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EFFICACY AND SAFETY OF PHOTOTHERAPY IN TREATING PITYRIASIS LICHENOIDES CHRONICA IN PAEDIATRIC PATIENTS

Dermatology

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ABSTRACT

Background- Pityriasis lichenoides is a benign disease that includes a continuous spectrum with two polar ends: pityriasis lichenoides et varioliformis acuta (PLEVA) and pityriasis lichenoides chronica (PLC). It is a rare papulosquamous disorder of unknown etiology. Phototherapy (NBUVB) can be a safe and effective treatment for PLC in children.
Objective- To assess the safety and efficacy of Phototherapy in children with PLC.
Material and Methods- A prospective, single-center open-label uncontrolled study conducted at tertiary care hospital in Dermatology Outpatient department (OPD) between January 2018 to April 2019. A total of 12 patients were included in the study who were diagnosed as PLC. All the patients undergone phototherapy as a treatment modality.
Result- Phototherapy was proved to be an efficient modality in treating PLC in children. Good response was seen in 58.3% of patients by the end of 30th sitting.
Conclusion- PLC is a chronic disease with remission and relapses. Narrow band UVB is an effective and safe modality of treatment for children.

KEYWORDS

Pityriasis lichenoides chronica, Phototherapy

Introduction

Pityriasis lichenoides is a rare papulosquamous disorder of unknown etiology[1] with remissions and exacerbations. It is divided into two forms clinically as, Pityriasis lichenoides chronica (PLC) and Pityriasis lichenoides et varioliformis acuta (PLEVA)[2]. Febrile ulceronecrotic Mucha - Habermann disease (FUMHD) is an aggressive and third form of the disease.

There is a male predominance of 1.5:1 to 3:1 as compared to females. PLC is 3 to 6 times commoner than PLEVA and follows a chronic course. The characteristic lesion is a small, firm, lichenoid papule 3–10 mm in diameter, and reddish brown in color. An adherent 'mica‑like' scale can be detached by gentle scraping to reveal a shining brown surface, which is a distinctive diagnostic feature. Post inflammatory hypopigmentation may occur and is occasionally persistent. The cause is unknown however, recent studies demonstrating T-cell clonality suggest that it is a benign lymphoproliferative process, probably triggered by an unknown antigenic stimulus [3,4].

Pityriasis lichenoides is recently considered to be part of lymphocytic vasculitis and excluded from the parapsoriasis group of disorders[5]. Mycosis fungoides is known to show PLC like lesions and hence need to be ruled out. Albeit, the cause is unknown for PLC, but there are reported triggers, includes drugs like chemotherapeutic agents, oral contraceptives, and viral infections[6].

The lesions sometimes can be confused with guttate psoriasis, hence dermoscopy can be a useful noninvasive modality which aids to the clinical diagnosis.

Treatment depends on the severity of the disease. After topical corticosteroids, phototherapy remains the treatment of choice as it is safe, can be used for long duration and is highly effective[1]. But the safety and efficacy in children has not much talked about in literature.

Phototherapy denotes to the use of ultraviolet A or B radiation without any exogenously used photosensitizer for the treatment of various dermatoses while photochemotherapy refers to the use of a sensitizer (psoralens) in addition[7]. A recent study found that phototherapy was more effective than systemic treatments in children[8].

Other treatment modalities include Erythromycin, Acitretin, Methotrexate[9], Systemic corticosteroids Dapsone and Cyclosporine. The study was done to share our experience of treating patients of PLC with NBUVB phototherapy.

Experimental Section-

Material and methods:

The present study is a prospective single-center open-label uncontrolled study, has included 12 patients of PLC in the age group of 5 to 16 years who attended the Dermatology OPD in a tertiary care hospital between January 2018- April 2019. There were 9 males and 3 female patients in the study.

Any triggering factors, distribution of the lesions, previous treatment history, and associated symptoms were recorded. The characteristic lesion in most of the patient were in form of erythematous scaly papules, or hypopigmented macules associated with itching. The scaling was micaceous and whitish in colour.

All the patients underwent blood investigations like complete blood count, liver and renal function tests, serology for HIV and hepatitis B, chest Xray, ASO titre, throat swab, urine analysis, Mantoux test, and skin biopsy for histopathology was taken from a distinct lesion.

Dermoscopy was performed in all the cases using Dermlite DL4. The pictures were captured using non- contact, non- polarized technique via smartphone of 12 megapixels camera (Samsung Galaxy S8). All the patients had undergone phototherapy with NBUVB after taking written and informed consent from the parents/guardians and explaining the long term follow up of the treatment. Patients and their attenders were explained the safety protocol for the therapy like covering their eyes with googles and in males, genitalia. No other definite modality of treatment was given to the patient. Antihistaminic and emollient were given additionally and as when required.

The patients were started on phototherapy (NBVUB) at the dose of 0.150 J/cm^2 which was increased by every 10% on every visit till erythema is seen. Three sittings per week was given to all the patients (table 1).

Table 1: Phototherapy session and doses

Phototherapy session	Dose (j/cm^2)	Days
1st	0.150	1
2nd	0.165	2
3rd	0.181	3
4th	0.199	4
5th	0.218	5
6th	0.239	6
7th	0.262	7
8th	0.288	8
9th	0.316	9
10th	0.347	10
11th	0.381	11
12th	0.419	12
13th	0.460	13
14th	0.506	14

15th	0.556	15
16th	0.612	16
17th	0.673	17
18th	0.740	18
19th	0.814	19
20th	0.895	20
21st	0.984	21
22nd	1.082	22
23rd	1.190	23
24th	1.309	24
25th	1.439	25
26th	1.453	26
27th	1.598	27
28th	1.758	28
29th	1.933	29
30th	2.126	30

The record of the patient was maintained in the form of photographs which was taken at every 0,5 and 10th week and the results were compared. Also, any new lesions or progression of disease was noted, if present.

Statistical analysis-

Descriptive analysis was carried out to identify the characteristics features of collected data. Mean and percentage was used to represent the data.

Results- Out of 12 patients, 9 (75%) were males, whereas 3 (25%) were females. Mean age at presentation were 9.25 ± 3.30. No triggering factor was noticed in any of the patient. The routine blood investigations, urine analysis chest X -ray was normal. The serology for Hepatitis B, HIV was non- reactive. None of the patients were on any medication prior to onset of these lesion which can add to the triggering of the disease.

Dermoscopic (figure 1) and histopathological features were summarized in table 3.

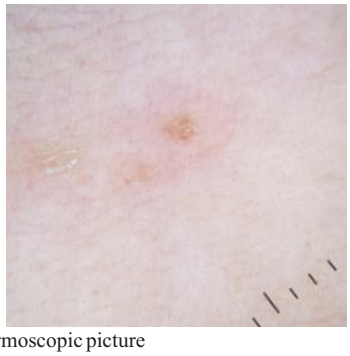

Figure 1 : Dermoscopic picture

Table 2: Dermoscopic and Histopathological features

MODALITY	FEATURES
Dermoscopy	Brownish scaly macule with surrounding halo followed by diffuse brown-red pigmentation.
Histopathology	Focal parakeratosis, moderate acanthosis, spongiosis and minimal exocytosis, perivascular lymphohistiocytic infiltrate and extravasated red blood cells in the dermis, suggestive of PLC.

It was observed that after completion of 30th sittings, 7 (58.3%) showed good response (figure 2-3), 4 (33.33%) showed average response and 1 (8.3%) showed mild response (table 4).

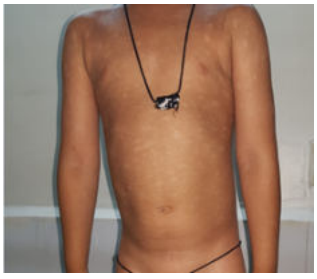

Figure 2- First visit

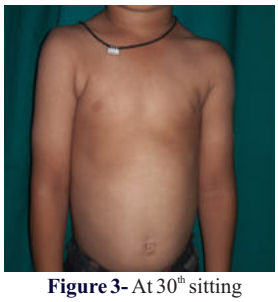

Figure 3- At 30th sitting

Table 3: Response with phototherapy

Patient	NBUVB	Response
7 (58.3%)	30th sitting	Good
4 (33.3%)	30th sitting	Average
1 (8.3%)	30th siting	Mild

None of the patient were lost to follow up during the study. Erythema was noted in eight patients by the end of 20th sitting, while in two patients, it was noted by the end of 26th sittings. Hence, they received the same dose at which erythema was seen till 30th sitting. Rest two patients undergone session till 30th sitting (10th week).

Discussion-

Current knowledge about the efficacy and safety of phototherapy for PLC in children is limited and is mostly based on anecdotal reports and small-scale studies. Phototherapy consists of broadband UVB, psoralen plus UVA (PUVA), UVA1, and narrowband UVB (NBUVB) modalities. The precise mechanism of efficacy of phototherapy in PL is yet unknown, but the immunomodulating effects of UV light, such as the depletion of Langerhans' cells and dermal T cells, and a decrease in natural killer cell activity, have been proposed [10,11].

In our study 58.3% of the patient showed good response at the end of 30th sitting of phototherapy. Le Vine et al [12] reported that all their 11 PL patients showed clearance of the lesions in an average of 29 sessions, which was equivalent with the present study.

All the patients tolerated the therapy well. The study was found to be consistent with other studies in the literature[13] which conclusively predict that phototherapy remains the safe and promising modality with no favorable side effects in the treatment of PLC in the pediatric age group. However, parents of 2 patients' complaint of darkening of their skin (tanning) during the therapy. Those patients belong to Fitzpatrick skin type 4. Out of 12 patients, 2 showed recurrence of lesions after 4 months of stopping the therapy and was restarted on the same modality. The reason for the relapse was not evident. The lesions were mostly in the form of erythematous papules and hypopigmented macules.

PLC may persist with pigmentary alterations in the absence of other signs of active inflammation and has a chronic indolent course, hence long-term follow- up is required, which could not be done in the present study. Although, there were no lost to follow up during the treatment session.

Conclusion-

Phototherapy has proved to be an effective, safe and efficacious modality in treating PLC, with no major side effects in children. Hence, can be recommended in pediatric population.

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