



A CLINICAL STUDY OF SELECTIVE TREATMENT OF VITILIGO WITH EXCIMER LAMP

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ABSTRACT

The therapeutic use of narrow band UVB light in the treatment of vitiligo patches is increasing day by day. Vitiligo is a skin disorder in which normal skin colour is lost due to lack of melanin formation activity. Melanin gives the colour to the skin. The melanocytes present beneath the skin are responsible for melanin formation activity. Due to unknown reason the destruction of melanin formation activity is triggered. It is referred as autoimmune disease. In vitiligo the white patches appear on the skin. The wavelength in the range of 308 nm to 311 nm are clinically proven. A case study of vitiligo treatment with excimer lamp shows satisfactory results.

Keyword : Phototherapy, NBUVB, vitiligo, excimer.

I. INTRODUCTION

The treatment of vitiligo using light of specific wavelength is increasing day by day. Initially excimer laser with 308 nm wavelength was found to be suitable for the treatment of vitiligo but its cost was too high. With the advancement in the research and technology the excimer lamps are now available at low cost. These lamps are portable and power requirement is also reduced. These lamps can be used for treating the small skin areas affected with vitiligo. It is popularly known as targeted phototherapy, involving selective treatment of vitiligo patches with no effect on surrounding areas. [1] The following case study is based on the use of excimer lamp available at skin care clinic. The aim of the study was to determine the practical result of 308 nm excimer lamp in the treatment of vitiligo.

II. METHOD

Few patients being treated for vitiligo were selected for this study. These patients were having less than 10% of body area affected with vitiligo. The body parts like chest, face, leg, neck etc. were having white patches. Targeted phototherapy treatment with the help of excimer device having xenon chloride lamp was given to these patients. Treatment schedule was twice a week. The dose was planned in consultation with the expert and experienced dermatologist at the clinic. The UVB light dose starting at 200 mJ with increment of 50mJ every week was decided.

III. MECHANISM OF ACTION

The excimer phototherapy device is based on xenon chloride lamp emitting radiation of 308 nm wavelength which falls in NBUVB range. These radiation causes stimulation of melanocyte-stimulating hormone and increased melanocyte proliferation. It also enhances the production of vitamin D metabolites which stimulate melanogenesis.[1] The 308 nm wavelength is absorbed by the skin at melanocyte level. The UVA lamps has the ability to deliver the energy to deeper dermal levels and targeted therapy may therefore affect hidden target cells such as melanocytes.[2]

IV. RESULTS

The repigmentation process started in few patients after 12 sittings and shown excellent results upto 95% repigmentation within six months of treatment. Few patients took a longer period but all the patients shown improvement in patches varying from 75% repigmentation to 100% repigmentation. The response depended on regularity. Those patients who continued the treatment for at least 40 sittings were able to achieve an excellent response. In few cases moderate or mild response was also observed.

One patient complained about the side effect and finally decided to discontinue the treatment.



Fig.1 The exciplex excimer lamp unit with 308 nm radiation used for treatment of small patches of vitiligo.

There are many devices available for targeted phototherapy like excimer lasers with same wavelength output, intense pulsed light, light-based-excimer lamps, Dualight (ultraviolet A + ultraviolet B), B clear (broadband ultraviolet B), Bioskin (NBUVB), photodynamic therapy, and low-level laser therapy and ultraviolet light-emitting diodes.[5] All these devices are in practical use at some place or the other. The exciplex device is recently launched in India in a conference of dermatologist at Mahabaleshwar (ACSICON 2016). This device is able to deliver radiation with spot size 25 cm². Its total optical power is 2500 mW with power density 100mW/cm². It does not require any heating time. The spot size can be adjusted with the help of reduction tips. This is helpful in pinpoint phototherapy to small lesions. The inbuilt software precisely controls the duration and intensity. There is no risk of affecting non-involved areas.

Similar devices in hand held comb shape fibre optic delivery system by means of an integrated timer and a light meter are also available. For treatment of scalp and other hairy areas, a hairbrush pattern of the fiber optic at the patient's end delivers energy through 55 filaments ensuring adequate treatment of scalp skin.[6] A device with a focused beam of NBUVB microphototherapy (Bioskin) was studied for its effectiveness in vitiligo by Lotti et al.[4] At the end of 6 months, three patients had complete

repigmentation, two had 75–100% repigmentation, another two had 50–75% repigmentation and one had <50% repigmentation

A study using excimer laser by Leone et al. found that there was poor response [7] even after in 6 months of treatment. NBUVB with full body exposure arrangement is also available. In this case tubelight emitting radiation of specific wavelength are used. These devices are also reported to be good for the treatment of wide spread vitiligo patches.

The photographs of patients at regular interval helped us to calculate the repigmentation percentage and response of the patient to the treatment. It was found that there were no side effects in almost all the patients except a single case. The vitiligo treatment with phototherapy is available at all the cities of India.

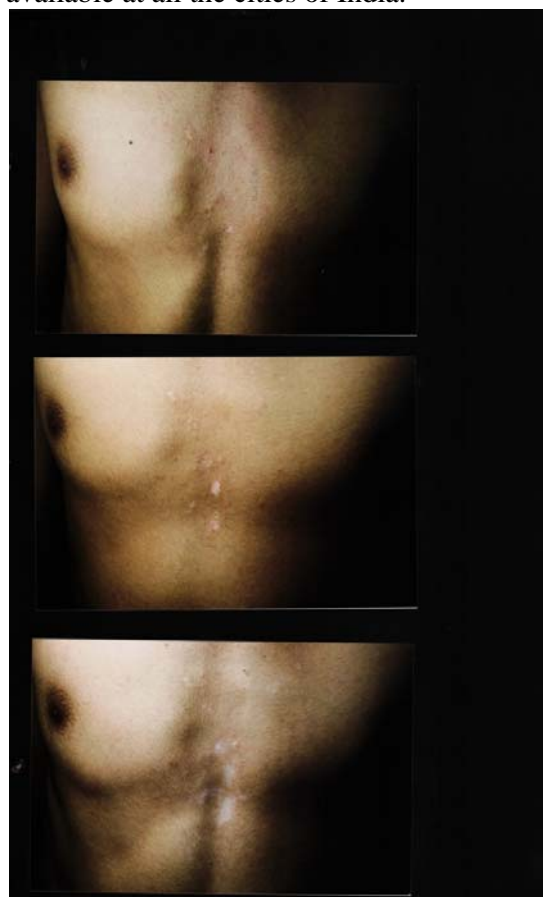


Fig.2 Photograph of patient showing good response with complete repigmentation

The treatment of vitiligo with excimer lamp is suitable and found efficient for treating small patches. The cost of treatment will definitely reduce and it will be affordable to patients belonging to lower income group. The portable devices will be beneficial for patients at remote

places who could not afford to visit city for the treatment. The coming years are promising as far as use of phototherapy is concerned in India.

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