



Vitiligo: Herbal and Adjuvant therapy

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Abstract:

Vitiligo is an important chronic dermatological disorder and its current scenario is, it affects 1 to 2% of the world population. Vitiligo is known as the condition in which depigmentation of part of the skin occurs due to loss of functionality of melanocytes. Melanin determines the color of an individual's eyes, hairs, and skin. If melanin cannot form by melanocytes or if the number of melanocytes decreases, skin, hair, and eye color may become lighter progressively. The etiology of melanocyte destruction in vitiligo remains largely unknown. The three types of vitiligo are biochemical or cytotoxic vitiligo, neural vitiligo, autoimmune vitiligo. There are a number of treatments for vitiligo with the best evidence for applied steroids and the combination of ultraviolet light in combination with creams. Psoralen and ultraviolet A light (PUVA) treatment are most preferably used by vitiligo patients but, due to the higher risks of skin cancer, the experts suggest phototherapy only be used if primary treatments are ineffective. It seems that herbal medicines could be more effective and have fewer side effects than the current treatment for vitiligo. Herbal therapy includes Ayurvedic and Chinese Therapy with adjuvant therapies like nutritive therapy. Those treatment modalities are directed towards stopping the progression of the disease and achieving repigmentation.

Index Terms - Melanocytes, psoralea, PUVA, steroids, phototherapy, Ayurveda, vitamin B12, protein supplements, melanin, repigmentation,

Introduction

Vitiligo is a cutaneous pigmentary disorder characterized by constrained, idiopathic, progressive, hypo-pigmented or white patches of skin. The most common signs and symptoms are non-exudative white, red or coppery-red colored patches, roughness, dryness, itching, burning sensation of the patches, loss, and discoloration of the hair and oral mucosa^[1]. In generalized or non-segmented vitiligo white patches usually increases in size with time due to loss of functioning epidermal and hair follicle melanocytes. In segmented vitiligo white patches are with unilateral distribution and may totally or partially match a dermatome^[2]. It is more common in certain countries like India, upto 8.8% of the population is affected in India. Men and women are equally affected. In about 80% of patients, depigmentation begins at the age of 30 years. Most patients with vitiligo are having good health but, some may have higher chances of autoimmune disease such as rheumatoid arthritis, psoriasis, alopecia areata, Addison's disease (adrenal gland disease), thyroid disease, diabetes and pernicious anemia (vitamin B12 deficiency). The affected area may be treated with steroids and ultraviolet light. However, due to the high risk of skin diseases like skin cancer associated with phototherapy, it is used only if the primary treatment is ineffective^[3].

Treatment

In the era of 21st-century mainstream treatment of disease is psoralen + ultraviolet A exposure (PUVA) therapy and corticosteroid which have many hazardous side effects like nausea, U V light burns, photoaging, skin cancer. Due to side effects and harmful approaches to contemporary science, traditional medicines may be used which provides some safe, easier, cost-effective, less complicating and fruitful natural remedies and having great potential to treat such autoimmune skin disorder^[4]. Herbal treatment comprises so many potent formulations for the treatment of such autoimmune disease with chronic nature. Vitiligo can be treated with herbal therapy with diet restriction and psychological counseling. The major herbal treatments are Ayurvedic treatment and Chinese treatment with adjuvant nutritional therapy^[5].

1. Ayurvedic Treatment

Vitiligo is correlated with 'Shvitra' in Ayurveda. Following medicines can be prescribed with the given pharmacological actions and therapeutic indications.

A.Savarnakara Yoga Ointment:

It Consists of Bakuchi, Hartala, and Gomutra. It is applied locally in the morning followed by sun exposure for 15 to 30 minutes. It is a major Ayurvedic formulation used in the treatment of vitiligo^[6].

B.Kanakbindwarishta:

Usually taken in the dose of 10ml twice a day after meal with an equal quantity of water. It gives immunomodulatory and anti-inflammatory actions for slight itching and burning arises due to the savankara yoga ointment application. It is also used in Kushtha(skin disorder)^[7].

C. Manjashthadi Kwatha:

Usually taken 20 ml twice a day in the early morning with an empty stomach and at night before a meal. It acts as Raktashodhaka (blood purifier) used in Vartaraka (gout), Pama(Eczema), Kapalika, Rakta Mandala (skin disorder).

D. ArogyavardhiniRasa:

The dose prescribed is 125mg twice a day before a meal with honey. It acts as antioxidant, antilipidemic and hepatoprotective. It reduces the oxidative stress in PUVA therapy. It is also used for JiranaJwara (chronic fever); Mendodosh (a disorder of adipose tissue), Kushtha, Yakrutivikara (a disorder of liver)^[8].

E. VidangaChurna:

The usual dose is 1gm twice a day before a meal with honey. It having pharmacological actions like an antioxidant, neuroprotective, cosmetic agent, wound healing, antigenotoxic, antifungal, an antidepressant. It usually prescribed to prevent worms and also used in adhmana (impaired digestion).

F. RasayanaChurna:

It generally prescribed 2gm twice a day with honey before meal for antidepressant and anxiolytic action^[9].

Table No.1 Recommended Medicines and their Pharmacological activities with therapeutic indications

Sr. No.	Ayurvedic Medicines	Dose with Anupana	Pharmacological Actions on body	Therapeutic Indications
1	Savarnakara Yoga (Bakuchi, Haratala, and Gomutra)	Quantity Sufficient for Local applications in the morning followed by sun exposure for 30 minutes	-	Shvitra (Vitiligo)
2	Kanakabindwarishta	10 ml twice a day after meal	Immunomodulatory, anti-inflammatory	Kushta (skin disorders), Shvitra
3	RasayanaChurna	2 gm twice a day before a meal with Honey	Antidepressant and anxiolytic activity	Anxiety and Depression
4	ManjishthadiKwatha	20 ml twice a day (early morning empty stomach, at night before meal)	RaktaShodhaka (Blood Purifier)	Vartarakt(Gout), Pama (Eczema), Kapalika, Kushta, Rakta Mandala (Skin disorders)
5	Arogyavardhini Rasa	125 mg twice a day before a meal with honey	Antioxidant, Antihyperlipidemic, Hepatoprotective	JirnaJwara (Chronic fever), Medodosh (Disorder of adipose tissue), KushtaYakrutvikara (Disorder of liver)
6	VidangaChurna	1 g twice a day before a meal with honey	Antioxidant, Neuroprotective, Cosmetic agent, Wound healing, Antigenotoxicity, Antifungal, Antidepressant	Krimi, Adhmana

Courtesy of Shingadiya et. al^[10]

2. Chinese treatment

Psoralea seed extract, rich in psoralen is the chief factor in the Chinese herbal treatment for vitiligo disease. The treatment mainly focuses on promoting blood circulation, Nourishing the kidney and dispelling pathogenic wind^[11].

Internal Treatment:

There are three internal therapies with external treatment are used-

A. Compound tablets of Tribulus:

The herbs like Tribulus, Spirodela, ho-shou-wu, and Cnidium are ground into fine powder to make tablets. Generally, it is prescribed in the dose of 10 gm tablets 3 times per day.

B. Recipe by Physician Yang Henyu:

The herbs Persica, Cnidium, Tribulus, Angelica, Carthamus, Cuscuta, lo-shou-wu, lyceum, raw rehmania, peony, red peony, Astragalus, Tang Kuei, cooked rehmannia are to be decocted in water for oral formulation.

C. Shouwu decoction:

Tangkuei, Polygala, cathamus, gentian, astragalus seed, raw rehmannia, cooked rehmannia, albizzia peony, red peony, black sesame seeds, ho-shouwn are to be decocted in water for oral administration.

External treatment:

Crush 15 gm cnidium fruit, 0.5 gm of colomel, 5 gm each of realgar, Sulphur and typhonium tuber, 2 gm of lithorage into a fine powder and mix with Vinegar and apply on affected part twice a da. Ginger may be used to dip in powder and rub on the affected area twice a day. The treatment should be continued for 3 months^[12].

No.	Medicines	Dose of Medicines
1	External Therapy: Cnidium Fruit, Colomel, Realgar, Sulphur, and Typhonium Tuber, Lithorage	Mix with Vinegar and Ginger is used to dip in powder and rubbed on the affected part twice a day. Treatment continued for 3 months.
2	Internal Therapy: Compound Tablets of Tribulus: Tribulus, Spirodela, ho-show-wu, Cnidium Recipe by Physician Yang Henyu: Persica, Cnidium, Tribulus, Angelica, Carthamus, Cuscuta, Lo-show-wu, Lyceum, Raw Rehmania, Peony, Red Peony, Astragalus, Tang Kuei, cooked Rehmania. Shouwu decoction: Salvia, Tang Kuei, Polygala, Cathamus, Gentian, Astragalus seed, Raw Rehmania, cooked Rehmania, Albizzia Peony, Red Peony, Black sesame seeds, Ho-shouwn.	10 gm tablets 3 times per day Decocted in water for oral formulation Decocted in water for oral administration

Table No.2 (Table taken from ^[13])

3. Nutritive Therapy

The role of nutrition is important as an adjuvant to vitiligo patients for treating vitiligo disease as a therapy. This therapy is time-consuming therapy and it is emphasized one. In most developing countries due to malnutrition children are most prone to this vitiligo disease. In the initial stage of the disorder, if the patient gets diet and nutrition-rich of adequate vitamins, some trace elements and protein supplementations can bring stability in the disease process means it helps the body to recover from disease especially in children^[14].

In nutrition therapy, copper plays an important role. The scientist Bahl studied the serum copper level in diseased patient and compared with the normal ranges. He found that in vitiligo patients, the content of serum copper is lowered by 60% which is one of the causes of vitiligo hence they administered folic acid and vitamin B12 to patients and resulted in the possible improvement of lesions. The various dietary elements, copper, vitamin B12, folic acid, are responsible for vitiligo recovery^[15].

Other elements are zinc, manganese, nickel, cobalt, calcium, iron, ascorbic acid, and tocopherol with lowered quantities can be used for recovery of vitiligo but these elements if are used in high concentration they may help for repigmentation. Palumbo et al demonstrated that the activation of the mammalian tyrosinase enzyme by ferrous ions augment or cause the process of pigmentation^[16].

Akyol et al studied that the effect of psoralen and ultraviolet A i.e. PUVA with or without the addition of Vit E and found that it does not affect on treatment but helps in the reduction of oxidative damage caused by PUVA therapy^[17].

Here copper is an essential constituent of tyrosine and also catalytic enzyme. It is also known to play a pre-eminent role in the process of melanogenesis.

On another side El Mofty et. Al observed that there was a mobilization of copper from the liver which follows the administration of the ammodin which helps in causing the rise of serum copper level and it causes a drop in the glutathions contents of the serum which is known as an inhibitor in the metabolism of copper^[18].

With copper, vitamins cyanocobalamins B12 and folic acid also play an important role in vitiligo disease. Vitiligo is associated with pernicious anemia and they have prompted investigations. Therefore, Jublin and Olsson studied 100 vitiligo patients and observed that folic acid and vitamin B12 with sun exposure brought repigmentation in the half of those 100 patients. After this, Montes et al found that there is a lowered level of folic acid in vitiligo patients^[19].

Therefore, a person with vitiligo should avoid direct sun exposure and prolong living in a damp environment. They should also avoid air conditioning when they are sweating. They should maintain regular living habitat and avoid some potentially irritating food such as shrimp, crab, lamb, chilly and other spices^[20].

Conclusion

Many studies have been performed to determine which treatment is best for vitiligo. Herbal treatments give better therapeutic activities with minimum side effects. Diet restriction and psychological counseling was also a necessary part of treatment.

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