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COAL TAR COMBINED WITH ANTHRALIN IN SHORT CONTACT THERAPY IN MILD TO MODERATE PSORIASIS REDUCES PERILESIONAL IRRITATION

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ABSTRACT

Anthralin, although for more than 80 years, has been a safe and mainstay in the treatment of psoriasis, perilesional irritation has compromised the patient's compliance. Newer treatment modalities like alternative regimens "Short contact anthralin therapy" (10–60 minutes twice daily) used in combination with other antipsoriatic agents like corticosteroids, crude coal tar, calcipotriol, tazarotene increases the efficacy,reduces the perilesional irritation, thus improving the compliance. Anthralin in combination with crude coal tar together is of course not new and is used in the Ingram regime. Crude coal tar has been shown to have an atrophogenic effect on normal epidermis indicating that it can act as a cytostatic agent on normal human skin. However, clinical evidence suggested that the addition of coal tar reduces the perilesional irritation due to anthralin that resulted in a compromised efficacy of combinations. With this objective, a study in fifty patients having mild to moderate psoriasis was studied in a double blind randomized controlled study where twenty five patients in each group were treated either with short contact anthralin therapy combined with crude coal tar or anthralin only. The study reported that the odds ratio (OR) in patients treated with short contact anthralin therapy and coal tar at the end of first visit and second visit was 126 times and 27.6 times more likely not to get perilesional irritation compared to the patients treated with only anthralin. The mild to moderate irritation was significantly observed and reported in the patients treated with anthralin only. Thus, coal tar added to short contact anthralin therapy reduces the perilesional irritation without impairing the antipsoriatic action of the anthralin in mild to moderate psoriasis.

Keywords: Psoriasis, Anthralin, Coal tar, Short contact therapy, Perilesional irritation

INTRODUCTION

Anthralin, for more than 80 years, has been a mainstay in the treatment of psoriasis. However, the major limitation of anthralin is the irritation of the clinically uninvolved perilesional skin though it is a safe approach [1]. Newer treatment modalities are available, with the average hospitalization now costing more and more, out-patient therapy costs a small fraction of this amount. Clearly, a need exists for economical and shorter treatment methods. Due to this, many formulations have been developed to increase the efficacy and compliance [2].

The most useful advance is the introduction of alternative regimens "Short contact anthralin therapy" (10–60 minutes twice daily) regimens. Topical anthralin (0.1 - 1.0%) has been used in combination with other antipsoriatic agents like corticosteroids, crude coal tar, calcipotriol, tazarotene [3,4]. The principle of giving anthralin in combination with crude coal tar together is of course not new as the Ingram regime includes both tar baths and anthralin[5]. The exact mode of anthralin and coal tar in psoriasis is unknown [5].

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Crude coal tar (5%), however, has been shown to have an atrophogenic effect on normal epidermis indicating that it can act as a cytostatic agent on normal human skin [5-7]. The antipsoriatic effect of coal tar itself is low but is boosted when combined with anthralin. With this as objective, a study was conducted in 50 patients with mild to moderate psoriasis attending the department of Dermatology at M.S.Ramaiah Medical Teaching Hospital, Bangalore. Psoriasis Area and Severity Index (PASI) score at each visit in patients treated with anthralin reduced significantly (0<0.01).In patients treated with anthralin combined with coal tar, the PASI score also reduced significantly ($p<0.01$) [8]. However, reports from the previous clinical evidence suggested that the addition of coal tar reduced the perilesional irritation due to anthralin but resulted in a compromised efficacy of combinations. With this as objective, the present study was conducted that evaluated the data on grading of the perilesional irritation in patients treated with anthralin alone and anthralin combined with coal tar in each visit.

The purpose of this study was to determine whether adding 5% coal tar to anthralin regimen (0.05%)in short contact therapy reduces the perilesional irritation caused by anthralin. Clinical assessment was recorded using a severity score determination

MATERIALS AND METHODS

METHOD: Setting and Sampling:

The study was conducted in 50 patients attending the department of Dermatology of M.S.Ramaiah Medical Teaching Hospital, Bangalore. The duration of the study was for a period of one year from July 2003-June 2004.

It is a randomized double blind comparative study of subjects with mild to moderate psoriasis. Patients were randomly allotted into two groups with 25 patients in each group. The lesions did not exceed 20% of total body surface area. Patients in one group were treated with sample A consisted of only anthralin ointment (0.5%) and patients in other group were treated with sample B which consisted of coal tar 5% added to anthralin (0.5%). All preparations were from single batch specially prepared to ensure uniformity. Patients were instructed to apply a thin layer of the given ointment over the lesions for about 10 minutes; wipe it off with cotton dipped in any vegetable oil. Patients were then asked to expose the affected parts to the sunlight for about 20 minutes. If at any stage, marked irritation or burning occurred, patients were instructed to cease therapy and report the next day. The first visit was considered as baseline visit.

There was a two week treatment phase with the baseline visit, week-2 and a follow up at week-4. During the patients initial visit medical history was obtained and body systems were reviewed. An informed consent from the patient was obtained. Perilesional irritation was graded using the scale. 0-Nil, 1-Mild, 2-Moderate, 3-Sever, 4-Very severe [9]. The data was entered in the questionnaire form and evaluated at the end of the study.

Statistical Analysis:

The collected data were compiled and processed using Microsoft Excel 2005. Statistical analysis was carried out by statistical package SPSS 14.5. The Chi-square/Fisher exact test has been used to find the significance of frequencies of perilesional grading of irritation between two samples. The odds ratio has been computed to find the strength of relationship of perilesional grading between the samples. The statistical software namely SPSS 10.0 and Systat 8.0 were used for the analysis of the data and Microsoft word and excel have been used to generate graphs and tables.

RESULTS

All the 50 patients completed the study. Out of 50 patients who received the therapy, 28 were male and 22 were females. The age of the patients ranged between 18 to 60 years. In the present study mild to moderate itching was present in 82% of patients. It was severe in 4% of patients. It was asymptomatic in 14% of patients. None of the cases included in the present study showed nail or joint involvement.

At the end of first visit 21 (81%) patients in the group treated with Anthralin + Coaltar had no complains of perilesional irritation whereas only 1 (4%) patient in the Anthralin treated group reported no complains of perilesional irritation (Table 1 & Fig.1). The odds ratio in this group treated with anthralin and coal tar indicated that the patient in this group were 126 times more likely not to get perilesional irritation compared to the patients treated with only Anthralin. The mild to moderate irritation was significantly associated with the patients treated with only Anthralin.

At the end of second visit, the effect was maintained in 21(84%) patients treated with combination of Anthralin and Coaltar with regard to the perilesional irritation whereas only 4(17.4%) patients in Anthralin treated group showed the same response(Table 2 & Fig.2). The odds ratio in this group treated with anthralin and coal tar was 27.6 indicating that patients treated with anthralin and coal tar was 27.6 times more likely to get no perilesional irritation compared to the patient treated with only anthralin.

Table 1.Comparision of perilesional irritation between two groups at first visit

Grading of the perilesional irritation	Anthralin Group A [n=25 (%)]	Anthralin + Coal Tar Group B [n=25(%)]	Significance by Chi square test	Odds Ratio(group BB)
Nil	1 (4)	21(81.0)	P<0.001	126.0
Mild	13 (52)	4(16.0)	P=0.007	0.18
Moderate	9(36.0)	-	P=0.002	-
Severe	2(8.0)	-	P=0.490	-
Very severe	-	-	-	-

Table 2.Comparision of perilesional irritation between two groups at second visit

Grading of the perilesional irritation	Anthralin Group A [n=25 (%)]	Anthralin + Coal Tar Group B [n=25(%)]	Significance by Chi square test	Odds Ratio(group BB)
Nil	4 (17.4)	21(84.0)	P<0.001*	27.6
Mild	18 (72.6)	4(16.0)	P=0.007	0.11
Moderate	3(13.0)	-	P=0.235	-
Severe	-	-	-	-
Very severe	-	-	-	-

Figure 1. Proportion of patients with improvement in perilesional irritation at first visit

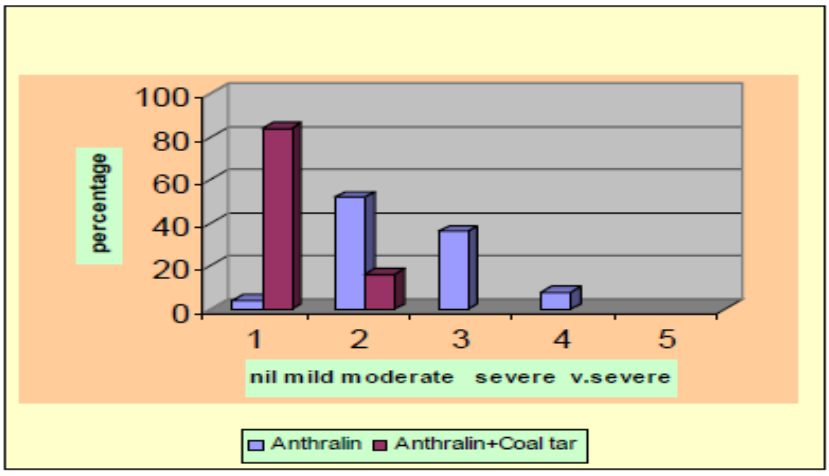
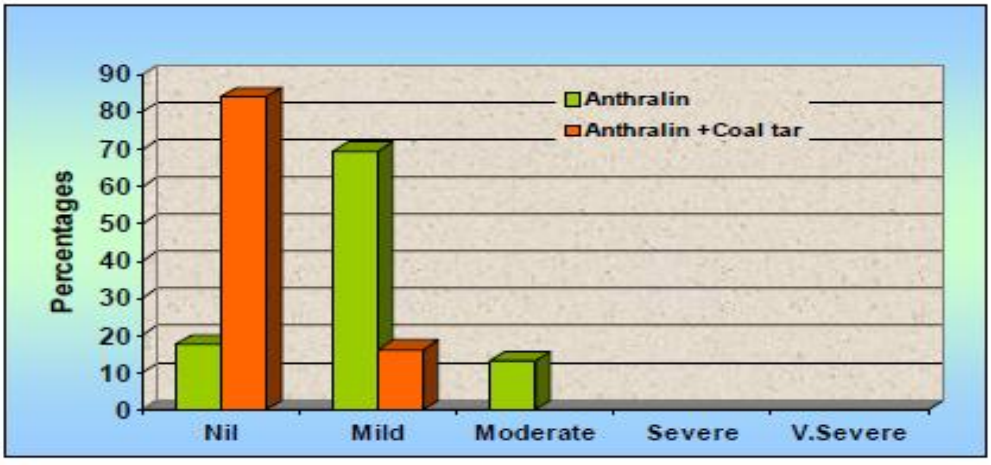


Figure 2. Proportion of patients with improvement in perilesional irritation at second visit



DISCUSSION

Crude coal tar is a complex mixture of thousands of hydrocarbon compounds. Tar preparations of 2% to 10% used in conjunction with anthralin is effective for treatment of widespread, discrete psoriatic plaques. Recent clinical studies and our initial clinical impression before this study started was that coal tar suppresses the anthralin irritancy simultaneously suppressing the effect of Anthralin [5]. In this study, there was a significant difference ($P<0.001$) in perilesional irritation between the two groups after the first and second visit by addition of coaltar reinforcing the fact that addition of 5% coal tar reduces perilesional irritation without compromising the antipsoriatic efficacy [8].

CONCLUSION

The major finding of this study underlines the importance that combining the coal tar to short contact anthralin therapy reduced the perilesional irritation without impairing the antipsoriatic action when compared to anthralin alone which may be useful, safe and economical therapeutic approach in mild to moderate psoriasis.

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CONFLICT OF INTERSEST

The authors declare that they have no conflict of interest.

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