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Comparison the Effectiveness of Sulphur Ointment, Permethrin and Oral Ivermectin In Treatment of Scabies.

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ABSTRACT

Scabies is parasitic skin infection that cause a major health problem especially in overcrowded area characterized by sever itching, both topical and systemic agents is available for treatment of this disease. In this randomized clinical trial study we compare the effectiveness and safety of oral ivermectin (that is consider new agent for treatment of scabies in our area) and the most common topical agent that are use for treatment of scabies (sulphur ointment, permethrin cream). A 225 patients were allocated in this study has been randomly divided in to three equal groups each included 75 patients ,group (I) received single oral ivermectin tablet 200 µg /kg repeated after one week ,group(II) received sulphur ointment 10 % for three consecutive days and repeated after one week , the third group (III) received topical permethrin 5% cream and repeated after one week ,all patients were informed that all contact persons should also receive the treatment to prevent recurrence. Evaluation of treatment was done weekly for two weeks. The results at the end of two weeks showed that oral ivermectin (group I) provide a cure rate of severity of lesions (No. of lesions) in 64 patients (85.36 %), and improvement of Severity of Pruritus 67 patients (89.33%) while group (III) (Permethrin 5 % cream) showed comparable a cure rate of severity of lesions (No. of lesions) in 58 patients (77.3 %) ($p>0.05$), and comparable improvement of Severity of Pruritus in 58 patients (77.33%) ($p>0.05$), whereas topical 10% sulphur ointment (group II) was significantly less effective than the other two groups in both number of lesions and severity of Pruritus ($p< 0.05$) since showed cure rate in of severity of lesions in 42 patients (56 %) while group (III) showed improvement of Severity of Pruritus in 40 patients (53.33%) Ivermectin and Permethrin cream consider a good choice and more effective treatment for scabies; however sulphur ointment is less effective and associated with lower patient compliance

Keywords: Sulphur Ointment, Permethrin, Ivermectin, Scabies.

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INTRODUCTION

Scabies is a skin disease that is recognized by the World Health Organization as a disease of public health importance. Scabies is caused by a microscopic mite (SARCOPTES SCABIEI var. HOMINIS) with high morbidity worldwide and the route of transmission occurs through person-to-person contact by burrowing of SARCOPTES SCABIEI into the epidermis of the skin.. Infestation can result in severe itchiness, that result in sleep disturbance, reduced ability to concentrate, social stigmatization, and ongoing health care expenses.(1-3)

Scabies, is highly contagious skin disease and is an ectoparasitic (4).The most important source of transmission is skin-to-skin contact with an infected individual (hand-holding, sexual contact, etc.). For sufficient period (15–20 min of close contact for successful direct transmission), and there for scabies is also considered to be a sexually transmitted disease (2)

Scabies is most common and highly prevalence in developing countries and significant health problems (5), affecting 300 million people worldwide each year (6, 7)

Disease control require treatment of all affected patients and persons come in contact with them regardless the present or absence of the symptoms to reduce the rate of recurrence (8).
Currently available treatment include both topical (sulfur, benzyl benzoate, malathion, crotamiton, and permethrin cream) (9) and systemic treatment (10, 11)

In this clinical trial we compare topical treatment (sulphur ointment, permethrin cream) and systemic (ivermectin) treatment for scabies to determine the most effective and suitable regimen.

MATERIAL AND METHODS

In this randomize prospective clinical trial 225 patients were included and the study was carried out in Kirkuk city / Iraq .The protocol of study was approved by the scientific committee of pharmacology department in college of medicine , university of Kirkuk .

Study protocol

The patients were randomly divided in to three equal group's .Group (I) received single oral ivermectin tablet 200 µg /kg repeated after one week, group(II) received sulphur ointment10% for three consecutive days and repeated after one week the patients were informed to apply the ointment so that cover all the body bellow the neck .The third group (III) received topical permethrin 5% and repeated after one week ,all patients were informed that all contact persons should also receive the treatment to prevent recurrence .Evaluation of treatment was don after one week and two weeks for determination of cure and relapses

Inclusion criteria

- Patients age above twelve years old
- Either sex patients

Exclusion criteria

- Patients age below twelve years old
- Pregnant and lactating female
- Un compliance patients for treatment
- Un compliance patients for follow up
- Sever chronic illness

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Patient's Assessment

All patients that included in this study were examined in weekly base interval for assessment of treatment according to the severity of itching (by Visual Analogues scale) and severity of lesions (according to number of lesions).Patient consider to be cured when new lesions are not detected .

Statistical Analysis

Data are shown as mean ± SD (standard deviation). The analysis was performed by the utilization of Statistical Package for Social Sciences- version 21 (SPSS-21) software. Data were analyzed by using one way Analysis of Variance (ANOVA). Least significant differences test (LSD) was used to assess significant difference among means. The results were expressed as mean ±SD. P< 0.05 was considered statistically significant in all data presented in the results of this study.

RESULTS

Table (1) show the demographic distribution and family history of the three groups of patients included in the study, there is no significant differences between the different groups regarding the age, sex and family history(P value < 0.05) ,while there is significant differences in each group regarding the family history.

Table (1) Demographic Distribution and family history of Disease between Different Groups

Characteristic	Group I n=75		Group II n=75		Group III n=75	
Sex No. (%)	Male	40	Male	39	Male	39
	Female	35	Female	36	Female	36
Age	35.21±18.36		32±17.45		31±12.25	
Family history	yes	55	Yes	57	Yes	60
	no	20	no	18	no	15

Whereas table 2 and figure 1 show assessment of severity of lesions (No. of lesions) in different groups after each visit, there are no significant differences between group (I) and group (III) in first and second follow up (P value > 0.05) while there are significant differences between group (II) and both group (I) and group (III) after each assessment .

Table (2) Assessment of Severity (NO. of lesions) of Disease in Different Groups

Group	No. Of Cases	Severity of lesions at 1St week		Severity of lesions at 2nd week		Total No.	
		No. of Cured cases	No. of non Cured cases	No. of Cured cases	No. of non Cured cases	No. of Cured cases	No. of non Cured cases
Ivermectin	75	49(65.33%)	26(34.67%)	15(20%)	9(12%)	64(85.36)	11(14.64)
Sulphur 10 % ointment	75	30(40%)	45(60%)	12(16%)	33(41%)	42(56 %)	33(44 %)
Permethrin 5% Cream	75	44(58.66%)	31(41.34)	14(18.66%)	17(22.67%)	58(77.33%)	17(22.67%)

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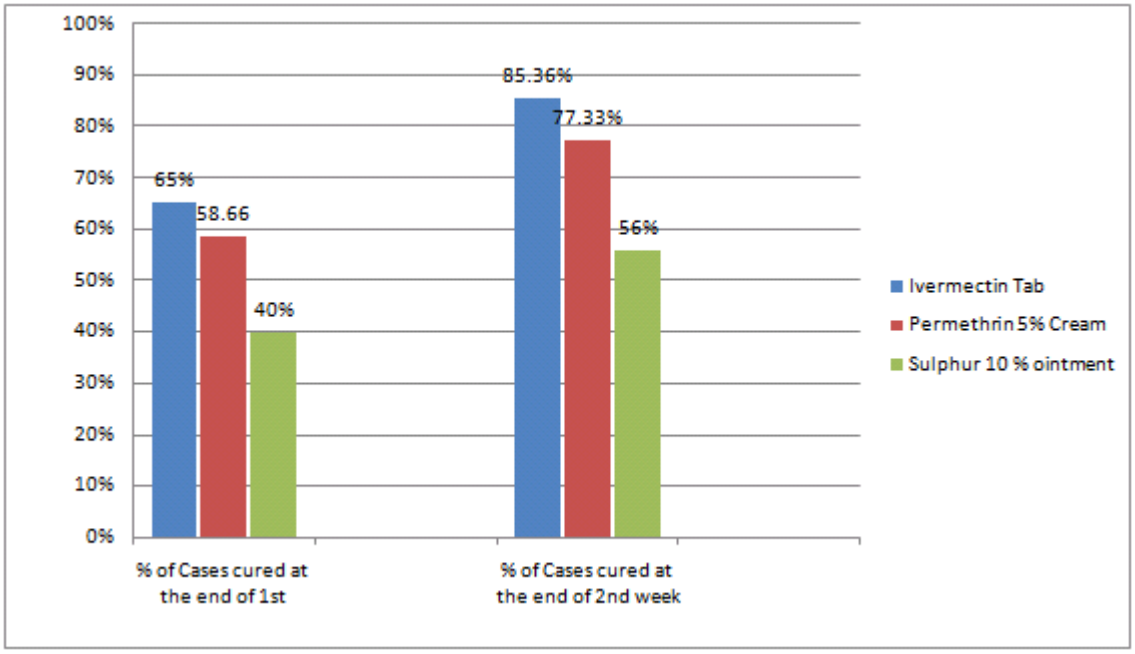

Figure (1) Cure rate of each group after first and second follow up

Regarding the percentage of pruritus cure the same result obtained as the severity of lesion as shown in table (3) and figure (2) ,which show that there is no significant differences between group (I) and group (III) while there are significant differences between group (II) and both group (I) and Group(III) (P Value < 0.05).

Table (3) Assessment of Pruritus of Disease in Different Groups

Group	No. Of Cases	Severity of Pruritus at 1St week		Severity of Pruritus at 2nd week		Total No.	
		No. of Cured cases	No. of non Cured cases	No. of Cured cases	No. of non Cured cases	No. of Cured cases	No. of non Cured cases
Ivermectin	75	51(68%)	24(327%)	16(21.33%)	8(10.67%)	67(89.33)	8(10.67)
Permethrin Cream	75	43(57.33%)	32(42.66)	16(21.33%)	14(18.66%)	57(76%)	18(24%)
Sulphur ointment	75	29(38.66%)	46(61.33%)	11(14.66%)	35(46.66%)	40(53.33%)	35(46.66%)

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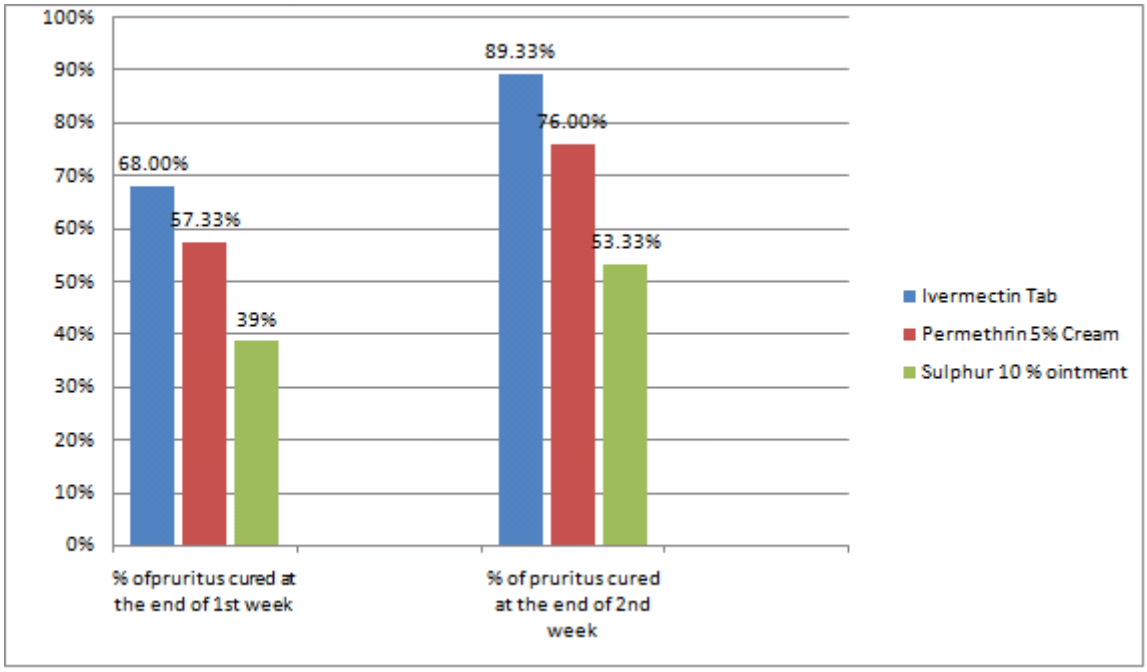

Table (4) ,(5),and (6) represent the comparison of the effectiveness of ivermectin tablet, permethrin cream and sulphur ointment on cure rate of lesions and pruritus respectively.

The results reveals that there are no differences between their effect on lesion numbers and pruritus (P value > 0.05)

Table (4) Assessment of Ivermectin effectiveness against Severity of Disease and Pruritus

Group	Total NO. of Cured Cases (Lesions Number)	Total NO. of Cured Cases (Severity of Pruritus)	Chi square	P – Value
Ivermectin Tab.	64patients (85.36%)	67patients (89.33%)	0.54	0.46

Table (5) Assessment of Permethrin Cream effectiveness against Severity of Disease and Pruritus

Group	Total NO. of Cured Cases (Lesions Number)	Total NO. of Cured Cases (Severity of Pruritus)	Chi square value	P Value
Permethrin Cream	58patients (77.33%)	57 patients (76%)	0.03	0.84

Table (6) Assessment of Sulphur ointment effectiveness against Severity of Disease and Pruritus

Group	Total NO. of Cured Cases (Lesions Number)	Total NO. of Cured Cases (Severity of Pruritus)	Chi square value	P Value
Sulphur ointment	42(56 %)	40(53.33%)	0.45	0.49

DISCUSSION

Scabies is regarded between the most common fifty infectious diseases in the word, many treatments are available for scabies including both topical and systemic (12)(13.)In this study we compare both systemic and topical, the results indicated that oral ivermectin and topical permethrin (5%) were equally effective and therefore suitable to be the preferred treatment, many other studies show similar results (14-16) ,however only one study has been found in which permethrin topical cream more effective than oral ivermectin(17).In general ivermectin and topical permethrin are well tolerated (18, 19). There was no differences in

effectiveness of both oral ivermectin and topical permethrin cream against severity of disease (No. of lesions) and Pruritus (P value > 0.05), however topical sulphur ointment was less effective than both topical permethrin cream and oral ivermectin against severity of disease (No. of lesions) and Pruritus, this result is similar to other studies (20-22),while other study show that sulphur is effective as permethrin cream (23). Ivermectin should indicated in non compliance patients to topical anti scabies and in case of resistant to topical anti scabies (24),it consider to be safe in treatment of scabies although it may be associated with nausea and head ache(14),however permethrin cream consider to be safe since it is no absorbed when apply topically (13) ,while sulphur ointment although it is safe (25but may cause irritation to the skin which decrease the patient compliance (26).This study show that there is no differences between the effectiveness of ivermectin tablet ,sulphur ointment and permethrin cream on the numbers of lesions and pruritus in the same group ,this result is similar to other study (14) and disagree with other study which may be due to the duration of follow up follow up (8).

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