

MONOCHROMATIC INTENSE PULSED LIGHT FOR TREATMENT OF LIP VITILIGO

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Introduction

Vitiligo is a relatively common pigmentation disorder (affecting nearly 1-2 % of population), of great socio-medical importance. It is defined as a circumscribed, acquired, idiopathic, progressive hypomelanosis of skin/mucosa & hair & is characterized by total absence of melanocytes microscopically. Involvement of lips in Vitiligo is a common occurrence in dark races & may occur in 20% of patients with vitiligo. 1-2 Vitiligo of the lips is a cosmetic disfigurement that is embarrassing, socially stigmatizing & has profound psychological effects on the patients and gives rise to serious emotional stress in majority of them. The psychosocial manifestations in Vitiligo range from depression & low self-esteem to job discrimination, social rejection, & even difficulty in marriage. 3-4

Vitiligo of the lips can be seen occurring in lips alone, or as a part of (i) Vitiligo vulgaris (ii) Acrofacial (lip-tip) Vitiligo (iii) Segmental vitiligo of the face also affecting the lips.

Treatment of this particular area is difficult, with very limited options and that too with varying results. In sharp contrast to vitiligo at other sites, the first choice of therapy for lip Vitiligo in published guidelines is autologous transplantation. 5 However, due to inherent histological differences between the epithelial covering of lips & that of keratinized skin, even aesthetic surgical correction is a challenge for the treating clinician. Also surgery can be planned only in stable vitiligo. 6

Present treatment options includes: - A) Phototherapy in the form of PUVA/PUVA sol, NB-UVB (full body/targeted), Excimer laser 7etc. B) Calcipotriol, topical steroids & topical tacrolimus, etc. C) Surgical options (for stable lip vitiligo) include Blister grafting, Punch grafting, 8 Tattooing 9 (micropigmentation), thin split thickness skin grafting, 10 Autologous non-cultured melanocyte- keratinocyte cell suspension, Cell culture, 11 Micro skin grafting, 12 Autologous epidermal grafts 13 etc. Cosmetic Camouflage is an option for those not willing for the above options or those who fail to respond.

A new therapy, appearing to show significant potential in the treatment of this therapeutically distressing condition is the monochromatic IPL.

The Pulsed light med flash II (General ProjectsR, Italy) has a lamp option with a wavelength width of 295 - 490 nm and is probably the latest advance in the concept of targeted phototherapy. It emits a wavelength in the UVB spectrum & thus shares the same indications as conventional phototherapy. It emits a monochromatic & coherent beam of light that deliver high fluences & can selectively treat a lesion while sparing the surrounding healthy skin. IPL devices are able to emit light in different wavelengths with the use of selective filters thus utilizing only selective wavelengths for treatment purposes.

The device is US-FDA approved, has an integrated skin cooling system, and carries a good safety profile. No studies, to date, are however, available with this therapy alone, or, in combination with other systems.

Objectives: Pilot study for the effectiveness of monochromatic IPL as a modality treating lip -vitiligo

in Asians.

Methods:

10 patients (8 females, 2 males) with age groups varying from 5 years-55 years with vitiligo types, as mentioned below, were chosen for the study:

- (1) Localized lip vitiligo alone-2 patients (Figure 1a)
- (2) Lip Vitiligo as a part of vitiligo vulgaris- 6 patients (Figure 2a)
- (3) As a part of segmental vitiligo - 2 patients (Figure 3a)

Sites of involvement were as follows: Upper lip (2 patients), Lower lip (4 patients), Both lips (4 patients).

Patients in our study were not using any topical/systemic medications along with. Six of the patients with vitiligo vulgaris, however, had been on NB-UVB for 6 months with no response in the lip area.

Vitiligo patches were treated with monochromatic IPL Med flash II (GP, Italy)R with a flash lamp of 295-490 nm, twice weekly for up to 16 weeks or till 100% re-pigmentation was achieved, whichever was earlier.

Procedure:

After a prior cooling of the lips & perioral area, with the inbuilt chiller, treatment was started with fluence 5 J, 25ms pulse duration, & increased by 20% every session, till a maximum of 10 J. Treatment was withheld if sunburn was observed and held till resolution. The overall response rate was assessed clinically & by comparison of photographs before & after treatment by 2 independent investigators. Patients were followed-up for at least 6 months. None of the patients was lost to follow up. The overall re-pigmentation grade of each treated lesion was evaluated once a week on a 5 point scale rating from 0 (no re-pigmentation), 1 (1-5%), 2 (6-25%), 3 (26-50%), 4 (51-75%), to 5 (76-100%).

Results / Clinical Observations:

Out of the 10 patients, 2 Patients had a re-pigmentation score of 5 (Figure 1b, Figure 2b), 5 patients scored 4 points (Figure 3b), 2 had a score of 2, and only 1 patient scored 1.

Tolerance was evaluated by a Visual analog scale & secondary events were recorded at each session.

? All patients tolerated the treatments well with none requiring topical anesthesia/ Pretreatment medication.

? There were no blisters/ oedema in the lips/ perioral area. Slight erythema in the perioral areas however was noticeable.

? No long term side effects were seen.

? Clinically significant re-pigmentation was observed as early as 7-10 days (one week) of treatment in the form of diffuse or peri-follicular pigment spread form the perioral skin towards the vermilion border & the lip substance. Even the pigment also spreads on to the mucosal/ wet area of the lip, though it generally begins later by around 6 weeks+, and the progress of re-pigmentation is also slower as compared to the outer aspect of lip.

Younger patients and those with vitiligo of short duration responded better than those with older age groups and late-onset vitiligo.

Also the response on the lower lip appears to be better &

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faster than the upper lip.

Follow Up: Till 6 months post-treatment, no relapse/ exacerbation of vitiligo at same or different sites was seen. Patient satisfaction was rated as fair to good in 9 out of 10 patients.

Discussion: No studies, to date, are available with the use of Intense pulsed light alone, or in combination with other medical therapies or other phototherapy systems.

Excimer system has been in use for a while for the treatment of vitiligo, 7 but the disadvantages are those of limited indications (USFDA approved indications of psoriasis & vitiligo), unlike an IPL where different hand pieces can be used for varied indications, thereby minimizing the cost and space for keeping many equipments in an OPD set up, its higher cost, and unavailability of studies in predominantly resistant areas such as the lips.

The Monochromatic IPL (295-490nm) appears to be a promising device for the treatment of this therapeutically frustrating, medically challenging disorder that has an intense psychosocial impact on our patient's lives.

The following are the possible mechanisms of actions in the management of vitiligo:

1. Stimulation of surrounding melanocytes to produce more melanin.
2. It increases the rate of dispersion of melanin granules from melanocytes to keratinocytes.
3. It transfers the hair follicle surrounding melanocytes to epidermis thus helping in perioral re-pigmentation generally associated with lip vitiligo.
4. It induces apoptosis of T- lymphocytes.

Comparison with the other phototherapy systems:

? Treatment with other systems such as PUVA & PUVA sol, NB-UVB generally have been more time consuming with multiple sessions at least 3 times /week for many months with generally poor results in lip vitiligo.

? It appears to be definitely more efficacious than the other conventional methods of medical management and phototherapy. However, further studies are needed.

? Also unlike other phototherapy systems, it is not associated with the frequent blisters, phototoxic reactions & subsequent scarring in the perioral area.

? Also, the Monochromatic IPL scores over the above in being more faster than the conventional methods, resulting in reducing the number of frequent visits to a doctor's clinic which is generally bothersome to the patients.

? It decreases the duration & dose of systemic & topical medications & prevents flare-up of vitiligo at the same spot.

? It also induces re-pigmentation after surgical procedures such as punch grafting & melanocyte culture & non- culture transfer techniques.

? Also suitable for patients who do not want to go for surgery/ Vitiligo is not stable or surgery is contraindicated.

Further studies are however needed to evaluate the potential and versatility of this method of treatment in the therapeutically frustrating difficult to treat areas of vitiligo.

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Fig -2a

Fig -2b

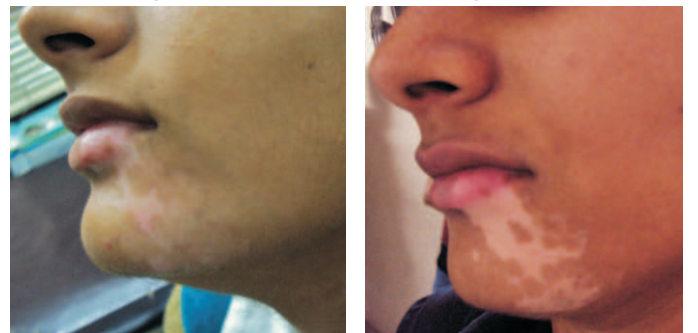


Fig -3a

Fig -3b

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Fig -1a

Fig -1b