

Original Article

Needling: an adjunct to narrowband ultraviolet B therapy in localized fixed vitiligo

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Abstract *Background* Treatment of vitiligo still remains a challenge. New modalities are added every now and then for non-responding patches. Needling is relatively recent addition.

Objectives To assess the usefulness of needling as an adjunct to narrowband ultraviolet B therapy in non-responding, localized fixed vitiligo

Patients and methods 23 adult cases (16 female and 7 male) having 84 localized vitiligo patches, who did not respond to medical measures either alone or in combination with ultraviolet exposures were available for evaluation at the end of study. After preliminary investigations, patients were subjected to needling of the involved sites. Many of them were trained to perform needling themselves. Patients were then treated with thrice weekly narrowband ultraviolet B (NBUVB) therapy.

Results Almost 90 % patches showed good to excellent response after six months of needling with NBUVB exposures without much of side effects.

Conclusion Needling is a safe, effective and promising adjunct treatment to NBUVB for repigmentation of non-responding localized vitiligo.

Key words

Needling, NBUVB, vitiligo

Introduction

Vitiligo is an acquired depigmentary disease as old as mankind. The disorder affects 1-3% of world population without any age, sex or racial predilection.^{1,2}

The disorder has a profound negative psychological impact, specially in coloured races.³ Although exact mechanism is not known but due to genetic predisposition,

immune-mediated injury, or other unidentified toxins, the melanocytes stop their function or they physically disappear in the affected epidermis while those in the hair follicle are usually spared.⁴ The treatment of vitiligo is based on the principles of stimulating the existing melanocytes in the affected area or repopulating it with functioning melanocytes.⁵ Medical treatment includes crude herbs like Babechi seeds or oil, *Ammi majus linn*, tacrolimus and pimecrolimus,⁶ purified psoralens topical or systemic, steroids, both topical and systemic with or without ultraviolet light exposure through sun or artificial sources emitting ultraviolet

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A or narrowband ultraviolet B (NBUVB) light (311 nm).⁶ Repigmentation is best seen on face and neck (60-70%), trunk and limbs (40-50%). Hands, feet and lips show poor results while some patches may not respond to any of the modalities. There have been some reports showing complete repigmentation of vitiliginous patches after repeated needling on them, and by needling from pigmented margins or spots towards white area.⁷⁻¹⁰ We planned this clinical study to evaluate usefulness and safety of the therapeutic modality in our people suffering from non-responding vitiligo as an adjunct to NBUVB therapy.

Patients and methods

Thirty consecutive adult patients of non-responding vitiligo were enrolled from 5th January, 2006 till 5th April, 2006 from the skin out door of Sir Ganga Ram Hospital, Lahore. All of them had one or more patches of localized non-responding vitiligo for the last one to twelve years and most of them had already been treated at various places with different drugs, herbs and light sources with minimal or no pigmentation, one of them got the pigmentation after intralesional steroids but lost it after stopping them.

They were investigated for hepatitis serology, bleeding disorders and other chronic diseases.

After obtaining the informed consent, all of them were given practical demonstration of the procedure and an informed consent was obtained from each of them (**Figures 1 and 2**). Each patch was subjected to needling, three times every week after incremental exposure to NBUVB light, and each patient was treated for at least six months. 30 G

Table 1 Grades of repigmentation

| Grade of repigmentation | No. of patches |
|-------------------------|--------------------------|
| G4 | 75% or more pigmentation |
| G3 | 50-75% repigmentation |
| G2 | 25-50% repigmentation |
| G1 | upto 25% repigmentation |
| G0 | No repigmentation |

Table 2 Vitiligo distribution (n = 23)

| Area | Male (n=7) | Females (n=16) |
|-------|------------|----------------|
| Face | 2 | 12 |
| Neck | 0 | 1 |
| Trunk | | |
| Front | 4 | 14 |
| Back | - | 3 |
| Arms | 1 | 4 |
| Hands | 2 | 9 |
| Legs | 2 | 5 |
| Feet | 4 | 21 |

needles of disposable insulin syringes were used for the procedure. Position of the needle was close to dermo-epidermal junction and movement from dark periphery towards white centre or from a dark spot (colour island) towards depigmented places. Needle pricks sometimes lead to oozing of a small drop of blood which was managed by physical pressure, but it did not lead to frank bleeding. No dressings were needed in any of the cases. Results were recorded during treatment as well as in follow up visits. Final assessment was made according to a 5 grade scale system ranging from G0 to G4 as mentioned in **Table 1**. All the patients were photographed before, during and after completion of treatment.

Results

Twenty three patients out of thirty, with 84 treated patches (distribution given in **Table 2**) were available for evaluation at the end of study, while seven stopped the therapy because two of them got married and other 5



Figure 1 Needling from the margin of vitiligo patch.



Figure 2 Needling from pigmented island within the vitiliginous patch.



Figure 3 Refractory patches of vitiligo on lower legs.



Figure 4 Three months after needling plus NBUVB therapy.



Figure 5 Grade 4 improvement after 6 months of combination therapy.

Table 3 Complications

| <i>Grade of repigmentation</i> | <i>No. of patches</i> | <i>Result</i> |
|--------------------------------|-----------------------|---------------|
| G4 | 58 | Excellent |
| G3 | 21 | Very good |
| G2 | 2 | Good |
| G1 | 1 | Satisfactory |
| G0 | 2 | Poor |

Table 4 Complications

| <i>Complications</i> | <i>No. of patches</i> |
|----------------------|-----------------------|
| Bleeding | Frequent spots* |
| Purpura | Two spots near eyes |
| Sec. infections | 5 |
| Scars | Nil |
| Keloids | Nil |

* Transient and subsided by local pressure

left without information. 79 (94%) patches showed G3 or more in the range of excellent pigmentation (**Figures 3-5, Table 3**). Only two patches on the dorsa of feet showed minimal colour despite regular needling for six months, which on completion of study was punch grafted with autologous coloured skin and both repigmented. Complications seen during study are shown in **Table 4**. Only five patches showed impetigo/folliculitis like lesions and two patches showed purpuric lesions. Lesional pain was a temporary phenomenon in a few cases and two of them were given pain killers on first few sittings only.

Discussion

Surgical manipulations in the form of various procedures show 90 to 100% repigmentation.^{7,10,11,12} Secondary cutaneous infections are a potential threat, but it was not a common occurrence in our cases (**Table 4**).

Repigmentation of white patches with needling occurs mainly from melanocytes which are physically dragged or pushed by tip of the needle from coloured margins of the patch or from islands of pigment present within the patch. These islands either already exist or are produced during needling and serve as source of melanocytes available for further spread. Failure to repigmentation is well known.^{13,14} We also encountered this problem in two cases and these were subjected to autologous skin punch grafting to get the pigmentation.

Since our study is very first of its type in the country, therefore no local data is available for comparison. Several such studies are done in India and elsewhere in the world

with quite comparable results, which seem reproducible.¹¹⁻¹⁴ Therefore authors feel encouraged to continue the simple therapeutic technique for management of stable vitiligo on larger scale in future.

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