Original Research Paper

Volume : 5 | Issue : 9 | September 2016 • ISSN No 2277 - 8179 | IF : 3.508 | IC Value : 69.48

A comparative study of efficacy of oral ivermectin with Topical Permethrin as an antiscabetic drug

Medical Science

KEYWORDS : Scabies, Ivermectin, Permethrin, , oral, topical.

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ABSTRACT

Aim:. *To know the efficacy of oral ivermectin in comparison to topical permethrin as antiscabetic drug.*

Material & method: *Using prospective, longitudinal, comparative randomized design, study was conducted for a period of one year in 199 patients, in the age group of 5 to 60 years, belonging to both sexes, attending outpatient department of dermatology of J.L.N. Medical College and Associated Hospitals Ajmer (RAJ). Pregnant & Lactating women, Children below 5 years, elderly patients more than 60 year, patients not willing to come for follow-up and patients with any serious systemic illness were excluded. Data so collected, were analyzed as per the aims & objectives with the help of appropriate statistical software (primer statistical software version 6).*

Results: *Efficacy of oral Ivermectin therapy was comparable with topical Permethrin therapy*

Conclusion: *Ivermectin can be a very useful weapon in patients who do not show compliance with topical therapy.*

INTRODUCTION:

Scabies is an infectious disease, contagious in nature and caused by sarcoptes scabiei is transmitted readily, often throughout an entire household, by prolonged skin-to-skin contact with an infected person (eg. bed partner).

Symptoms of scabies infestation include rash and intense pruritus that is often worse at night. The lesions begin as tiny erythematous papules and can progress to vesicles or pustules. Linear burrows are a classic feature but are not seen commonly. Excoriation and ulceration also may be present, and a more generalized hypersensitivity reaction, including urticaria, may occur. The axillae, web spaces between fingers, and flexor surfaces of the wrists are the most common areas. Male genitalia, female breasts, the gluteal crease, waistband, and antecubital fossae also are frequently affected. The face and scalp usually are spared except in infants.

Disease control requires treatment of the affected individual and all people they have been in contact with, but is often hampered by inappropriate or delayed diagnosis, poor treatment compliance and improper use of topical compounds such as permethrin, lindane or benzyl benzoate. Oral ivermectin is an effective and cost-comparable alternative to topical agents in the treatment of scabies infection. It may be particularly useful in the treatment of severely crusted scabies lesions in immunocompromised patients or when topical therapy has failed. Oral dosing may be more convenient in institutional outbreaks and in the treatment of mentally impaired patients.

Hence it was decided to study and compare antiscabetics- the most commonly used topical antiscabetic- Permethrin and oral Ivermectin.

AIMS & OBJECTIVES:

The objective of the study is to know the efficacy of oral ivermectin in comparison to topical permethrin as antiscabetic drug.

MATERIAL & METHOD:

This was a prospective, longitudinal, comparative randomized study conducted in patients attending OPD of dermatology of J.L.N. Medical College Ajmer (Rajasthan). 204 patients, of age group 5 to 60 years, belonging to both sexes were included in the study after taking consent. The duration of the study was one year; from August 2013 to July 2014. Pregnant & Lactating women, Children below 5 years, elderly patients more than 60 year, patients not willing to come for follow-up and patients with any serious systemic illness were excluded from the study.

Patients were allocated randomly into two groups i.e. Group I & Group II . (102 patients in each group).

Group I Patients- were given single dose of oral Ivermectin 200 µg/kg body weight and

Group II patients -were given topical Permethrin 5% applied topically after scrub bath and left overnight.

The patients were followed at 1st week and 6th week. Participants were advised not to use or mix any other treatment, including Antipruritic or Antihistaminic medicines.

Parameters used to study the efficacy of the regimens:

1) Severity of the disease

2) Itching

Severity of the disease is measured according to the number of lesions present. It can be graded as:

Mild (Grade-I) :< 10 lesions

Moderate (Grade-II) : 11 – 49 lesions

Severe (Grade-III) :> 50 lesions

Severity of itching is evaluated by visual Analogues scale (VAS). VAS is defined as a 10 cm line, in which point 0 refers to existence of no pruitus and point 10 refers to the most severe pruritus. According to this scale, we scored pruritus of the patients.

Point 1 to 3 : Mild pruritus (Grade-I)

Point 4 to 6 : Moderate pruritus (Grade-II)

Point 7 to 10 : Severe pruritus (Grade-III)

Pre-structured proforma was used to collect the relevant information (patients data, clinical finding etc) at baseline, 1st week and 6th week of follow-up.

RESULTS:
Out of 204 patients 5 were dropped out during follow up, 3 from group-I & 2 from group-II so total 199 patients were evaluated at the end of study.

Table 1: Age & Sex incidence

Age	No. Of patients			Percentage
	Male	Female	Total	
6-10	20	9	29	14.57
11-20	32	37	69	34.67
21-30	36	19	55	27.63
31-40	13	19	32	16.08
41-50	5	4	9	4.5
51-60	2	3	5	2.51
Total	108	91	199	100

Table 2: Family history and nocturnal itching (Total no. of Patients-199)

Parameter	Present n (%)	Absent n (%)
Family History	150 (75.37)	49 (24.62)
Nocturnal Itching	197 (98.99)	02 (1 %)

Table 3: Comparison of results of various regimens at the end of 6 weeks

Regimens	No .of pts.	Itching at 6 wks		Severity of lesion at 6 wks	
		Improved (%)	Not improved (%)	Improved (%)	Not improved (%)
I- Ivermectin	99	75 (75.75%)	24 (24.24%)	77 (77.77%)	22 (22.22%)
II- Permethrin	100	78 (78%)	22 (22%)	77 (77%)	23 (23%)
Chi-square test		X2 =11.707 P=0.0029 p<.05,(s)		X2 =11.182 P=0.0037 p<.05,(s)	
Difference Between groups (p-values) I-II		P=0.8666,(ns)		P=0.8655, (ns)	

n- significant, ns- non-significant

Discussion:
Age & Sex distribution and Occupational status: In present study scabies was found to be more common in children and young adults. Similar results were also found in others studies by Sehgal[1], Gulati et al[2], and Nair et al[3] . Incidence of scabies was found more among males as compared to females. Nair et al. [3], Hati et al. [4], Sehgal[1], have also observed male preponderance in their studies. Further, higher incidence of scabies (33.16%) found in students in our study. The higher incidence in children & young adults can attributable to the fact, that intermingling is common among children whereas higher incidence among students is due to multiple causes like playing together in the school, living together in hostels and the habit of using the dresses and linen of the friends, which add to the transmission of the disease in them. Male preponderance is attributable to the more chances of exposure.

Family history: Family history of scabies was found positive in 75.37% of patients. Such higher incidence of family history in the patients of scabies was also reported by Usha et al[5] in their study on two groups treated with either Ivermectin or permethrin ,who had a positive family were 82.5% &55.6 % respectively. The higher incidence of family history among the affected, depicts the capacity of scabies to spread among close contacts and stresses the need for treatment of all the contacts.

Nocturnal itching: Nocturnal itching was present in 98.99% of patients. Nair et al.[6], found nocturnal itching in 89% of the patients. Thus, nocturnal itching may be a helpful information in making the diagnosis, especially in the absence of facilities for demonstrating the mite.

Response to treatment in various regimens:
1) Oral ivermectin (200μg/kg body weight, single dose) :
Oral Ivermectin given as single dose (200μg /kg body weight) in patients of scabies. Out of 99 patients considering the itching as the parameter, 52 (52.52 %) patients improved at 2 weeks and 23 (23.23%) between 2nd-6th week. Total number of patients showing after complete subsidence at 6th week was 75 (75.75%).

Similarly considering severity of lesion as the parameter in 99 patients, improvement was seen in 63 (63.63%) and 14 (14.14%) at 2nd and between 2nd -6th week. Total number of patients who showed improvement was 77(77.77%).

Usha et al [5], found that a single dose of ivermectin provided a cure rate of 70%, which increased to 95% with 2 doses at a 2 week interval. Meinking et al [7], reported 100% clearance with single oral dose of ivermectin in 11 patients with uncomplicated scabies. Chouela et al [8], found the cure rate of scabies at 15th day, after treatment with ivermectin single dose of (150 - 200μg/kg) to be 74%.

2) Topical permethrin 5% lotion (single application) :
Out of 100 patients treated with 5% permethrin lotion cure was seen in 56% and 22% at 2nd week and between 2nd-6th weeks respectively .Total number of patients cured at 6th week was 78%.

Considerably the severity of lesion, number of patients cured was 62% and 15% at 2nd week and between 2nd-6th weeks respectively. Total number of patients cured at 6th week was 77%. Zargari et al[10], and Taplin et al[9], have found a cure rate of 84.6% and 43% respectively after 2 weeks of therapy. Similarly Hegary et al[11] and Usha et al[5] found permethrin to be effective as a single application with cure rate of 84.9% and 97.8% respectively.

Comparison of statistical significance among three Groups
Difference in efficacy of Group I (Ivermectin) therapy was statistically non-significant with Group II (Permethrin) but This shows that efficacy of Group I therapy was comparable to Group II therapy.

Although topical agents carried certain drawbacks, our study reported that single application of Permethrin 5% gave maximum response when severity of itching and severity of lesion were taken as parameters to compare efficacy of different groups thus making it the most effective treatment and therefore suitable to be the treatment of choice.

Response to single oral dose of Ivermectin 200 μg/kg body wt. was slightly low when compared to topical Permethrin Though the results obtained with single oral dose of Ivermectin (200 μg/kg body wt) in patients belonging to Group 1 were slightly low compared to Permethrin, patient acceptance was very good especially among students living in hostels, where inadequate facilities for bathing and tak-

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ing a good scrub bath were the major hurdle in topical application.

Despite the need for further exploration, oral ivermectin could be a viable alternative for management of scabies especially where compliance to topical scabicides is improbable or impractical.

A significant reduction in disease burden is possible by appropriate scabicides treatment of all contacts along with awareness about personal hygiene.

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