

Original Research Article

Analysis of response of vitiligo to treatment with NBUVB

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ABSTRACT

Background: Vitiligo is an acquired skin disorder characterised by white (depigmented) patches in the skin, due to the loss of functioning melanocytes. The disease can have devastating consequences on an individual's relationships with others and internal feelings of self-worth. Vitiligo is caused by a dynamic interplay between genetic and environmental risks that initiates an autoimmune attack on melanocytes in the skin. Long term phototherapy has shown good response in the management of vitiligo. In this study we explore the efficacy of phototherapy in management of our vitiligo patients.

Methods: 30 subjects were included in the study. Subjects were started on NBUVB at 300mj/cm². Weekly 3 doses were given. Doses were increased after every 3rd sitting by 10%. In case of adverse effects treatment is withheld till resolution of symptoms following which NBUVB is given at 50% of the last dose and patient managed based on the response.

Results: A majority of the subjects showed significant and persistent improvement within the first 3 months of initiation of treatment. The proportion of the patients showing improvement increased with duration of treatment.

Conclusions: Our study has revealed the standard and significant role the phototherapy plays in the treatment of vitiligo as a monotherapy or as an adjuvant with other treatment modalities. With good treatment response and minimal side effect incidence, phototherapy is an important treatment modality in the management of vitiligo.

Keywords: Vitiligo, NBUVB, Phototherapy

INTRODUCTION

Vitiligo is an acquired skin disorder characterised by depigmented patches in the skin due to inadequate functioning of melanocytes.¹ It is characterized by asymptomatic ivory / chalky white macules or patches. It has morphological variations in the form of: trichrome, quadri-chrome, penta-chrome, blue and inflammatory vitiligo. It is currently classified topographically into segmental, zosteriform and nonsegmental, areata, vulgaris, acrofacialis and mucosal based on its clinical presentations.² The disease has negative consequences on an interpersonal relationships of vitiligo patients and damaging effects on self-worth. Fifty percent of vitiligo

patients experience disease onset before the age of 18 when they are most concerned about their appearance and self-image.³ The chronic nature of disease, long term treatment, lack of uniform effective therapy and unpredictable course of disease is demoralizing. Many such factors need to be considered to provide appropriate treatment and improve their quality of life and to obtain a better treatment response.⁴ Vitiligo is caused by a dynamic interplay between genetic and environmental risks that initiates an autoimmune attack on melanocytes in the skin. Genetics, oxidative stress, environment, innate immunity and adaptive immunity all have a role to play in the evolution of vitiligo.⁵ Long term phototherapy has shown good response in the management of vitiligo.⁶

In this study we explore the efficacy of phototherapy in management of our vitiligo patients.

METHODS

This is a prospective cohort study and was conducted from January 2017 to January 2018 in Meenakshi medical college, hospital and research institute. 30 Subjects with vitiligo and no significant medical comorbidities who gave consent were included in the study. Subjects who are receiving other treatment modalities, pregnant or beyond the age group 18-70 were excluded from the study. Subjects were started on NBUVB at 300 mj/cm². Weekly 3 doses were given. Doses were increased after every 3rd sitting by 10%. In case of adverse effects treatment is withheld till resolution of symptoms following which NBUVB is given at 50% of the last dose and patient managed based on the response. Severity of vitiligo is assessed with vitiligo Area Scoring Index (VASI). Where the VASI = Sum of Hand units x residual depigmentation. One hand unit encompasses the palm plus the volar surface of all the digits. The extent of residual depigmentation is expressed by the following percentages: 0, 10%, 25%, 50%, 75%, 90%, or 100%. At 100% depigmentation, no pigment is present; at 90%, specks of pigment are present; at 75%, the depigmented area exceeds the pigmented area; at 50%, the depigmented and pigmented areas are equal; at 25%, the pigmented area exceeds the depigmented area; at 10%, only specks of depigmentation are present.⁷ Subjects showing 25% improvement of VASI scores were categorised as mild response, 50% as moderate response and 75% as marked response. Subjects were evaluated clinically prior to initiation of treatment, their VASI scores were calculated for baseline values. They were again assessed at 3, 6 and 9 month intervals following treatment according to the aforementioned protocol. VASI scores were compared with the baseline at each interval and patients classified into the appropriate categories based on improvement shown. Data analysis was carried out with ‘IBM SPSS’ software.

RESULTS

In our study subjects in the age group 18-70 were included by criteria and 30 subjects with ages ranging from 18-48 were enrolled with a mean age of 32.5 years. 17 men and 13 women were enrolled.

Table 1: Characteristics of study group.

| | |
|--------------------|------------|
| Mean Age | 32.5 years |
| Male | 17 |
| Female | 13 |
| Mean height | 5’3” |
| Mean weight | 55.3Kg |

At 3 months 24 of the 30 subjects showed some improvement. 20 of these were classified as having shown mild improvement. 2 of these were classified as having shown moderate improvement. 2 of these were classified as having shown marked improvement. 6 patients showed no improvement in the category of the VASI scores.

At 6 months 26 of the 30 subjects showed some improvement. 19 of these were classified as having shown mild improvement. 3 of these were classified as having shown moderate improvement. 4 of these were classified as having shown marked improvement. 4 patients showed no improvement in the category of the VASI scores.

At 9 months 29 of the 30 subjects showed some improvement. 16 of these were classified as having shown mild improvement. 4 of these were classified as having shown moderate improvement. 8 of these were classified as having shown marked improvement. 1 patient showed no improvement in the category of the VASI score.

Table 2: Treatment response to NBUVB after 3 months.

| | No response N (%) | Any response N (%) | | |
|---|----------------------|-----------------------|----------|----------|
| | | Mild | Moderate | Marked |
| Number and percentage of subjects in the treatment response category | 6 (20%) | 20 (66.67) | 2 (6.67) | 2 (6.67) |
| Total | | 24 (80) | | |

Table 3: Treatment response to NBUVB after 6 months.

| | No response N (%) | Any response N (%) | | |
|---|----------------------|-----------------------|----------|-----------|
| | | Mild | Moderate | Marked |
| Number and percentage of subjects in the treatment response category | 4 (13.33) | 19 (63.33) | 3 (10) | 4 (13.33) |
| Total | | 26 (86.67) | | |

Table 4: Treatment response to NBUVB after 9 months.

| Number and percentage of subjects in the treatment response category | No response N (%) | Any response N (%) | | |
|--|----------------------|-----------------------|-----------|-----------|
| | | Mild | Moderate | Marked |
| | 2 (6.67) | 16 (53.33) | 4 (13.33) | 8 (26.66) |
| Total | | 28 (93.33) | | |

DISCUSSION

Our subjects had similar demographics to study subjects in other related studies. A meta-analysis by Bae et al showed mild response in ~70% of the study subjects in a year and ~30% marked response in study subjects in a year.⁶ This was poorer than the results seen at the end of the study period of 9 months in our study. Racial and skin type differences in the studies might play a role in these variations.

The study of Majid et al showed similar results in their study.⁸ Trial variants like durations, skin type and demographics were also comparable in this study. NBUVB has a proliferative as well as a stimulatory effect on the melanocytes and can be used to achieve a rapid repigmentation. It has the benefit of not being invasive and minimal side effects compared to other phototherapy option of PUVA.

CONCLUSION

Our study has revealed the standard and significant role the phototherapy plays in the treatment of vitiligo as a monotherapy or as an adjuvant with other treatment modalities. With good treatment response and minimal side effect incidence, phototherapy is a important treatment modality in the management of vitiligo.

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Ethical approval: The study was approved by the institutional ethics committee

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