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Real-life effectiveness of narrowband UVB phototherapy for pityriasis lichenoides: a retrospective study

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Consent for publication: informed consent was obtained from all participants prior to their inclusion in the study.

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Dear Editor,

Pityriasis lichenoides (PL) is an inflammatory skin disease of unknown etiology. The clinical spectrum of pityriasis lichenoides encompasses febrile ulcer-necrotic Mucha-Habermann disease (FUMHD), pityriasis lichenoides et varioliformis acuta (PLEVA), and pityriasis lichenoides chronica (PLC).[1] Phototherapy is an effective and well-tolerated modality that is often successful for persistent PL or resistant to topical treatments.[2] A retrospective observational study was conducted involving patients from the dermatology section of the University of Verona with a confirmed histological diagnosis of PLEVA and PLC accessed between January 2003 and June 2024. Of these, only those undergoing narrowband-ultraviolet-B (NB-UVB) phototherapy were selected, considering both children and adults. NB-UVB phototherapy was administered using a UV70001 cabin (Waldmann-Lichttechnik). According to the standardized phototherapy protocol, patients initially received 70% of the minimum erythema dose. Subsequent doses of NB-UVB were increased by 10-20% compared to the previous session, based on clinical response, with a maximum of 60 sessions. Dose increments were withheld in cases of moderate or persistent erythema. Upon resolution of the lesions, treatment was continued for at least three weeks without increasing the dose. NB-UVB treatment frequency (two or three times weekly) was tailored to disease severity. Patients were up to about one year after discontinuation of therapy. Data were retrospectively retrieved from electronic medical records. Baseline demographic characteristics and potential triggers were recorded. The primary endpoint was defined as achieving complete remission (>90% body surface area clearance). Secondary endpoints included relapse rate and time to relapse, comparing PLEVA *versus* PLC. Time to relapse was calculated from complete remission until the onset of new clinically objective lesions. The recurrence rate was determined based on the proportion of patients experiencing lesion recurrence following complete remission.

A total of 39 patients were included; 21 (53.8%) were male, with a mean age 31.1±23.4 years, of which 28 (71.8%) patients had PLC and 11 (28.2%) had PLEVA. A triggering event was reported in 10 (25.6%) patients one month before the onset of the disease, in particular: 3 (30.0%) experienced respiratory tract infection, 3 (30.0%) had unspecified febrile episodes, and 4 (40.0%) had vaccination (1 against SARS-CoV-2, 1 against tetanus, and 1 against influenza). Patients achieving complete remission accounted for 30 (77.0%) cases. Complete remission was similar in patients with PLEVA, 9/11 (81.8%) compared to those with PLC, 21/28 (75.0%) (p=0.65). The mean cumulative NB-UVB dose required to achieve complete remission was 26.7±24.9 J/cm^2. It was 22.7±20.1 J/cm^2 for PLC and 36.2±34.1 J/cm^2 for PLEVA (p=0.18) (Table 1). Three (7.6%) phototype II patients reported minimal erythema and none discontinued treatment due to side effects.

Relapse occurred in 14 (35.9%) patients. Relapse rates were similar in PLC and PLEVA, as it occurred in 4 (36.3%) patients with PLEVA and in 10 (35.7%) with PLC (p=0.97). Lesions had a median time to recurrence of 4.6±2.2 months: in PLEVA 4.0±2.2 months, and in PLC 5.3±2.5 months (p=0.37) (Table 2).

In this study, we assessed the effectiveness of NB-UVB phototherapy in PL patients. The rate of complete remission was similar between patients with PLEVA and those with PLC, with comparable cumulative doses of NB-UVB between the two groups. PUVA and UVA phototherapy appear to be equally effective as NB-UVB. NB-UVB phototherapy is indicated as an effective and first-line treatment for PL patients, both adults and children.[3] Methotrexate and antibiotics like tetracyclines and macrolides are alternative drugs when phototherapy is not effective or feasible. Other systemic therapies, such as dapsone, systemic glucocorticoids, and intravenous immunoglobulin, have been suggested for the treatment of refractory PLEVA or FUMHD based on isolated case reports.[3] A study by Agaoglu *et al.*[4] reported that 6 of 8 (75.0%) patients with PLEVA led to complete remission with a mean cumulative dose of 40.1 J/cm^2 and 8 of 12 (66.7%) with PLC had complete remission with a mean cumulative dose of 95.0 J/cm^2.

The complete remission data are similar to our study either in PLEVA (75.0% *vs.* 81.8%) and PLC (66.7% *vs.* 75%). The mean cumulative dose instead was lower (for PLEVA 36.2 J/cm^2 *vs.* 40.1 J/cm^2 and for PLC 22.7 J/cm^2 *vs.* 95.0 J/cm^2). This difference in cumulative dose may be due to different disease severity and demographic characteristics. Regarding recurrences, relapses occurred in 14 patients (35.9%) in our cohort. Some studies showed 42%-73% relapse-free rates after NB-UVB, with a mean follow-up duration of 9.-34 months.[5] Our patients were followed up for a shorter period, and this could explain why fewer relapses were identified (35.9%). One of the main limitations of this study is its retrospective design and the lack of follow-up for more than 12 months. Indeed, recurrences of PL have been reported even after years.[5]

In conclusion, NB-UVB phototherapy is an effective and safe treatment option for patients with PL and should be considered a first-line therapy. However, further studies are required to establish a maintenance schedule in patients with recurrent disease.

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Table 1. Clinical response and phototherapeutic doses of the patients.

	PLEVA (n=11)	PLC (n=28)	Total (n=39)	p-value
Complete response, n (%)	9 (81.8%)	21 (75.0%)	30 (77.0%)	0.65
Mean cumulative dose, (J/cm^2)±SD	36.2±34.1	22.7±20.1	26.7±24.9	0.18

PLEVA, pityriasis lichenoides et varioliformis acuta; PLC, pityriasis lichenoides chronica; SD, standard deviation.

Table 2. Relapses and recurrences in patients with pityriasis lichenoides.

	PLEVA	PLC	Total	p-value
Relapses, n (%)	4 (36.3%)	10 (35.7%)	14 (35.9%)	0.97
Median recurrence, months ± SD	4.0±2.2	5.3±2.5	4.6±2.2	0.37

PLEVA, pityriasis lichenoides et varioliformis acuta; PLC, pityriasis lichenoides chronica; SD, standard deviation.