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Assessment of Patients with Psoriasis Undergoing Treatment with Narrowband UVB Phototherapy in the State University of Pará, Brazil

ORIGINAL

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Abstract

Introduction: Moderate and severe forms of psoriasis require phototherapy and/or systemic medications. The UVB band, with wavelength between 311 and 312 nm, is called narrowband UVB (NB-UVB) and it has proven to be more beneficial for the psoriasis treatment.

Goals: To characterize the group of patients with psoriasis treated with NB-UVB phototherapy, according to the clinical form, sex, phototype, and clinical evolution.

Methods: All patients with psoriasis who underwent NB-UVB phototherapy between August 2016 and April 2017 were included in this study. Data on the patients were collected retrospectively.

Results: During the study, 19 patients were treated with NB-UVB phototherapy, being 09 women (47%) and 10 men (53%), ages ranging from 22 to 81years. The most prevalent phototypes were III (42%) and IV (37%). Only 04 patients (21%) had guttate psoriasis and 15 (79%) had psoriasis vulgaris with variable severity. The total number of phototherapy sections, during the period evaluated, varied from 7 to

51, with an average of 25 sessions. It was observed that, 09 patients (47%) had a response beginning with up to two months of treatment. The minimum number of sections to start improvement varied from 8 to 28, with an average of 16 sessions.

Conclusions: The use of NB-UVB phototherapy proved to be a safe and effective treatment, and should be considered a good therapeutic option for psoriasis.

Keywords
Phototherapy; Psoriasis; Ultraviolet Rays; Narrowband UVB

Introduction

Psoriasis is a chronic inflammatory disease, immune-mediated, with clinical manifestation and variable severity, which occurs universally and affects 1% of the population, affecting equally men and women. [1]

There are several psoriasis clinical presentations, such as plaque psoriasis (vulgaris), guttate psoriasis, pustular, inverse, nail psoriasis, among others. Psoriasis vulgaris is the most common form, being responsible for over 80% of psoriasis cases and, it manifests, mostly, by well-defined scaly erythematous plaques, occasionally pruritic. [1, 2]

Topical therapies are usually sufficient to control mild psoriasis. However, moderate and severe forms require other therapeutic options, such as phototherapy and systemic medications. [3, 4]

Several tools have been developed to measure psoriasis severity. The most used is the PASI score (Psoriasis Area and Severity Index), which evaluates the lesions for their degree of erythema, desquamation, infiltration, and body area involved. PASI is a key tool for assessing patient improvement and treatment effectiveness. It is considered effective if the patient reaches a PASI 75, in other words, if the PASI score reduced by 75% from the start of treatment. Other scores, also used, are the BSA (Body Surface Area) which evaluates the percentage of the body affected by psoriasis, and the Dermatology Life Quality Index (DLQI). Usually, a PASI score $\geq$ 10 and/or BSA $\geq$ 10 and/or DLQI $\geq$ 10 indicates severe psoriasis. For those patients, phototherapy can be offered as first option. [1, 5]

Phototherapy consists of the exposure to ultraviolet radiation for therapeutic use and can be made with ultraviolet light A (UVA) or ultraviolet light B (UVB). [1, 6]

The ultraviolet light has anti-inflammatory, antiproliferative, and immunosuppressant properties, being capable of inducing regression or controlling evolution of dermatosis. [6, 7]

The UV radiation is divided into UVA (320-400nm), capable of reaching epidermis and dermis, and UVB (290-320nm) which reaches only epidermis, and UVC (200-290nm), which does not reach the Earth's surface. [6, 7] The UVB radiation is, biologically, the most active. The solar spectrum of UVB includes a wide range of wavelengths, from 290 to 320nm and, originally, the commercial light bulbs emitted this whole wavelength. In 1984, it was created a new light bulb which could emit na-

rrow band of wavelengths between 311 and 312nm "narrow band" NB-UVB. Thereafter, the NB-UVB has proved to be more beneficial than the broad-band UVB in controlling psoriasis. [6, 7, 8]

Since both UVA and NB-UVB have been effective in controlling psoriasis, the option for each treatment must consider the disease severity, skin type, use of medications and patient characteristics. An individualized clinical evaluation should guide the indication of one type or another of phototherapy. [1, 9, 10, 11, 12, 13, 14, 15]

This study aims at characterizing a group of patients with psoriasis according to sex, phototype, and psoriasis type and verifying the evolution of patients treated with NB-UVB phototherapy at the dermatology department of the State University of Pará, Brazil.

Methods

It was carried out a cross-sectional descriptive study with the patients who underwent phototherapy at the dermatology department of the State University of Pará, Brazil.

The data were retrospectively collected from the medical records of the patients being treated with NB-UVB phototherapy, available at a database from the Dermatology Department in the period from August 2016 to April 2017. All patients with psoriasis who underwent NB-UVB phototherapy in this period, and signed the free and informed consent form, took part in the study. However, both the patients undergoing phototherapy treatment who were being treated for other dermatoses and those who performed other modalities of phototherapy were excluded. It was also collected data regarding the psoriasis type, phototype, number of sections performed, and clinical evolution.

All patients underwent NB-UVB phototherapy, two sections per week, using the professional equipment Prolumina Fototerapia, São Paulo, Brazil: cabin UVA with 48 Philips Sunlamp 100W-R bulbs or cabin NB-UVB with 42 narrow band bulbs Philips TL 100W/01.

The data were stored on a database in Excel. The results of the study were presented in percentage and absolute numbers.

Results

During the study, 19 patients were treated with NB-UVB phototherapy, being 09 women (47%) and 10 men (53%), with ages varying from 22 to 81 years. Regarding the phototype, 03 patients (16%) were classified as Fitzpatrick type II, 08 (42%) as type III, 07 (37%) as type IV, and 01 patient (5%) as type V.

As to the clinical form, only 04 patients (21%) had guttate psoriasis and 15 (79%) had psoriasis vulgaris with variable severities. The total number of phototherapy sessions in the evaluated period ranged from 7 to 51, with an average of 25 sessions **(Figure 1 & 2)**.

Among the 19 patients analyzed, 01 patient was suspended from Phototherapy and referred for treatment with Immunobiological, since he presented little clinical response, even after 16 sessions. Two patients discontinued treatment during the study period.

The treatment time for lesion improvement ranged from one to four months. It was also observed that 09 patients (47%) had a response beginning with up to two months of treatment. The mini-

Figure 1: Evolution after 41 sections of NB-UVB phototherapy.

mum number of sessions to start clinical improvement ranged from 8 to 28, with an average of 16 sessions.

Figure 2: Evolution after 11 sections of NB-UVB phototherapy.

Discussion

Psoriasis is a disease of global distribution that affects both sexes and a wide age group, being one of the main indications of phototherapy. [1, 2] In the studied sample, there was homogeneity regarding the distribution by sex, and the age variation of the treated patients was quite broad, starting from the third to the ninth decade of life. Age and sex are not limiting factors in the indication of phototherapy. [1]

Environmental, geographic and even ethnic aspects may interfere with the incidence of psoriasis. [1, 2] Phototypes III and IV were the most prevalent, representing 79% of the patients evaluated.

The clinical forms of the patients under study were psoriasis vulgaris and guttate. These data are in agreement with the literature, which indicates that psoriasis vulgaris is the most common, affecting about 80 to 90% of patients. [1, 2, 3]

Treatment time for onset of lesion improvement ranged from one to four months, with a minimum number of sessions to start improvement at 16 sessions. These results are in agreement with published studies which proved the efficacy of NB-UVB treatment for psoriasis and the possibility of seeing alterations in the lesions after 10 sessions, obtaining the maximum regression in a range from 30 to 50 sessions. [1, 8, 9, 15, 16, 18, 19]

It is important to note that, phototherapy does not need to be used alone as monotherapy. Currently, there are many studies referring the synergistic effect of therapy combination, including phototherapy associated with topical drugs (corticosteroids and vitamin D analogues), phototherapy associated with systemic drugs (methotrexate), and phototherapy associated with biological drugs. This synergistic effect between therapies allows the use of smaller doses, reducing the possibility of toxic reactions. [13, 14, 16]

Conclusion

The use of NB-UVB phototherapy has proven to be a safe and effective treatment and should be considered a good therapeutic option for psoriasis. This study is important for characterizing the profile and evolution of patients with psoriasis in treatment with NB-UVB phototherapy, demonstrating the importance of this modality in a referral service.

Conflicts of interest

The authors declare that there are no conflicts of interest.

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