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COMPARISON BETWEEN PUVA AND NB-UVB THERAPY IN VARIOUS DERMATOLOGICAL CONDITIONS– AN OPEN STUDY -ORIGINAL RESEARCH ARTICLE

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ABSTRACT

Introduction: NB-UVB is being increasingly used for treatment of various skin diseases. Irradiation with this source been found to be superior to conventional broad band UVB in psoriasis producing longer remissions, lower incidence of burning and possibly lower risk of UV carcinogenesis. The effect of PUVA in other dermatoses like pityriasis lichenoides, atopic eczema, vitiligo, alopecia areata, lichen planus, granuloma annulare and scleredema adultorum have all been documented. Comparative studies of PUVA versus UVB in psoriasis revealed in skin types I-IV, PUVA is more effective than UVBor has equal effectiveness. In vitiligo it is found to be less effective than UVB. Aim: To compare the effectiveness of PUVA versus UVB in Indian setup in Fitzpatrick type III-IV patients. Materials And Methods: We included all dermatological diseases which can be treated with PUVA or with NB-UVB. One hundred patients were randomly selected for the study. Detailed history and clinical examination were done in all patients. Every alternate patient was given PUVA and NB-UVB respectively. The response was assessed and individually recorded during each visit. Complete response was defined as disappearance of lesions of more than 90% (grade-I) and more than 50% as grade-II. The time taken for response was recorded. Remission period was also noted in patients during follow-up. Results: The results were tabulated and analysed. Conclusion: we experienced that both forms of phototherapy were equally effective in almost all dermatosis. However, when PUVA is contraindicated NB-UVB is the best option. Our study showed in rare dermatoses like scleredema and alopecia universalis both modalities were not very effective. As the number of cases in each category is less we need to do trials on a larger scale to prove the benefits.

KEYWORDS : PUVA, PSORIASIS, NBUVB

INTRODUCTION

The Greeks introduced more than 3000 years ago sun as one of the earliest therapeutic light source which was known as "heliotherapy[1].The first use of phototherapy dates back to 1400 BC from India[2]. In the year 1988 narrow band UVB (NB-UVB) was introduced in the treatment of dermatological disorder[3].NB-UVB is being increasingly used for treatment of various skin diseases. Irradiation with this source has been found to be superior to conventional broad band UVB in psoriasis producing longer remissions, lower incidence of burning and possibly lower risk of UV carcinogenesis[4].There is 75% improvement in vitiligo with side effects like erythema and pruritus[5]. A follow-up study revealed that pigmentation in vitiligo may last for two years[6]. Dogra et al observed a beneficial role of NB-UVB in patients with air borne contact dermatitis[7].In lichen planus the lesions flattened out and pruritus decreased[8]. Comparative studies between NB-UVB versus broad band UVB in pityriasis lichenoides showed complete response with NB-UVB[9]. Similarly it has been found to be effective in atopic dermatitis also[2].

Oral psoralen with UVA (PUVA) is effective in inducing and maintaining remission in psoriasis and has been widely used and documented in studies conducted in United States and in Europe. The effect ofPUVA in other dermatoses like pityriasis lichenoides,atopic eczema, vitiligo, alopecia areata, lichen planus, granuloma annulare and scleredema adultorum have all been documented[10-13].

Comparative studies of PUVA versus UVB in psoriasis revealed in skin types I-IV, PUVA is more effective than UVBor has equal effectiveness[14,15]. In vitiligo it is found to be less effective than UVB[16].In twenty eight patients of lichen planus both types of treatment were equally effective[17].

AIM

This study is aimed to compare the effectiveness of PUVA versus UVB in Indian setup in Fitzpatrick type III-IV patients.

MATERIALS AND METHODS

We included all dermatological diseases which can be treated with PUVA or with NB-UVB. All those patients who received other disease modifying agents were excluded. Similarly those with known contraindications to phototherapy were not included. One hundred patients were randomly selected for the study. Detailed history and clinical examination were done in all patients. Every alternate patient was given PUVA and NB-UVB respectively. The response was assessed and individually recorded during each visit. Complete response was defined as disappearance of lesions of more than 90% (grade-I) and more than 50% as grade-II. The time taken for response was recorded. Remission period was also noted in patients during follow-up. Whole body PUVA chamber was used. For NB-UVB therapy all patients were started with 200 mille joules and 20% increment was given at each visit based on erythema. For PUVA therapy patients were administered methoxsalen 0.4mg/kg body weight, one hour before radiation. They were started on 2J/cm^2. During each visit 0.5 joules was increased. In every patient protective measures were adhered to. Eyes were protected with UV opaque goggles during the exposure in the treatment unit. Patients were advised to avoid additional exposure to UVB radiation in sunlight during the course of treatment. On the day of treatment and following days between therapies they were strictly advised to avoid sun exposure.

RESULTS

The results were tabulated and analysed, is shown in table1, table 2, table3 and table 4. We assessed the mean improvement with exposure in joules and millijoules in each category,is shown in table 5.

DISCUSSION

One hundred patients were included in the study. Twenty patients could not come for regular treatment and six patients were lost to follow up. Seventy four patients were available for final analysis. Thirty seven patients were taken in each category. Patients were distributed in each group to compare the efficacy of treatment. Many studies have been done to compare a single disease with either PUVA or NB-UVB. We compared various diseases in these two categories. Though the duration of diseases varied in each category, number of patient with disease less than 3 months were same in both categories.

Seven patients with airborne contact dermatitis(ABCD) had shown grade I response with PUVA and four patients(4%) showed grade-II response. With NB-UVB four patients (4%)had grade-I response and seven patients(7%) patients had grade-II response. Dogra observed a beneficial role in patients with ABCD with NB-UVB.[7,18]Our studies showed an equal efficacy with both modalities of therapy.

In psoriasis eight patients received PUVA among which two patients(2%) showed a grade- 1 response and six(6%) showed a grade-II response. Another eight patients(8%) received NB-UVB who also showed the same response. All patients had an average PASI score of 17.4. Sami S Younes compared PUVA versus NB-UVB in 93 patients and concluded that PUVA was moreeffective[14].The main concern with PUVA therapy is non melanoma skin cancer and recently reported risk of melanoma[19]. Tanew also confirmed that both treatments were equally effective but suggested that PUVA therapy is more effective in chronic plaque psoriasis[15]. NB-UVB has replaced PUVA as the first line of treatment because of their safety profile. But whether this therapy can maintain remission is questioned.

Vitiligo has always been difficult to treat. NB-UVB is a new armamentarium in the list of treatment modalities of vitiligo. Clinical experience with NB-UVB in vitiligo is limited. In our study, among four patients(4%) all patients showed grade-I response, whereas with NB-UVB three patients(3%)showed grade-I response and one patient(1%) grade II response.

Westerhofffirst reported the use of NB-UVB therapy in vitiligo. In their series 67% of patients with NB-UVB responded with repigmentaion whereas 65% with topical PUVA therapy had shown this response. NB-UVB is found to be safe and effective in childhood vitiligo.

There is a paucity of reports comparing the two modalities in lichen planus. Alexandra concluded that both PUVA and NB-UVB produce similar long term results in lichen planus[17].We had three patients in each category and all of them had good clearance of lesions and decrease in pruritus. In granuloma annulare there are no reports of the efficacy of NB-UVB. However, PUVA therapy cleared the lesions in one study[12]. We had treated two patients of granuloma annulare one each was distributed in the two categories. Both had 50% clearance rate at 8-12 exposures. Both modalities of treatment were effective at the modest level. On the contrary two patients with scleredema did not respond either to PUVA or to NB-UVB even after 40 exposures. In one study it was found that few patients improved after 50 exposures with bath PUVA, there was a substantial improvement[13].

In atopic dermatitis category, we had four patients distributed in each group equally. We found that there was a grade-II response after 28 exposures with PUVA and after 12 exposures with UVB. In alopecia areata we report only one out of two patients had recognizable grade II response with PUVA after 40 exposures. One patient with NB-UVB did not respond to therapy. Williams noticed improvement in 9 patients after 40 exposures with turban PUVA[20].

CONCLUSION

Inconclusion, we experienced that both forms of phototherapy were equally effective in almost all dermatosis. However, when PUVA is contraindicated NB-UVB is the best option. Our study showed in rare dermatoses like scleredema and alopecia universalis both modalities were not very effective. As the number of cases in each category is less we need to do trials on a larger scale to prove the benefits.

TABLES

Table-1. Total number of patients in two categories

	PUVA	NBUVB
Males	31	24
Females	6	13
Total	37	37

Table-2. Classification of patients according to diseases

Disease	PUVA	NBUVB
ABCD	11	11
Atopic dermatitis	1	1
Alopecia areata	1	1
Granuloma annulare	1	1
Lichen planus	3	3
Psoriasis	8	8
Pityriasis lichenoides	7	7
Scleredema	1	1
Vitiligo	4	4
Total	37	37

Table-3. Duration of disease in both categories

Duration	PUVA	NBUVB
Less than 3 months	6	6
4-6 months	26	18
7-9 months	5	13
More than 9 months	0	0

Table-4. Total cumulative dose in two categories

Disease	PUVA	NBUVB
ABCD	77.09	4.42
Atopic dermatitis	47.00	3.97
Alopecia areata	6.25	0.11
Granuloma annulare	37.00	2.15
Lichen planus	42.00	4.31
Psoriasis	69.00	5.07
Pityriasis lichenoides	80.14	2.63
Scleredema	193.00	6.35
vitiligo	189.00	8.69

Table-5 Mean clearance for patients in two categories

Disease	PUVA in Joules	NBUVB in milli joules
ABCD	6.8	497.45
Atopic dermatitis	8.5	498
Alopecia areata	10	597
Granuloma annulare	4.5	345
Lichen planus	7.5	576
Psoriasis	7.4	525.75
Pityriasis lichenoides	10.9	443.57
Scleredema	9.5	498
vitiligo	8.0	800.57

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