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# A study of epidemiology of pityriasis rosea and therapeutic effect of narrow band ultra violet B phototheraphy on its course

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## ABSTRACT

Aims and Objectives: The aims and objectives of the study was to know epidemiological profile- incidence, age, sex, seasonal variation and morphological variant and also to study the efficacy and safety of NBUVB in treatment for Pityriasis rosea.

Material and methods: Arandomized control clinical trial was conducted in department of dermatology, venereology & leprosy, MDM Hospital, Jodhpur among 60 patients (30 for NBUVB and 30 as control) for one year.

results and conclusion: After this study and observations, we would like to conclude that a fixed dose regimen of 250mj/cm2 of NBUVB phototherapy for a four week course in treatment of pityriasis rosea helps in the reduction of duration of disease and morphological parameters of pityriasis rosea in terms of erythema, scaling and induration as compared to Control. There was also significant improvement in the symptoms of pityriasis rosea like pruritus to a significant level in NBUVB as compared to control. However a larger study should be performed to confirm these findings

**Keywords:** Narrow Band Ultra Violet B Phototheraphy, pityriasis rosea, skin

## INTRODUCTION

Pityriasis rosea is an acute self limiting skin eruption with a distinctive constant course.[1]
Despite active labour for nearly one & half century by generations of researches, the etiology of pityriasis rosea fails to be demystified.

Recent controversies on the role of HHV-7 in the etiology, the discovery of significant temporal clustering & the need for specific diagnostic histological criteria have led to an increased interest in this eruption.

Various micro organisms including fungi, spirochetes, streptococci, legionella & certain drugs like omeprazole metronidazole & D- penicillamine have been implicated in the etiology of pityriasis rosea without any proof.[2]

Precipitating factors of pityriasis rosea include infection, pregnancy, medication, seborrheic dermatitis, mental stress & garment contact.

The first manifestation of the disease in most of the cases is usually appearance of the herald patch, seen in 50%-90% of the cases. It is a solitary oval or round scaly patch, 2-5cms in diameter situated usually on the trunk.

This is followed, 5-15 days later by a secondary eruption which appears in crops [2]. No specific therapy is available& in many cases none is needed, however, some patients have extensive eruption & considerable pruritus. Sunlight or artificial

UV radiation has been mentioned as helpful[3]. UVB phototherapy was introduced by Wiskemann in 1978. UVB is absorbed by DNA and urocanic acid alters antigen presenting cell activity. Narrow band UVB is 5-10 times less potent than broadband UVB.[3]

The aims and objectives of the study was to know epidemiological profile- incidence, age, sex, seasonal variation and morphological variant and also to study the efficacy and safety of NBUVB in treatment for Pityriasis rosea.

**MATERIAL AND METHODS**

**Study Design**: Randomized Control Clinical Trial
**Study location**: Department of dermatology, venereology & leprosy, MDM Hospital, Jodhpur.
**Sample Size**: 60 patients (30 for NBUVB and 30 as control)

**Study duration**: 1 year

The study was conducted in the Department of Dermatology, Venereology and Leprology, Dr S.N. medical College and A.G. Hospital, Jodhpur. Thirty clinically proven cases of Pityriasis rosea attending the Out Patient Department was enrolled in this study and same number of patients was enrolled as control. Patients will be drawn from all walks of life, and not from a particular age group, socio economic status, marital or educational status.

**INCLUSION CRETERIA:**

1. All patients more than 5 years of age.
2. New and relapsing cases of Pityriasis rosea.
3. Clinical proven cases of Pityriasis rosea.

**EXCLUSION CRETERIA:**

1. All patients with eye disorders.
2. Photosensitive disorders.
3. Patients with history of mood swings and mania.
4. HIV positive and immunocompromised patients.

In every case, a detailed clinical history was taken, and emphasis was given to the duration of disease, site of onset, presence of herald patch, secondary eruptions, and progress of lesions, probable precipitating factors like drugs, new garments and associated conditions like atopy, seborrheic dermatitis, acne vulgaris. Detailed dermatological examination was done to see the morphology and distribution of lesions. Oral cavity, palms, soles, hair, nails and genitals was also be examined.

Routine investigations was included haemoglobin estimation, total leukocyte count, differential leukocyte count, erythrocyte sedimentation rate, absolute eosinophil count, complete examination of urine, blood sugar levels, HIV status, KOH mount to exclude fungal infection and VDRL serology to rule out secondary syphilis.
Clinical proven cases was the subjected to narrow band UVB therapy, three times a week for four weeks at a dose a constant dose of 250mJ/cm$^2$.

Improvement in the PRSS was assessed after the 4th week of treatment. Patients will be called after one week & 2nd week of completion of phototherapy treatment.

No other treatment other than application of emollients was given to the patients.
Controls were given a placebo, an emollient cream. Subjects will be seen for follow-up visits at weeks1, 2, 3, and 4 following the start of treatment. Improvement in the PRSS was assessed after the 4th week of treatment. Patients were called after one week & 2nd week of completion of treatment.

The response to therapy were graded as follows:
Excellent 100% improvement in PRSS Good 75-99% improvement in PRSS Moderate 50-74% improvement in PRSS Mild 25-49% improvement in PRSS Poor<25% improvement in PRSS

**Radiation source:** Multiutility NBUVB panel containing 16 fluorescent TL-01 Tubes.
**Clinical grading the severity of pityriasis rosea:**
The severity of the disease will be determined according to the pityriasis Rosea Severity Score (PRSS)[50]. Two areas will be assessed for determining the PRSS: (1) the head and trunk (t) and (2) the upper and lower extremities (e). The extent of the disease will be assessed with a 0 to 3 scale (0=absence of lesions, 1=1 to 9 lesions, 2=10 to 19 lesions, 3=≥20 lesions). To evaluate the severity of the lesions, three target symptoms termed erythema (E), infiltration (I) and scale (S)will be assessed according to a scale of 0 to 3, in which 0 means a complete lack of cutaneous involvement and 3 represents the most severe possible involvement. To calculate the PRSS, the sum of the severity rating for these three

main changes will be multiplied with the numeric value (N) of the extent of the disease.
The formula can be written as: PRSS=Nt(Et+It+St) +Ne (Ee+Ie+Se).

The subscript "t" indicates one side of the trunk and the head, and the subscript "e" indicates one side of the extremities. The pruritic symptoms will also be assessed with a 0 to 3 scale as Follows: 0=absence of pruritus; 1=mild (if it occurred only intermittently and it did not interfere with work or rest), 2=moderate (if it was present for much of the day, but at a more tolerable level) and 3=severe (if it interfered with daytime activities or sleep).

At the end of 4 weeks patients will be assessed based on the above score, and was called after the end of first and second week for follow up to rule out cases of relapse.
The data was being complying in a Performa and analysed.

**OBSERVATIONS:**
60 cases (30 NBUVB and 30 as control) of pityriasis rosea will be included in the study. A detailed physical examination was done; all symptoms and signs of pityriasis rosea were noted. The PRSS score was calculated. Clinically proven cases were started on narrow band UVB phototherapy at a dose of 250mJ/cm$^2$ three times a week for a period of 4 weeks. Controls were given a placebo, an emollient cream for 4 weeks. After the therapy the PRSS score was calculated again and response to the therapy was noted. Finally the following observations were made in the study group.

1. Age incidence of Pityriasis roseancidence of pityriasis rosea related to Sex
2. Seasonal variation of pityriasis rosea
3. Symptoms of pityriasis rosea
4. Incidence of herald patch
5. Site of herald patch
6. Site of secondary eruptions
7. Incidence of different variants of Pityriasis rosea
8. Number of lesions in Head and Trunk (Nt)
9. Number of lesions on the extremities (Ne) 10. Incidence of erythema
11. Incidence of induration
12. Rate of improvement of PRSS 13.Incidence of relapse

**OBSERVATION AND RESULTS**

**Table-1: Age Statistics**

| Age Group | Group | | | | Total | Pearson Chi- Square | P- Value | Interpretation |
|---|---|---|---|---|---|---|---|---|
| | NBUVB | | Control | | | | | |
| | Frequency | %age | Frequency | %age | Frequency %age | | | |
| <10 | 5 | 16.67 | 5 | 16.67 | 1016.67 | 2.195 | 0.821 | o Significant Difference |
| 11-20 | 10 | 33.33 | 9 | 30 | 1931.67 | | | |
| 21-30 | 11 | 36.67 | 11 | 36.67 | 2236.67 | | | |
| 31-40 | 4 | 13.33 | 3 | 10 | 711.67 | | | |
| 41-50 | 0 | 0 | 1 | 3.33 | 11.67 | | | |
| >50 | 0 | 0 | 1 | 3.33 | 11.67 | | | |
| Total | 30 | 100 | 30 | 100 | 60100 | | | |

**Table 1A: Age Statics**

| Group | Mean | Std. Deviation | Minimum | Maximum | Range | F | P- Value | Interpretation |
|---|---|---|---|---|---|---|---|---|
| NBUVB | 20.73 | 9.395 | 6 | 40 | 34 | 0.407 | 0.526 | No Significant Difference |
| Control | 22.43 | 11.162 | 8 | 54 | 46 | | | |

- According to table-1 and 1A,

- Minimum age was 6 years in NBUVB and 8 years in control group. Maximum age was 40 in NBUVB and 54 years in control group.
- Mean age in NBUVB was 20.73 years and in Control group 40.9 years.

**TABLE-2: Gender Distribution**

| Group | Gender | | | | Total | Fisher's Exact Test P-Value | Interpretation |
|---|---|---|---|---|---|---|---|
| | Male | % | Female | % | | | |
| NBUVB | 22 | 73.33 | 8 | 26.67 | 30(100) | 1.000 | o Significant Difference |
| Control | 22 | 73.33 | 8 | 26.67 | 30(100) | | |
| Total | 44 | 73.33 | 16 | 26.67 | 60(100) | | |

- Out 60 patient 44 were male and 16 were female.
- In both the groups there were 22 males (73.33%) and 8 females each.
- The male to female ratio was found to be 2.75:1.

**TABLE-3: Presence of Herald Patch**

| Group | Presence of Herald Patc | | | | Total | Pearson Chi-Square | P-Value | Interpretation |
|---|---|---|---|---|---|---|---|---|
| | Present | % | Absent | % | | | | |
| NBUVB | 24 | 80.00 | 6 | 20.00 | 30(100) | 8.531 | 0.003 | Significant Difference |
| Control | 13 | 43.33 | 17 | 56.57 | 30(100) | | | |
| Total | 37 | 61.67 | 23 | 38.33 | 60(100) | | | |

- In NBUVB 24(80%) patients were positive for herald patch. In Control Group 13 (43.33%) patients were presented with herald patch.
- 8 cases had constitutional symptoms out of fever in 5, sore throat in 3 and rhinitis in 3 patients in NBUVB. 9 cases had constitutional symptoms out of 3 had sore throat, 3 fever and 3 rhinitis in control group.
- In NBUVB out of 30 patients 18 (60%) presented in the winter season, 8 (26.67%) in the rainy season and 4 (13.33%) in the summer season. In Control Group out of 30 patients 18 (60%) presented in the winter season, 7(23.33%) in the summer and 5(16.67%) in the rainy season.

**TABLE: 4 Incidence of Itching in Pityriasis Rosea before Treatment**

| Grade | Group | | | | Total | Pearson Chi-Square | P-Value | Interpretation |
|---|---|---|---|---|---|---|---|---|
| | NBUVB | % | Control | % | | | | |
| No Itching | 4 | 13.33 | 4 | 13.33 | 8 | .875 | 0.831 | o Significant Difference |
| Mild | 9 | 30.00 | 6 | 20.00 | 15 | | | |
| Moderate | 9 | 30.00 | 10 | 33.33 | 19 | | | |
| Severe | 8 | 26.67 | 10 | 33.33 | 18 | | | |
| Total | 30 | 100 | 30 | 100 | 60 | | | |

**TABLE: 4 b Incidence of Itching in Pityriasis Rosea after Treatment**

| Grade | Group | | | | Total | Pearso n Chi- Square | P-Value | pretati on |
|---|---|---|---|---|---|---|---|---|
| | NBUVB | % | Control | % | | | | |
| No Itching | 16 | 53.33 | 8 | 26.67 | 24 | 10.274 | 0.016 | Significant Difference |
| Mild | 11 | 36.67 | 8 | 26.67 | 19 | | | |

| | | | | | |
|---|---|---|---|---|---|
| Moderate | 2 | 6.67 | 10 | 33.33 | 12 |
| Severe | 1 | 3.33 | 4 | 13.33 | 5 |
| Total | 30 | 100 | 30 | 100 | 60 |

- Itching was o f mild degree in 30% and moderate in 30% of cases of pityriasis rosea, 26.67% of cases had severe itching while 13.33% of cases presented without itching before the initiation of treatment with NBUVB.
- Itching was of mild degree in 20% and moderate in 33.33% of cases of pityriasis rosea, 33.33% of cases had severe itching while 13.33% of cases presented without itching before the initiation of treatment with emollient in Control.
- After the completion of 4 weeks of NBUVB 53.33% of cases had no itching, 36.67% of patients had mild degree of itching, 6.67% had moderate itching and only 3.33% of cases had severe itching.
- After the completion of 4 weeks of only emollient (CONTROL) 26.67% of cases had no itching, 26.67% of patients had mild degree of itching, 33.33% had moderate itching and only 13.33% of cases had severe itching.
- There was significant decrease of itching after treatment with NBUVB as compared to control.

**TABLE: 5 THE MEAN OF SEVERITY OF ITCHING**

| | NBUVB GROUP | CONTROL GROUP |
|---|---|---|
| Itching Before | 1.7 | 1.87 |
| Itching After | 0.6 | 133 |

- The Mean of severity of itching was 1.7 and 0.6 before and after the treatment in NBUVB respectively.
- The Mean of severity of itching was 1.87 and 1.33 respectively before and after treatment with emollient in CONTROL.

**TABLE: 6 Site of Involvement of Secondary Eruption**

| Site of Involvement | Herald Patch | | Secondary Eruptions | |
|---|---|---|---|---|
| | NBUVB | Control | NBUVB | Control |
| Flexures | 2 | 1 | 13 | 7 |
| Face and neck | 3 | 3 | 22 | 14 |
| Trunk | 7 | 5 | 29 | 23 |
| Abdomen and Back | 7 | 2 | 27 | 22 |
| Upper Extremities | 4 | 0 | 22 | 24 |
| Lower Extremities | 0 | 2 | 17 | 6 |
| Palms and Sole | 0 | 0 | 2 | 2 |

- In NBUVB, the most common site of involvement of Herald patch was found to be on the trunk, the least common sites were lower extremities and flexures (axilla & groin), face, neck.
- In Control Group , the most common site of herald patch was found to be trunk
- In NBUVB, the most common site of secondary eruptions was trunk followed by abdomen, face and neck. The least common sites were palms and soles.
- In Control Group, the secondary eruption was found to be over Upper extremities most commonly followed by trunk.

**TABLE: 7 Morphologic Variants in Pittyriasis Rosea**

| | Group | | | | Total |
|---|---|---|---|---|---|
| | NBUVB | % | Control | % | |
| Papulsquamous | 22 | 73.33 | 25 | 83.33 | 47 |
| Papular | 6 | 20.00 | 4 | 13.33 | 10 |
| Vesicular | 0 | 0.00 | 0 | 0.00 | 0 |
| Pustular | 0 | 0.00 | 0 | 0.00 | 0 |
| Purpuric | 2 | 6.67 | 1 | 3.33 | 3 |
| Total | 30 | 100 | 30 | 100 | 60 |

- In NBUVB, the most common type of variant was Papulosquamous pityriasis rosea found in 73.33% of patients

followed by papular (20%), and purpuric type (6.67%). No cases of pustular and vesicular type were found.

- In Control Group, the most common variant was Papulosquamus (83.33%) followed by popular in 13.33% and purpuric type in 3.33%.

**TABLE: 8 Erythema of Head & Trunk (Nt) Before Treatment**

| Erythema | Group | | | | Total | Pearson Chi-Square | P-Value | Interpretation |
|---|---|---|---|---|---|---|---|---|
| | NBUVB | % | Control | % | | | | |
| No Erythema | 0 | 0.00 | 2 | 6.67 | 2 | 5.290 | 0.152 | No Significant Difference |
| Mild | 5 | 16.67 | 10 | 33.33 | 15 | | | |
| Moderate | 17 | 56.67 | 14 | 46.67 | 31 | | | |
| Severe | 8 | 26.67 | 4 | 13.33 | 12 | | | |
| Total | 30 | 100 | 30 | 100 | 60 | | | |

**Table: 8b Erythema of Head & Trunk (Nt) After Treatment**

| Erythema | Group | | | | Total | Pearson Chi-Square | P-Value | Interpretation |
|---|---|---|---|---|---|---|---|---|
| | NBUVB | % | Control | % | | | | |
| No Erythema | 12 | 40.00 | 3 | 10.00 | 15 | 12.663 | .005 | Significant Difference |
| Mild | 16 | 53.33 | 15 | 50.00 | 31 | | | |
| Moderate | 2 | 6.67 | 11 | 36.67 | 13 | | | |
| Severe | 0 | 0.00 | 1 | 3.33 | 1 | | | |
| Total | 30 | 100 | 30 | 100 | 60 | | | |

- Moderate (56.67%) to severe (26.67%) erythema was present in the lesions of head and trunk initially. After treatment with NBUVB phototherapy, 40% of cases had no erythema and 53.33% of cases had mild erythema of lesions. No cases presented with severe erythema.
- Moderate 46.67% to severe 13.33% erythema was present in the lesions of head and trunk initially. After treatment with emollient 10% of cases had no erythema and 50% of cases had mild erythema of lesions. 3.33% case presented with severe erythema.
- There was significant reduction in erythema with treatment of NBUVB.

**Table: 9a Erythema of Extremity (Ne) Before Treatment**

| Erythema | Group | | | | Total | Pearson Chi-Square | P-Value | Interpretation |
|---|---|---|---|---|---|---|---|---|
| | NBUVB | % | Control | % | | | | |
| No Erythema | 4 | 13.33 | 5 | 16.67 | 9 | 10.961 | 0.062 | Significant Difference |
| Mild | 3 | 10.00 | 13 | 43.33 | 16 | | | |
| Moderate | 15 | 50.00 | 10 | 33.33 | 25 | | | |
| Severe | 8 | 26.67 | 2 | 6.67 | 10 | | | |
| Total | 30 | 100 | 30 | 100 | 60 | | | |

**Table: 9b Erythema of extremity(Ne) After treatment**

| Erythema | Group | | | | Total | earson Chi-Square | P-Value | Interpretation |
|---|---|---|---|---|---|---|---|---|
| | NBUVB | % | Control | % | | | | |
| No Erythema | 18 | 60.00 | 7 | 23.33 | 25 | 10.955 | 0.012 | Significant Difference |
| Mild | 11 | 36.67 | 15 | 50.00 | 26 | | | |
| Moderate | 1 | 3.33 | 7 | 23.33 | 8 | | | |

| | | | | | |
|---|---|---|---|---|---|
| Severe | 0 | 0.00 | 1 | 3.33 | 1 |
| Total | 30 | 100 | 30 | 100 | 60 |

- Moderate (50%) to severe (26.67%) erythema was present in the lesions of extremities initially. After treatment with NBUVB phototherapy 60% of cases had no erythema and 36.67% of cases had mild erythema of lesions. No cases presented with severe erythema.
- Moderate 33.33% to severe 3.33% erythema was present in the lesions of extremities initially. After treatment with emollient 23.33% of cases had no erythema and 50% of cases had mild erythema of lesions. 3.33% case presented with severe erythema.
- As statics indicates that P value <0.05 that means significant reduction of erythema in NBUVB group compare to Control.

**TABLE: 10 THE MEAN OF SEVERITY OF ERYTHEMA**

| | NBUVB GROUP | CONTROL GROUP |
|---|---|---|
| Erythema before the treatment over the head and trunk (Nt) | 2.10 | 1.67 |
| Erythema after the treatment over the head and trunk (Nt) | 0.67 | 1.33 |
| Erythema before the treatment over the extremities (Ne) | 1.9 | 1.30 |
| Erythema after the treatment over the extremities (Ne) | 0.43 | 1.07 |

- The Mean value of erythema of head and trunk (Nt) was 2.1 and extremity (Ne) was 1.9 initially. After treatment with NBUVB Nt & Ne were 0.67 & 0.43 respectively.
- The Mean value of Erythema of head and trunk (Nt) was 1.67 and Extremity (Ne) was 1.3 initially. After treatment with emollient, Nt & Ne were 1.33 & 1.07 respectively in control.

**TABLE: 11a Scaling of Head and Trunk (Nt) Before Treatment**

| Scaling | Group | | | | Total | Pearson Chi-Square | P-Value | Interpretation |
|---|---|---|---|---|---|---|---|---|
| | NBUVB | % | Control | % | | | | |
| No Scaling | 0 | 0.00 | 2 | 6.67 | | 25.254 | .154 | No Significant Difference |
| Mild | 2 | 6.67 | 6 | 20.00 | 8 | | | |
| Moderate | 19 | 63.33 | 17 | 56.67 | 36 | | | |
| Severe | 9 | 30.00 | 5 | 16.67 | 14 | | | |
| Total | 30 | 100 | 30 | 100 | 60 | | | |

**Table: 11 b Scaling of Head And Trunk (Nt) After Treatment**

| Scaling | Group | | | | Total | Pearson Chi-Square | P-Value | Interpretation |
|---|---|---|---|---|---|---|---|---|
| | NBUVB | % | Control | % | | | | |
| No Scaling | 12 | 40.00 | 2 | 6.67 | 14 | 22.992 | .000 | Significant Difference |
| Mild | 16 | 53.33 | 9 | 30.00 | 25 | | | |
| Moderate | 2 | 6.67 | 16 | 53.33 | 18 | | | |
| Severe | 0 | 0.00 | 3 | 10.00 | 3 | | | |
| Total | 30 | 100 | 30 | 100 | 60 | | | |

- Moderate (67.33%) to severe (30%) scaling was present in the lesions of head and trunk initially in NBUVB Group.
- After treatment with NBUVB, 40% of cases had no scaling and 53.33% of cases had mild scaling of lesion, 6.67% of cases had moderate scaling and no cases had severe scaling.
- Moderate (56.67%) to severe (16.67%) scaling was present in the lesions of head and trunk initially in Control Group.
- After treatment with emollient 6.67% of cases had no scaling and 30% of cases had mild scaling of lesions, 53.33% of cases had moderate scaling and 10% cases had severe scaling.
- There was significant reduction in scaling after treatment with NBUVB.

**Table: 11 c Scaling of Extremity (Ne) Before Treatment**

| Scaling | Group | | | | Total | Pearson Chi-Square | P-Value | Interpretation |
|---|---|---|---|---|---|---|---|---|
| | NBUVB | % | Control | % | | | | |
| No Scaling | 4 | 13.33 | 5 | 16.67 | 9 | 5.808 | 0.121 | No Significant Difference |
| Mild | 1 | 3.33 | 5 | 16.67 | 6 | | | |
| Moderate | 16 | 53.33 | 17 | 56.67 | 33 | | | |
| Severe | 9 | 30.00 | 3 | 10.00 | 12 | | | |
| Total | 30 | 100 | 30 | 100 | 60 | | | |

**Table: 11 d Scaling of Extremity (Ne) After Treatment**

| Scaling | Group | | | | Total | earson Chi-Square | P-Value | Interpretation |
|---|---|---|---|---|---|---|---|---|
| | NBUVB | % | Control | % | | | | |
| No Scaling | 19 | 63.33 | 6 | 20.00 | 25 | 15.955 | 0.001 | Significant Difference |
| Mild | 9 | 30.00 | 10 | 33.33 | 19 | | | |
| Moderate | 2 | 6.67 | 12 | 40.00 | 14 | | | |
| Severe | 0 | 0.00 | 2 | 6.67 | 2 | | | |
| Total | 30 | 100 | 30 | 100 | 60 | | | |

- Moderate (53.33%) to severe (30%) scaling was present in cases of pityriasis rosea on the lesions of extremities initially in NBUVB group.
- After treatment with NBUVB phototherapy 66.33% of cases had no scaling and 30% of cases had mild scaling of lesions. No cases presented with severe scaling.
- Moderate (56.67%) to severe (10%) scaling was present on the lesions of extremities in cases of pityriasis rosea on the lesions initially in Control group.
- After treatment with emollient 20% of cases had no scaling and 33.33% of cases had mild scaling of lesions. 6.67% cases presented with severe scaling.
- The scaling was significant reduced in NBUVB group after treatment with NBUVB.

**TABLE: 12 THE MEAN OF SEVERITY OF SCALING**

| | NBUVB GROUP | CONTROL GROUP |
|---|---|---|
| Scaling before the treatment over the head and trunk (Nt) | 2.3 | 1.87 |
| Scaling after the treatment over the head and trunk (Nt) | 0.67 | 1.67 |
| Scaling before the treatment over the extremities (Ne) | 2 | 1.6 |
| Scaling after the treatment over the extremities (Ne) | 0.43 | 1.33 |

- The Mean value of Scaling of head and neck (Nt) was 2.23 and Extremity (Ne) was 2 initially. After treatment with NBUVB Nt & Ne were 0.67 & 0.43 respectively.
- The Mean value of Scaling of head and neck (Nt) was 1.83 and Extremity (Ne) was 1.67 initially. After treatment with emollient, Nt & Ne were 1.6 & 1.33 respectively in control.

**TABLE: 13 a Induration of Head And Trunk (Nt) Before Treatment**

| Induration | Group | | | | Total | Pearson Chi-Square | P-Value | Interpretation |
|---|---|---|---|---|---|---|---|---|
| | NBUVB | % | Control | % | | | | |
| No Induration | 0 | 0.00 | 4 | 13.33 | 4 | 8.718 | .033 | Significant Difference |
| Mild | 6 | 20.00 | 12 | 40.00 | 18 | | | |
| Moderate | 16 | 53.33 | 10 | 33.33 | 26 | | | |
| Severe | 8 | 26.67 | 4 | 13.33 | 12 | | | |
| Total | 30 | 100 | 30 | 100 | 60 | | | |

**Table:13 b Induration of Head And Trunk (Nt) After Treatment**

| Induration | Group | | | | Total | Pearson Chi-Square | P-Value | Interpretation |
|---|---|---|---|---|---|---|---|---|
| | NBUVB | % | Control | % | | | | |
| No Induration | 20 | 66.67 | 9 | 30.00 | 29 | 8.589 | .035 | Significant Difference |
| Mild | 8 | 26.67 | 15 | 50.00 | 23 | | | |
| Moderate | 2 | 6.67 | 5 | 16.67 | 7 | | | |
| Severe | 0 | 0.00 | 1 | 3.33 | 1 | | | |
| Total | 30 | 100 | 30 | 100 | 60 | | | |

- Moderate (53.33%) to severe (26.67%) induration was present in the lesions of head and trunk initially in NBUVB Group.
- After treatment with NBUVB phototherapy 66.67% of cases had no induration, 26.67% of cases had mild and 6.67% moderate induration of lesions. No cases presented with severe induration.
- Moderate (33.33%) to severe (13.33%) induration was presenting the lesions of head and trunk initially in Control Group.
- After treatment with emollient 30% of cases had no induration ,50% of cases had mild and 16.67% had moderate induration of lesions. 3.33% cases presented with severe induration.

**Table:14 a Induration of Extremity (Ne) Before Treatment**

| Induration | Group | | | | Total | Pearson Chi-Square | P-Value | Interpretation |
|---|---|---|---|---|---|---|---|---|
| | NBUVB | % | Control | % | | | | |
| No Induration | 4 | 13.33 | 5 | 16.67 | 9 | 12.784 | .005 | Significant Difference |
| Mild | 4 | 13.33 | 16 | 53.33 | 20 | | | |
| Moderate | 14 | 46.67 | 6 | 20.00 | 20 | | | |
| Severe | 8 | 26.67 | 3 | 10.00 | 11 | | | |
| Total | 30 | 100 | 30 | 100 | 60 | | | |

**Table:14 b Induration of Extremity (Ne) After Treatment**

| Induration | Group | | | | Total | Pearson Chi- Square | P-Value | Interpretation |
|---|---|---|---|---|---|---|---|---|
| | NBUVB | % | Control | % | | | | |
| No Induration | 23 | 76.67 | 9 | 30.00 | 32 | 13.649 | .003 | Significant Difference |
| Mild | 6 | 20.00 | 15 | 50.00 | 21 | | | |
| Moderate | 1 | 3.33 | 5 | 16.67 | 6 | | | |
| Severe | 0 | 0.00 | 1 | 3.33 | 1 | | | |
| Total | 30 | 100 | 30 | 100 | 60 | | | |

- Moderate (46.67%) to severe (26.67%) induration was present in the lesions of extremities initially in NBUVB Group.
- After treatment with NBUVB phototherapy 76.67% of cases had no induration, 20% of cases had mild and 3.33% of cases moderate induration of lesions. No cases presented with severe induration.
- Moderate (53.33%) to severe (20%) induration was present in the lesions of extremities initially in Control Group.
- After treatment with emollient 30% of cases had no induration, 50% of cases had mild and 16.67% of cases moderate induration of lesions. 3.33% cases presented with severe induration.

**TABLE: 15 THE MEAN OF SEVERITY OF INDURATION**

| | NBUVB GROUP | CONTROL GROUP |
|---|---|---|
| **Induration before the treatment over the head and trunk (Nt)** | 2.07 | 1.47 |
| **Induration after the treatment over the head and trunk (Nt)** | 0.4 | 0.93 |
| **Induration before the treatment over the extremities (Ne)** | 1.87 | 1.23 |
| **Induration after the treatment over the extremities (Ne)** | 0.27 | 0.93 |

- The Mean value of Induration of head and trunk (Nt) was 2.07 and Extremity (Ne) was 1.87 initially. After treatment with NBUVB Nt & Ne were 0.4 & 0.27 respectively.
- The Mean value of Induration of head and trunk (Nt) was 1.47 and Extremity (Ne) was 1.23 initially. After treatment with emollient, Nt & Ne were 0.93 & 1.23 respectively in Control Group.

**TABLE: 16 THERAPEUTIC RESPONSES AT THE END OF THERAPY**

| NBUVB GROUP | | CONTROL GROUP |
|---|---|---|
| Excellent Response | 7 | 0 |
| Good Response | 23 | 0 |
| Moderate Response | 1 | 12 |
| Poor Response | 0 | 18 |
| | | |

- Above table shows at the end of therapy 7 patients had excellent and 23 patients had good response and 1 patient moderate response in NBUVB group.
- In Control group, 12 patients had moderate and 18 patients had poor response.

**TABLE: 17 SIDE EFFECT PROFILE**

| SIDE EFFECT | NBUVB | CONTROL |
|---|---|---|
| **DRYNESS** | 3 | 0 |
| **BURNING** | 2 | 0 |
| **DARKNING** | 1 | 0 |
| **NO SIDE EFFECT** | 24 | 0 |

- Minimum side effects were noted like dryness in 3, burning in 2 and darkening in 1 patient respectively.
- No side effects were noted in the control Group.

**Table: 18 Incidence of Healing with Hyperpigmentation**

| Hyper pigmentation | Group | | | | Total | Pearson Chi-Square | P-Value | Interpretation |
|---|---|---|---|---|---|---|---|---|
| | NBUVB | % | Control | % | | | | |
| Yes | 17 | 56.67 | 6 | 20.00 | 23 | 8.531 | .003 | Significant Difference |
| No | 13 | 43.33 | 24 | 80.00 | 37 | | | |
| Total | 30 | 100 | 30 | 100 | 60 | | | |

- 56.67% and 20% of cases were healed with hyper pigmentation in NBUVB and Control Group respectively.

**Table: 19 Incidence of Healing with Hypopigmentation**

| Hypo pigmentation | Group | | | | Total | Pearson Chi-Square | P-Value | Interpretation |
|---|---|---|---|---|---|---|---|---|
| | NBUVB | % | Control | % | | | | |
| Yes | 4 | 13.33 | 3 | 10.00 | 7 | .162 | .688 | No Significant Difference |
| No | 26 | 86.67 | 27 | 90.00 | 53 | | | |
| Total | 30 | 100 | 30 | 100 | 60 | | | |

- 13.33% and 10% of cases were healed with hypo pigmentation in NBUVB and Control Group respectively.
- There was no significant difference in regards of healing with hypopigmentation.

**TABLE: 20 THE MEAN OF PITYRIASIS ROSEA SEVERITY SCORE**

| | NBUVB GROUP | CONTROL GROUP |
|---|---|---|
| Before Treatment | 24.1 | 18.5 |
| After Treatment | 3.53 | 15.17 |

- The Total Mean Value of PRSS was found to be 24.1 initially, after treatment with NBUVB for 2 week it decreased to 3.53.The
- Total Mean Value of PRSS was found to be 18.5 initially, after treatment with emollient for 2 week it decreased to 15.17.

**Table: 21 Statics of PRSS**

| | Group | Score | Pearson Chi-Square | P-Value | Interpretation |
|---|---|---|---|---|---|
| omparison Between | NBUVB and Control | Before | 27.485 | 0.282 | o Significant Difference |
| | NBUVB and Control | After | 46.000 | 0.001 | Significant Difference |

- As statics indicates, before treatment, the P value of NBUVB and control was 0.282 and after treatment 0.001, that means study was significant.
- As evident from the above table, the overall therapeutic response by the end of study Period was significant with NBUVB.

**Table: 22 Incidence of Relapse**

| Relapse | Group | | | | Total | Pearson Chi-Square | P-Value | Interpretation |
|---|---|---|---|---|---|---|---|---|
| | NBUVB | % | Control | % | | | | |
| Yes | 2 | 6.67 | 3 | 10.00 | 5 | .218 | .640 | No Significant Difference |
| No | 28 | 93.33 | 27 | 90.00 | 55 | | | |
| Total | 30 | 100 | 30 | 100 | 60 | | | |

- Only 6.67% of cases relapsed within two weeks of completion of treatment with NBUVB phototherapy while 10% of cases were relapsed in Control group.

**DISCUSSION**

The present study was conducted in department of Skin and V.D; Dr. S.N. Medical College, Jodhpur and included 60 cases of pityriasis rosea who were randomly allocated in two group of 30 patients in each group by simple randomisation. Group A were treated with 250 mj/cm$^2$ fixed NBUVB phototherapy thrice weekly on alternate day for four weeks and Group B were treated with only emollient for four weeks and response were noted after four week and then follow up for next four weeks.

Out of 30 cases the maximum of cases 11 belong to the age group of 21-30 years in both groups, followed by 10 and 9 cases belong to the age group of 11-20 years of age NBUVB and Control Group respectively. Most of the recent clinical studies indicate that the incidence of the Disease peaks at the age of 10-29 years.[4]

Pityriasis rosea is not uncommon in children. In our study, cases of age 5 years and above was included. In our study 10 cases (33.33%) were between 5 to 10 years of age, 5(16.67%) case each group. The patient in literature was three months old reported by Hyatt.[5]

Our study the youngest patient was 6 year old male patient. The oldest patient in our study was a 54 year old female. Thus it can be concluded that pityriasis rosea is very rare in the very young and the very old. The peak incidence of disease is reported between 10-29 years age group.

In our present study of 60 patients, 44 cases (73.33%) were males and 16 cases (26.67%) were females, 22 cases (73.67%) were male and 8 cases (26.67%) female in each group, giving rise to a male is to female ratio of 2.75:1. Crissey found twice as many females than males.[6] In a large study by Chuang et al,[7] the sex ratio was 1.5 females to 1 male patient.

In our study also pityriasis rosea in 36 cases (60%) was common during the winter season. Majority of patients with pityriasis rosea complains of dryness, scaling, burning in our study, of which itching was the commonest symptom. Intensity of itching varied greatly from patient to patient from mild to moderate to severe and is absent in some of them. Mandal SB and Datta AK were reported in his study that 25% of patients had severe itching, 50% of the patients had slight to moderate and it was absent in 25%.[8] In our study 8(26.67%) of cases had severe, 18(60%) cases mild to moderate itching in NBUVB Group and 8(33.33%) of cases had severe, 8(33.33%) moderate and 6(20%) cases mild itching in Control Group, while 4(13.33%) of cases reported with no itching et al in both of group.

In all the cases presented to us it was the first episode of pityriasis rosea before the treatment could be initiated. None had any episode of reoccurrences. According to Bjornberg and Hellgren, the frequency of the reoccurrences is between 0.9% and 2.8%.[9] Chuang et al based on their 10 year epidemiological study of 939 patients reported the reoccurrence rate in pityriasis rosea to be 18% and they further established that the average period between reoccurrence was 3.8%. The longest interval reported was 36 years.[7] Many workers have laid emphasis on the infectious etiology of pityriasis rosea. Factors favouring this infectious etiology are the natural history of the disease, presence of occasional mild constitutional symptoms, self limiting course and relative infrequence of attacks.

In our study 11 and 9 of cases had prodromal symptoms in NBUVB and Control Group respectively. History of fever in 5 patients, sore throat in 3 patients and rhinitis in 3 patients out of 11 patients of pityriasis rosea in NBUVB group and fever in 3 and sore throat in 3and rhinitis 3 of cases out of 9 cases in Control Group. Chuang et al[7] reported that of cutaneous and non cutaneous infections prior to onset of pityriasis rosea was present in 16% of their cases and he found

no association of pityriasis rosea eith atopy and sebborrheic dermatitis.

The association of pityriasis rosea with family history of atopy was reported by Chuang et al. In the present study just 2 cases had a personnel history of atopy in NBUVB Group.

Corsen EF and Luscombe HA were reported association of pityriasis rosea in pregnancy probably due to new garment contact.[10] In our study no such cases of pityriasis rosea due to garment contact were noted.

Parson and Richmond were reported that the site of secondary eruptions was mainly on the trunk, extremities and neck.[11] In our study, the most common site of involvement being the trunk 29(96.67%), abdomen 27(90%), face and neck and upper extremities 22(73.33%), lower extremity 17(56.67%), flexures 13(43.33%) and palms and soles 2(6.67%) in NBUVB and upper extremities 24(80%), the trunk 23(76.67%), abdomen 22(73.33%), face and neck 14(46.67%) and flexures 7(23.33%) and lower extremities 6(20%) and palms and soles 2(6.67%) in control group in order of frequency, which is in correlation with the study by Parson et al.

In the present study 22 (73.33%) of patients in NBUVB and 25(83.33%) in Control group had typical papulosquamous lesions of pityriasis rosea. According to Wassilew,[12] in about 20% of patients of pityriasis rosea, the picture diverges from the classical one. Even in our study 20% of patients diverged from classical morphology, out of which papulor being 6(20%) and 4(13.33%) and purpuric 2(6.67%) and 1(3.33%) in NBUVB and Control respectively. However we have noted any cases having vesicular and pustular lesions were noted. This supports Wassilew's observation.

Pityriasis rosea is not associated with any other systemic disorder. In the present study also no such systemic association was seen.

Laboratory finding: In this study leukocytosis was observed in 9 (30%) and 10 (30%) of cases, ESR was elevated in 6(20%) and 7(23.33%) of cases in NBUVB and Control group respectively, and VDRL test performed, was consistently negative in all cases. These findings are in agreement with other studies. In India, Mohan L and Arora SK were performed VDRL test in every case of pityriasis rosea and found it to be negative.[13] In the literature it was mentioned that except mild lymphocytosis and slight elevation in ESR, the picture will be normal, some case leukopenia was noted, which is in favour of viral etiology.

After subjecting the patients to a four week of fixed dose regimen of 250MJ/cm$^2$ of NBUVB, three times a week on alternate day, showed substantial improvement in the severity of the disease with respect to erythema, induration and scaling of the lesions of pityriasis rosea. While in a Control group patients were treated with emollient for four weeks, patients showed little improvement in severity of the disease with respect to erythema, scaling and induration of the lesions of pityriasis rosea.

After the treatment with NBUVB 16(53.33%) of cases had no itching and only 1 (3.33%) of patients presented with severe itching. While in Control group 8 (26.67%) of cases no itching and 4 (13.33%) of patients presented with sever itching. The reduction in severity of pruritus is much more marked with NBUVB phototherapy in correlation to the finding of Leenutaphong V et al in his study of bilateral comparison study between UVA and UVB in treatment of pityriasis rosea, found no significant improvement with UVA.[14]

However Valkova S et al found no significant improvement in itching and reduction of symptoms in cases of pityriasis rosea trated with UVB phototherapy. However our study does not correlate the study of Valkova S.[15]

In the present study we have adopted the improvement according to the Pityriasis Rosea Severity Score (PRSS). We had calculated the PRSS according to the two divided zones of head and trunk (Nt) and extremities (Ne) in the following parameters of erythema, scalling and induration.

In the present study significant improvement in the reduction of erythema, scaling and induration of lesions over the head and trunk were noted, which are important component of PRSS; over the lesions of head and trunk (Nt), 17 (56.67%) of cases pityriasis rosea were presented with moderate erythema, 8 (26.67%) of cases with sever erythema and only 5 (16.67%) cases with mild erythema and 14 (46.67%) of cases of pityriasis rosea were presented with moderate erythema, 4 (13.33%) of cases with severe erythema and only 10 (33.33%) cases with mild erythema and 2 (6.67%) of cases with no erythema in NBUVB and Control group respectively.

Nineteen patients (63.33%) of pityriasis rosea had moderate scaling and 9 paptients (30%) had severe scaling and just 2 (6.67%) of them had mild scaling in NBUVB and 17 (56.67%) of them had moderate and 5 (16.67%) of them had severe and 6 (20%) of cases had mild scaling in control group over head and trunk lesions.

In our study 16 (53.33%) of patients of pityriasis rosea had moderate induration and 8 (26.67%) of patients had severe and 6 (20%) had mild induration and 10 (33.33%) cases had moderate and 12 (40%) mild and 4 (13.33%) patients had no induration overhead and trunk lesions (Nt) in NBUVB and Control group respectively.

After treatment with fixed dose regimen of NBUVB phototherapy for four weeks results were tabulated and founds such, 12 (40%) of cases with no erythema while 16 (53.33%) of them had mild erythema and 2 (3.33%) of cases with moderate over the head and trunk lesions. There was no patient with severe erythema at the end of therapy. Similar finding were noted with degree of scaling over the head and trunk lesions of pityriasis roea. After the treatment 12 (40%) of cases had no scales and 16 (53.33%) had mild, 2 (6.67%) of cases had moderate scales over the lesions of head and trunk.

A noticeable improvement on the degree of induration was also recorded. After the completion of treatment, 20 (66.67%) of patients had no indurated lesions and 8 (26.67%) cases were presented with mild and 2 (6.67%) patients were presented moderate induration over head and trunk lesions (Nt).

After treatment with only emollient in control group for four weeks results were tabulated and found as such, only 3 (10%) of cases with no erythema compared to 40% in NBUVB while 15 (50%) of them mild, 11 (36.67%) of cases moderate and 1 (3.33%) of cases had severe erythema over the head and trunk (Nt) lesions.

Similar finding were noted with degree of scaling in control group over the head and trunk lesions. After the treatment, 2 (6.67%) of cases had no scaling, 9 (30%) of them had mild, 16 (53.33%) of patients had moderate and 3 (10%) of cases had sever scaling.

Nine (30%) of patients had no indoration, 15(15%) of them had mild induration, 5 (16.67%) of cases had moderate and 1 (3.33%) of cases had severe induration over head and trunk lesions in control group after treatment with only emollient in control group. Significant changes in the erythema, scaling and induration over the lesions of extremities were also noted. 15 (50%) of cases presented with moderate erythema and 8 (26.67%) of cases had severe in NBUVB while 10 (33.33%) of cases had moderate erythema and 2 (6.67%) of patients were presented with severe erythema and 13 (43.33%) of cases had mild erythema in control group. Sixteen of patients (53.33%) of pityriasis rosea had moderate and 9 (30%) had severe scaling and 17 (56.67%) of cases were presented with moderate and 3 (10%) 0f patients had severe scaling in NBUVB and Control group respectively. Fourteen (46.67%) of cases had moderate induration and 8 (26.67%) of patients had severe indurated lesions of the extremities and 6 (26.67%) of cases had moderate and 3 (10%) of cases were presented with severe induration over lesions of extremity in NBUVB and Control group respectively. After the completion of treatment, it was noted that, 18 (60%) of cases had no erythema over the lesions of extremities and 11 (36.67%) and 1 (3.33%) of cases had just mild and moderate erythema respectively in NBUVB while in control group 15 (50%) of cases had mild erythema and 7 (23.33%) of cases had moderate erythema, 7 (23.33%) of cases had no erythema and 1 (3.33%) of cases had sever erythema. 19 cases (63.33%) had no scaling and 9cases (30%) of pityriasis rosea had mild scales over lesions of extremities in NBUVB while in control group, 12 (40%) of cases had moderate scaling, 10 (33.33%) of cases had mild , 6 (20%) of cases had no scaling and 2 (6.67%) of cases had severe scaling. 23 patients (76.67%) of cases had no indurated lesions over extremities and just 6 (20%) of cases were presented with mild induration and 1 (3.33%) of cases had moderate and no cases were seen with severe induration in NBUVB, while in control group 15 (50%) of cases had mild induration and no induration were seen in 9 (30%) of cases, 5 (16.67%) of cases had moderate and 1 (3.33%) of had sever induration.

Valkova S[15] in his bilateral comparison study between UVA and UVB phototherapy in treatment of pityriasis rosea confirmed that the UVA irradiation in the dose mentioned earlier had no effect on the course of the disease but significant clinical improvement according to PRSS($t=17.9$; $P< 0.001$), with total clearing of the rash was observed after UVB phototherapy, which is correlating with our study.

Leenutaphonga et al[14] in his study used a bilateral comparison experimental demonstrated that 10 daily erythemogenic exposures of UVB resulted in substantially decreased severity of disease in comparison with the control side in 15 of 17 patients. The overall reduction of PRSS showed a significant difference; the UVB irradiation was superior to UVA irradiation. The result of this study is in accord with a previous bilateral comparison study by Arndt et al in which five consecutive erythemogenic UVB phototherapy exposures were administered to one half of the bodies of 20 patients. It was shown that the extent of disease and pruritus on the treated side decreased more than on the untreated side.

We would like to report that 17(56.67%) and 6(20%) of patients healed with hyperpigmentation and 4(13.33%) and 3(10%) of cases of pityriasis rosea healed with hypopigmentation in NBUVB and Control Group respectively, however there are no reports to this affect.

No studies suggesting relapse after UVB phototerapy for pityriasis rosea has been reported.
However in our, 2 patients (6.67%) and 3 patients (10%) had come back with relapse of pityriasis rosea within two weeks of follow up in NBUVB and Control group respectively.

There was no significant improvement in the duration of the disease. Similar observation was noticed by Valkva S and Leenutaphoga et al.[14,15]

All these finding with respect to erythema, scaling and induration were noted in present study; though no such studies reporting the same has been taken up earlier for comparison of our study. We would also like report that there was a 21 years old male had no improvement in PRSS, the course and morphology of the disease after the completion of fixed dose regimen of NBUVB phototherapy given for the disease. The side effects were noted during the treatment course slight burning sensation in 2 patients, darkening of the skin in 1 patients and dryness of skin in 3 patients, while no side effects were noted in control group.
The self limited course of pityriasis rosea probably makes it difficult to evaluate the efficacy of treatment.

**Conclusion**

After this study and observations, we would like to conclude that a fixed dose regimen of 250mj/cm$^2$ of NBUVB phototherapy for a four week course in treatment of pityriasis rosea helps in the reduction of duration of disease and morphological parameters of pityriasis rosea in terms of erythema, scaling and induration as compared to Control. There was also significant improvement in the symptoms of pityriasis rosea like pruritus to a significant level in NBUVB as compared to control. However a larger study should be performed to confirm these findings.

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