

Successful Treatment of Vitiligo Vietnamese Patients with Vitilinox® Herbal Bio-Actives in Combination with Phototherapy

Thuong Nguyen Van¹, Trang Trinh Minh¹, Doanh Le Huu¹, Sau Nguyen Huu¹, Tung Vu Thanh¹, Nghi Dinh Huu¹, Van Tran Cam¹, My Le Huyen¹, Khang Tran Hau¹, Hao Nguyen Trong^{2,3}, Marco Gandolfi⁴, Francesca Satolli⁴, Claudio Feliciani⁴, Michael Tirant^{5,6}, Aleksandra Vojvodic⁷, Torello Lotti⁵

¹National Hospital of Dermatology and Venereology, Hanoi, Vietnam; ²HCMC Hospital of Dermato-Venereology, Ho Chi Minh City, Vietnam; ³Departments of Dermatology, University of Medicine and Pharmacy, Ho Chi Minh City, Vietnam; ⁴Unit of Dermatology, University of Parma, Parma, Italy; ⁵University of Rome G. Marconi, Rome, Italy; ⁶Psoriasis Eczema Clinic, Melbourne, Australia; ⁷Department of Dermatology and Venereology, Military Medical Academy of Belgrade, Belgrade, Serbia

Abstract

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***Correspondence:** Marco Gandolfi, Unit of Dermatology, University of Parma, Parma, Italy. E-mail: marco.gandolfi5@gmail.com

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BACKGROUND: Vitiligo is an acquired pigmentary disease, that causes progressive loss of melanocytes, resulting in hypopigmented skin patches. Current treatments aim at stopping the disease progression and achieving repigmentation of the amelanotic areas. Corticosteroids, surgery, topical immunomodulators, total depigmentation of normal pigmented skin and phototherapy are current treatment options for vitiligo although phototherapy remains the treatment of choice. There is no documented evidence that herbal bio-active products may also be effective treatment options for vitiligo.

AIM: This study aimed to investigate the efficacy and safety of Vitilinox® (herbal bio-actives) alone and in combination with UVB narrowband (311 nm) phototherapy, in the treatment of localised stable or active forms of vitiligo.

MATERIAL AND METHODS: Sixty two subjects with mean age 34.5 years (range: 18-58 years) with mild to moderate vitiligo, consisting of 36 females and 26 males were randomly divided into three treatment groups – Group A (13 females, 10 males) treated with Vitilinox® alone; Group B (12 females, 11 males) were treated with Vitilinox® in combination with narrowband UVB (311 nm) phototherapy for 15 seconds, using a handheld lamp and Group C (8 females, 8 males) were treated with nbUVB (311 nm) phototherapy alone, for 15 seconds over a 12-week period.

RESULTS: In Group A, 9 patients (39%) achieved outstanding improvement with a re-pigmentation rate higher than 75%, with 2 patients experiencing total repigmentation. 6 patients (26%) had marked improvement with a repigmentation rate between 50-75% while 5 patients (22%) showed a moderate response between 25-50% repigmentation rate. 3 patients (13%) had minimal or no improvement. In Group B, 16 patients (69.5%) achieved outstanding improvement with a re-pigmentation rate higher than 75%, with 12 patients experiencing total repigmentation. 4 patients (17.5%) achieved a marked improvement with a re-pigmentation rate between 50-75%; 2 patients (8.7%) showed a moderate response with a re-pigmentation rate between 25-50%. 1 (4.3%) patient had minimal or no improvement. In Group C, 6 patients (37.5%) achieved a re-pigmentation rate higher than 75%, with 2 patients experiencing total re-pigmentation. 4 patients (25%) achieved marked improvement with a repigmentation rate between 50-75% while 3 patients (18.75%) had a re-pigmentation rate between 25-50%. 3 patients (18.75%) had minimal or no improvement.

CONCLUSION: Vitilinox® herbal bio-actives in combination with nbUVB is a more effective treatment option for vitiligo with 87% of the patients achieving a re-pigmentation rate higher than 50%, compared to Vitilinox® alone (65%) or nbUVB alone (62.5%).

Introduction

Vitiligo is an acquired idiopathic of unknown origin and is a common de-pigmentation disorder, that causes progressive loss of melanocytes, resulting in hypopigmented skin patches, hair and mucosa.

Vitiligo is the most common disorder of pigmentation, affecting between 0.5-2% of the world's population, and the prevalence appears to be equal between men and women. Although neither life-threatening nor symptomatic, the effect of vitiligo can be cosmetically and psychologically devastating, resulting in low self-esteem, poor body image and

other negative quality of effects [1].

The exact pathogenesis of vitiligo is still to be elucidated [2]. Multiple mechanisms, including metabolic abnormalities, oxidative stress, generation of inflammatory mediators, cell detachment and autoimmune responses, are contributing factors in the pathogenesis [3], [4]. Vitiligo may appear at any age and affect both sexes equally [1], [5].

The clinical diagnostic features of the vitiligo are discolouration of the skin, characterised by well-circumscribed, ivory or chalky white macules [6]. These hypopigmented macules or patches occur on the skin in different parts of the body including the face, genitalia, areolae and areas subjected to repeated trauma like elbows and knees. Involvement of mucous membranes and hair shaft is also possible [7]

The current vitiligo treatments aim at stopping the disease progression and achieving repigmentation of the amelanotic areas, thus restoring the loss of melanocytes in the lesions. Corticosteroids, surgery, topical immunomodulators, total depigmentation of normally pigmented skin, lasers and phototherapy are current treatment options for vitiligo although phototherapy remains the treatment of choice [8], [9], [10]. However, many patients are now investigating other treatment options including herbal bio-active products [11].

This study aimed to investigate the efficacy and safety of Vitilnex – herbal bio-active products alone; Vitilnex in combination with UVB narrowband (311 nm) phototherapy; phototherapy alone, in the treatment of localised stable or active forms of vitiligo.

Material and Methods

This multi-centred observational retrospective study was conducted in Italy, India, Vietnam, Germany and Australia. Sixty-three (63) patients (30 males, 33 females), aged from 18 to 58 years with a mean 34.5 years, suffering from stable or active vitiligo were evaluated over 12 weeks. They had not received any treatment for the cutaneous disease for at least two years. The results were subjected to statistical analysis.

The patients were randomly assigned to the following groups:

- 1) Group A- (18 females, 17 males)- Vitilnex® herbal bio-actives alone
- 2) Group B- (15 females, 9 males) – Vitilnex® in combination with nb-UVB 311 nm phototherapy
- 3) Group C- (8 males, 8 females) – nb-

UVB 311nm phototherapy alone.

Vitilnex® consists of two products: Skin Prep lotion (containing-Centipeda cunninghamii, aloe vera, terpinol-4-ol and dihydro avenanthramide – D) and Emmolient (containing- black cumin seed oil, black pepper coleus forskohlii, Psoralea coryfolia, thyme oil, myrrh and neroli extracts. These oil extracts have shown to have very strong anti-oxidant properties.

The Skin Prep lotion was applied to the affected areas and allowed to dry, followed by the application of the emollient. The area was then irradiated weekly over 12 weeks at 311 nm, with a starting dose of 20% less than the minimal erythema dose (MED) for each patient, evaluated on a vitiliginous lesion 7 days before the start of treatment. The irradiation dose was progressively increased by 20%. In cases where erythema was noted, we reduced the dose by 20% in the following treatment.

The assessment was based on assigning a 0% score for each lesion before therapy and improvement based on a percentage value to represent the level of repigmentation. Digital photos were taken at week 0 and each follow-up session.

Results

In Group A, with Vitilnex® treatment alone, 9 patients (39%) achieved outstanding improvement with a re-pigmentation rate higher than 75%, with 2 patients experiencing total repigmentation. 6 patients (26%) had a marked improvement with a repigmentation rate between 50-75% while 5 patients (22%) showed a moderate response between 25-50% re-pigmentation rate. 3 patients (13%) had minimal or no improvement. In Group B, with Vitilnex® in combination with nb-UVB 311 nm, 16 patients (69.5%) achieved outstanding improvement with a re-pigmentation rate higher than 75%, with 12 patients experiencing total re-pigmentation. Four patients (17.5 %) achieved a marked improvement with a re-pigmentation rate between 50-75%; 2 patients (8.7%) showed a moderate response with a re-pigmentation rate between 25-50%. 1 (4.3%) patient had minimal or no improvement. We noted that when we increased the irradiation dose by 20%, erythema developed. We, therefore, kept the treatment dose the same as the starting dose throughout the treatment, hence minimising the UVB exposure. As the emollient contains a mixture of oils, the development of erythema may be attributed to a burning effect with increased oil temperature during irradiation.

While in Group C, phototherapy alone, 6 patients (37.5%) achieved a re-pigmentation rate higher than 75%, with 2 patients experiencing total repigmentation. 4 patients (25%) achieved marked

improvement with a re-pigmentation rate between 50-75% while 3 patients (18.75%) had a re-pigmentation rate between 25-50%. 3 patients (18.75%) had minimal or no improvement.



Figure 1: A) Before Treatment – Week 0; B) - After Combination Treatment– Week 12

There were no adverse effects reported or observed following adjustment of the treatment dose in the combination therapy before and after treatment photographs are shown in Figures 1, 2, 3, and 4.



Figure 2: A) Before Treatment – Week 0; B) After Combination Treatment–Week 12

properties by suppressing superoxide production and pro-inflammatory cytokines – TNF-alpha, IL-1beta, IL-8, IL-10 and PGE2 [13].

The antioxidant benefit of aloe vera is well documented and believed to impart its benefit in vitiligo treatment by inhibiting COX2 and PGE2 [14] whilst dihydro avenanthramide – D, has been shown to prevent UV-irradiated generation of reactive oxygen species and expression of matrix metalloproteinase-1 and -3 in human dermal fibroblasts at 5 ppm [15].

Black cumin seed oil (*Nigella sativa*), used in the embodiment, contains thymoquinone which has been shown to induce melanin production and dispersion [16]. Piperine, from *Piper nigrum*, and its synthetic analogues, have been shown to stimulate mouse and human melanocyte proliferation [17], [18], [19]. Thyme oil, myrrh and neroli extracts have shown to have very strong anti-oxidant properties in cell culture studies [20].

The repigmentation in vitiligo is believed to be linked to a synergistic effect of all the antioxidant action of these herbal bio-actives. The availability of any new treatment that can reduce the use of UVB from high to low, and still be efficacious, is of immense benefit to both patients and treating physicians [21], [22], [23], [24], [25], [26], [27], [28], [29].

In this study, we confirmed the efficacy of nb-UVB in the treatment of vitiligo. However, the combination therapy with Vitilinox® herbal bio-actives proved more effective, using a lower than normal irradiation dose, thus reducing the potential for serious DNA intracellular mutations. The results also confirm that Vitilinox® bio-actives are effective alone.

Discussion

We evaluated the efficacy of Vitilinox® alone and in combination with nb-UVB 311 nm phototherapy, in the treatment of 63 patients with stable or active forms of vitiligo. The results clearly show that Vitilinox® in combination with phototherapy is significantly more effective than Vitilinox or phototherapy alone. In the combination therapy, 87% of the patients had repigmentation rate higher than 50%, compared to Vitilinox® (65%) and phototherapy alone (62.5%). The irradiation dose for the combination therapy was kept at the minimal starting dose. This is also of great benefit, as it minimises the UV radiation exposure, which has been linked to intracellular mutations, which may, in turn, induce malignant transformation.

Centipeda cunninghamii in the Prep Lotion, contains caffeic acid and sesquiterpene lactones, having strong anti-inflammatory and antioxidant activity [12]. Terpinol-4-on, a potent constituent of tea tree oil, possesses antioxidant and anti-inflammatory

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