

RESEARCH REPORT

Initiating repigmentation in Vitiligo patches using Phototherapy

Lad AB* and Kathale UR

Dept. of Physics, Amolakchand Mahavidyalaya, Yavatmal, MS, India

Corresponding Author Email : drajay_lad@rediffmail.com

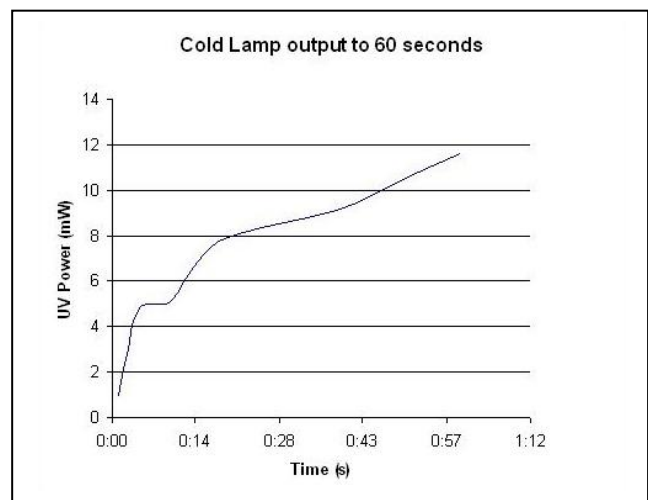
Manuscript Details	ABSTRACT
<p>Received : 13.05.2015 Revised : 08.06.2015 Re- Revised: 15.06.2015 Accepted: 19.06.2015 Published: 28.06.2015</p>	<p>The white patches appearing on the skin or loss of skin color due to malfunction of melanocytes is one of the skin disorders called as vitiligo. The treatment for this skin disorder is mainly aimed to regain the normal skin color referred as repigmentation in medical terms. The patient suffering from this disease may follow any therapy subject to availability, convenience and belief. Ayurvedic, Homeopathic or Allopathic treatment options are available. Most of the patients prefer phototherapy now a days. It includes Narrowband Ultraviolet B (NB-UVB), Targeted Phototherapy. The interaction of light of specific wavelength with the skin initiates repigmentation.</p> <p>Keywords:</p>
<p>ISSN: 2322-0015</p> <p>Editor: Dr. Arvind Chavhan</p>	
<p>Cite this article as:</p> <p>Lad AB and Kathale UR. Initiating repigmentation in Vitiligo patches using Phototherapy. <i>Int. Res. J. of Science & Engineering</i>, 2015; Vol. 3 (3):117-119.</p> <p>Copyright: © Author(s), This is an open access article under the terms of the Creative Commons Attribution Non-Commercial No Derivs License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.</p>	
	<p>INTRODUCTION</p> <p>Vitiligo is commonly found disease among all the ethnic, racial or socioeconomic background (Majid, 2010; Lerner and Vitiligo, 1959). The psychological impact of this disease is devastating particularly in female (Hautmann <i>et al.</i>, 1997). Many new companies have launched phototherapy units in different shape and sizes on the therapeutic front. With these new therapeutic options, we are currently in a much better position to treat this disease than we were a decade or two earlier. Topical immunomodulator treatment in the form of topical calcineurin inhibitors, topical pseudocatalase, and topical Vitamin D analogues in combination with Ultraviolet (UV) light is also in practice (Njoo <i>et al.</i>, 1998).</p> <p>In Allopathic treatment along with nonsurgical treatment like phototherapy surgical methods are also used depending on the type of patch. Surgical therapies includes grafting of the skin. The technique used are Partial thickness skin grafting, Suction blister</p>

skin grafting, Follicular skin grafting, Miniature punch grafting, Smash grafting, Non-cultured epidermal cell transplant, Melanocyte culture transplant (Majid, 2010; Kostovic and Pasic, 2005).

In Phototherapy Narrowband UVB therapy either alone or in combination with immunomodulators, Vitamin D analogues etc. (Kostovic and Pasic, 2005), Excimer laser therapy, (Nicolaidu, 2009), Targeted UVB phototherapy (Mysore, 2009), Topical immunomodulators, Topical Vitamin D analogues, Topical pseudocatalase with UVB, Oral minipulse steroid therapy are in practice (Kostovic and Pasic, 2005).

NB-UVB, using UV-lamps with a peak emission of around 311nm has now emerged as the treatment of first choice in generalized vitiligo as well as vitiligo vulgaris (patchy vitiligo) Fai *et al.* (2007); Grimes (2003). Westerhof and Nieuwboer-Krobotova (1997) demonstrated firstly the efficacy of NB-UVB in vitiligo. The mechanism of action of NB-UVB in vitiligo is through induction of local immunosuppression and stimulation of the proliferation of melanocytes in the skin and the outer root sheath of hair follicles. There is a stimulatory effect on melanogenesis and on the production of Melanocyte Stimulating Hormone (MSH). Since then there have been a large number of clinical studies that have demonstrated the therapeutic benefit of NB-UVB in vitiligo patients (Scherschun *et al.*, 2001; Fai *et al.*, 2007; Menchini and Tsourelis-Nikita, 2003). Comparison studies have shown a significantly enhanced rate of repigmentation with NB-UVB compared with topical Psoralen and Ultraviolet A (PUVA) therapy. Furthermore, the incidence of adverse effects seen commonly with topical PUVA, such as phototoxicity, is significantly reduced with the use of NB-UVB. Its established safety in children, and safety in pregnant females. NB-UVB also has considerably better patient compliance as there is no need to time the exposure with any drug intake or any need for eye protection beyond treatment exposure time (Rai and Shrinivas, 2007; Grimes, 2003). In addition NB-UVB has been used in childhood vitiligo with excellent results. No additional adverse effects were seen in children

with NB-UVB as compared with those in adults. Furthermore, given the long-term safety profile of NB-UVB in comparison with PUVA as far as skin malignancies are concerned, NB-UVB is now preferred over all other treatment options in the management of generalized vitiligo in both adults and children. Laser Therapy Excimer laser, which uses Xenon-Chlorine (Xe-Cl) gas and produces a monochromatic laser light of 308nm wavelength, is another innovative treatment option for vitiligo (Baltas *et al.*, 2002). The laser system has been used with increasing frequency over the last few years for targeted treatment of individual vitiligo lesions. The laser is used either alone or in combination with topical immunomodulator or PUVA-sol therapy. Treatment with this laser is claimed to give extremely good and early results in both localized and segmental vitiligo (Zhang, 2010; Nicolaidu *et al.*, 2009). The advantage of Excimer laser therapy over conventional UVB therapy is the targeted mode of treatment with no exposure of the uninvolved skin. Moreover, the onset of repigmentation is earlier with Excimer laser therapy than with UVB therapy. Targeted UVB therapy is another recent innovation in vitiligo management that has arrived over the last few years. The beauty with this therapy is that it delivers high intensity UVB light only to the affected vitiliginous areas, avoiding any exposure to the uninvolved skin. This not only decreases the cumulative UVB dose received by an individual patient, but is also claimed to improve the efficacy of treatment quite significantly.



Reference : Daavlin Phototherapy Unit

Targeted UVB therapy is used more in the treatment of focal and segmental types of vitiligo. In fact, the first study with targeted UVB therapy was done on eight patients with segmental vitiligo. Five of these patients achieved >75% repigmentation of their lesions with this therapy. Targeted UVB therapy offers certain advantages over Excimer laser phototherapy. The treatment is safer and more efficacious compared with conventional UVB therapy, and almost as efficacious but much less costly than Excimer laser therapy.

CONCLUSION:

Most studies of vitiligo treatment with phototherapy set a good repigmentation rate as cosmetically acceptable, and are able to achieve it in 12.5 to 75% of patients after one year of treatment. By comparison, other studies have found a 43% improvement with narrow band UVB therapy.

REFERENCES

1. Baltas E, Csoma Z, Ignacz *et al.* Treatment of vitiligo with the 308nm xenon chloride excimer laser. *Arch Dermatol.*, 2002;138:1116-20.
2. Diffey BL. Ultraviolet phototherapy of skin diseases Physics and Engineering in medicine in the New Millenium, *IPEM*,2000, p. 65-7.
3. Fai D, Cassano N, Vena GA. Narrowband UVB phototherapy combined with tacrolimus ointment in vitiligo: a review of 110 patients. *J Eur Acad Dermatol Venereol.*, 2007;21:916-20.
4. Grimes PE. Advances in the treatment of vitiligo: targeted phototherapy. *Cosmet Dermatol.*, 2003;140:1065-69.
5. Hautmann G, Panconesi E. Vitiligo: a psychologically influenced and influencing disease. *Clin Dermatol.*, 1997;15:875-78.
6. Kostovic K, Pasic A. New treatment modalities for vitiligo: focus on topical immunomodulators. *Drugs*, 2005;65:447-59.
7. Lerner AB. Vitiligo. *J.Invest Dermatol.*, 1959;32:285-310.
8. Majid Imran. Vitiligo Management: An Update *BJMP*, 2010;3(3):a332
9. Mattoo SK, Handa S, Kaur I, Gupta N, Malhotra R. Psychiatric morbidity in vitiligo: prevalence and correlates in India. *J Eur Acad Dermatol Venereol.*, 2002;16:573-8.
10. Menchini G, Tsourelis-Nikita E, Hercogova J. Narrowband UV-B microphototherapy: a new treatment for vitiligo. *J Eur Acad Dermatol Venereol.*, 2003; 17: 171-77.
11. Mysore V. Targeted phototherapy Indian. *J Dermatol Venereol Leprol.*, 2009; 75:119-25
12. Nicolaidu E, Antoniou C, Stratigos A, Katsambas AD. Narrowband ultraviolet B phototherapy and 308-nm excimer laser in the treatment of vitiligo: a review. *Journal of the American Academy of Dermatology*, 2009;60(3):470-477.
13. Njoo MD, Spuls PL Bos JD *et al.* Nonsurgical repigmentation therapies in vitiligo: meta-analysis of the literature. *Arch Dermatol.*, 1998;134:1532-40.
14. Rai Reena, CR Shrinivas Phototherapy: An Indian Perceptive Indian. *J Dermatol.*, 2007;52(4)169-75.
15. Scherschun L, Kim JJ, Lim HW. Narrow-band ultraviolet B is a useful and well-tolerated treatment for vitiligo. *J Am Acad Dermatol.*, 2001;44:999-1003.
16. Spencer JM, Hadi SM. The Excimer Laser. *J Drugs Dermatol.*, 2004; 3 : 522-5
17. Westerhof W, Nieuweboer-Krobotova L. Treatment of vitiligo with UV-B radiation vs topical psoralen plus UV-A. *Arch Dematol.* 1997;133:1525-28.
18. Zhang XY, He YL, Dong J, Xu JZ, Wang J. Clinical efficacy of a 308nm excimer laser in the treatment of vitiligo. *Photodermatol Photoimmunol Photomed .*, 2010;26:138-42.