Permeation enhancer can be added to the formulation to overcome this problem. Rapid delivery of the drug can be obtained by reducing the particle size of the skin. To obtain small particles novel deliveries of the formulation can be prepared.

In Novel deliveries phospholipid structured vehicles like ethosomes, transferosomes, liposomes, lecithin organo gels, lipid emulsions etc can be prepared. Due this novel delivery penetration of the drug can be enhanced through the skin. To treat the additional symptoms additional agents can be given with the treatment incorporating into the same formulation or given separately.

Antiemetic medicines can be used to treat nausea, soothing compounds can be used to treat itching and burning, and antacids such as proton pump inhibitors or agents that lower stomach HCl levels can

be used to treat gastric disturbances. Sometimes during treatment inflammation of the skin occurs due to injury to the skin cells. To treat this type of conditions anti-inflammatory agents can be given with the treatment. By changing the living habits of the patients depending on their individual clinical presentation of Vitiligo the disorder can be reduced. Positive thinking and reducing stress could help to reduce the lesions because severe stress increases the lesions. It is critical for patients with lesions in a seborrheic distribution to get enough rest and consume antioxidants. Patients who have a smoking habit should quit because it depletes the body's resources. Antioxidants are necessary components of the human body. Vitiligo caused by friction or trauma, close boots or jeans, as well as elastic stockings, should be avoided.⁴

PREVENTIVE MEASURES:

The patient should avoid tea, coffee, alcoholic beverages and all condiments and highly flavored dishes.²⁰

CONCLUSION:

Vitiligo is a skin condition in which melanocytes are destroyed in various ways. There is no unanimity on the pathogenesis of vitiligo, and there is no medication that can entirely cure vitiligo. More randomized controlled trials on the treatment of vitiligo are necessary. Improved therapeutic and diagnostic modalities would substantially increase the compliance and satisfaction of patients. The fact that vitiligo is linked to other disorders suggests that understanding the pathophysiology of vitiligo could be useful for reasons other than the skin. Human skin pigmentation is a result of UV exposure. The fact that vitiligo is linked to other disorders suggests that understanding the pathophysiology of vitiligo could be useful for reasons other than the skin.

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