INTERNATIONAL JOURNAL OF RESEARCHES IN BIOSCIENCES, AGRICULTURE & TECHNOLOGY
© VISHWASHANTI MULTIPURPOSE SOCIETY (Global Peace Multipurpose Society) R. No. MH-659/13(N)
www.vmsindia.org

The Skin Disorder Vitiligo Curing With Phototherapy

S. S. Arsad*, P. A. Nagpure* U. R. Kathale
*Dept. of Physics, Shri Shivaji Science College Amravati
Email: arsadswapnil@yahoo.co.in

Abstract
The skin colour loss due to unknown factors and white patches are seen clearly on the skin. This process is termed as depigmentation and regaining the original colour by means of suitable treatment is refered as repigmentation.Vitiligo is a common disorder disease that affects psychologically. We have studied the effectiveness of XeCl source for the treatment of vitiligo patches which is based on evidence. The treatment of vitiligo is a long term process which initiates the melanin formation activity and slowly the skin regain its original colour. The treatment is based on the interaction of skin with the light of particular wavelength 308nm. A pilot study was conducted which included visit to clinic, discussion with skin specialist, trials and feedback from patients to determine the result.

Background

Vitiligo is a depigmentation disorder found in all the states of India. Many cases appear before the age of 20, with the disfigurement resulting in psychiatric morbidity. Depression, sleep disturbances, suicidal thoughts, suicidal attempts, difficulties in relationships and avoidance of social situations have been reported in individuals afflicted by vitiligo before adulthood. Vitiligo can be confused with leprosy, leading to further stigmatization.

The disease pathogenesis of vitiligo has not been fully elucidated. Autoimmune, biochemical and oxidative stress, genetic, neuronal and environmental factors are thought to interact and contribute to the development of vitiligo [7]. Forschner points to four distinct theories [12]. The first is an "autoimmune hypothesis" supported by the observation that several autoimmune diseases often appear along with vitiligo [8]. In addition, vitiligo sufferers often display elevated levels of serum antibodies to melanocytic antigens (tyrosinase and tyrosinase-related proteins 1 and 2) [11,12]. Second is the "neuronal hypothesis" which states that altered reactions of melanocytes to neuropeptides and catecholamines are responsible for melanocyte destruction [12]. Several studies have found that dopamine can induce apoptosis in human melanocytes [13,14]. The neuronal hypothesis is further supported by the findings that there is close contact between melanocytes and nerve endings in depigmented skin, an observation rarely seen in normal skin [12]. Third is the "self-destruct hypothesis", where melanocytes self-destruct due to defects in protective mechanisms responsible for removing toxic melanin precursors. This is thought to lead to the accumulation of melanotoxic indole derivatives and free radicals. Fourth is the "biochemical hypothesis" which postulates an overproduction of a tyrosine hydroxylase cofactor, hydrobiopterin, resulting in increased catecholamine synthesis. This is thought to result in increased reactive oxygen species that are toxic to melanocytes. This is supported by findings of reduced catalase and higher concentrations of hydrogen peroxide in affected and unaffected skin of vitiligo sufferers [12,15].

Methods

The study comprised of regular visits to clinic with patient suffering from vitiligo. The white patch on the chest area was selected for the treatment. The phototherapy dose was decided by the doctor after testing the response of patient skin to the phototherapy. Total length of treatment was 16 weeks for getting satisfactory result. The dose of energy obtained from XeCl source was gradually increased during each week. The datasheet of the patient was maintained. We have photographed the affected area on regular basis. The portable unit used for the treatment is imported by the clinic and it is in use for last three years. The energy dose was in mJ/cm^2.and its exposure time was increased in steps every week.

The vitiligo patches were successfully repigmented within 16 weeks of treatment. The patch area reduced gradually every month without any side effect.




Conclusions

The methods which are currently used have some common criterion like checking the pathogenesis, tropical treatment creams, oral drugs, diet instructions etc are followed by some of the clinics. Participant retention, safety and effectiveness criteria were also met by the clinic. Herbal medicine like Ingestion of 60 mg of *Ginkgo biloba* BID is used at some places. Conventional treatments for vitiligo include photochemotherapy (PUVA), phototherapy (UVB), vitamin D3 analogues, topical corticosteroids, topical immunomodulators, excimer laser, and surgery. These treatment options have limited success [1,7,8], and some present significant risks by PUVA, skin atrophy with corticosteroids, and skin erythma with UVB therapy [1,7,8]. The therapy with high benefit and low risk is preferred.

Most studies of vitiligo treatment with phototherapy set a 75% repigmentation rate as cosmetically acceptable, and are able to achieve it in 12.5 to 75% of patients after one year of treatment [17]. By comparison, other studies have found a 43% improvement with narrow band UVB therapy [18]. In our case more than 90% repigmetation of a selected patch was achieved within four months but it is not true for each and every patient as well as each and every patch. The patch on left leg of the same patient with same treatment schedule took longer time to give satisfactory results.

Acknowledgement :

We are thankful to "Darpan Skin Care Clinic and Dr.Sandip (M.D.) for providing us the permission and access to clinic for studying the effectiveness of phototherapy in the treatment of vitiligo.

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