INCIDENCE OF HUMAN SCABIES IN DUHOK PROVINCE, KURDISTAN REGION/ IRAQ

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(Accepted for publication: December 28, 2014)

Abstract:

This study was conducted in Duhok city to evaluate the incidence of scabies among outpatients from both sexes and different ages from one year to over 60 years visited the dermatology clinic in Azadi Teaching Hospital from September 2012 to April 2013. Other factors like residency, educational levels, number of family members, source of contact and clinical manifestations were also studied. Scabies was diagnosed in 522 (5.5%) out of 9450. Higher rates (20.11% and 20.5%) of scabies were observed among age groups 1-10 and 11-20 years, respectively, then the rate decreased with the increase in the age. Female patients had higher frequency than males (53.06% and 46.94%, respectively). Moreover, the highest rate (60.53%) was found among illiterates patients and decreased with the increase in the level of education. The urban and rural residents showed high prevalence rates (37.16 and 34.86%) as compared to suburban (27.98%). About half of the cases occurred from household contact (50.98%) and 34.67% acquired from outside homes, 13.78% from unknown sources and only 0.57% from contact with prisoners. The clinical findings, 91.57% of the patients suffered from itching that turned to secondary bacterial infection, the disease was generalized in 53.06%, localized in 29.12% of the cases affecting hands, fingers and legs, and in 17.82% of the cases affected their abdomen, back and under arms. According to disease duration 31.42% of the patients seek medical attention during the first week of having the symptoms, 24.90 % during the second week, 17.63% during the fourth week and 26.05 % delayed medical consultation for more than a month. Regarding living conditions, 21.83% of the patients lived in a house with less than five persons and high standard of living, while 78.17% of the patients lived in a very crowded house with 6 to 18 persons.

Key words: Scabies, Incidence, Socioeconomic factors.

Introduction

Scabies is a very contagious itching condition of the skin caused by a tiny mite called the human itch mite *Sarcoptes scabiei* (Rozendaal, 1997).The adult mites enter the skin creating serpinginous borrows in the upper layer of the epidermis, the female mite lays her eggs in the skin burrows. Scabies is a major global health problem in some indigenous communities inside the developed countries and in the third world communities (Scheinfeld, 2004). The risk of severe outbreaks was high in institutions (including nursing homes and hospitals) and among socially disadvantaged populations and immunocompromised hosts (Roberts *et al*., 2005 and Chosidow, 2006).

Many people suffer from scabies infestation at any time (Chosidow, 2006 and Muhammad Zayyid *et al.,* 2010). It occurs in both sexes, at all ages, higher in rural areas than in cities and in children than teenagers (Lydden, 2005). Living in colonies, public places and prisons may increase the infestation (Shamsaddini *et al*., 2000). Scabies is usually transmitted by direct skin-to-skin physical contact, other objects; such as clothing, bedding, furniture might have come in contact (Heukelbach and Feldmeier 2006). Clinical diagnostic symptom is range from intense itching, usually in the interdigital fold and sides of the fingers, buttock, external genitalia and wrists within incubation period from 1 to 4 days to pruritic papules and impetigo with some secondary bacterial in complicated cases. Diagnosis of scabies infestation usually is based on appearance and distribution of the rash and confirmed diagnosis by identifying the mite or mite eggs or fecal matter (Chosidow, 2006). In recent years, scabies appears to have become endemic in Iraq and documented by several studies .This study is designed to find out the epidemiological profile of scabies in Duhok Governorate among patients visiting dermatology clinics in and its correlation with their socioeconomic status together with examination of stool samples from infected persons to exclude any parasitic infection.

Materials and Methods

Subjects: This study was conducted during September 2012 to April 2013; in which a total number of 522 scabies cases (277 females and 245 males) which were Clinically diagnosed by consultant dermatologists out of 9450 patients visited the Dermatology Clinic of Azadi Teaching General hospital for investigation and treatment. The patient's ages ranged from 1 year to over 66 years, and they were inhabitants of various parts of Duhok city and nearby villages. An interview and a questionnaire were used for each patient after taking permission from consultant physicians which included: Data about gender, age, level of education, occupation, if child level of parent's education, number of family members, residency, economic status, source of contact, the sign and symptoms of the disease, its duration, type of treatment and recurrence of the disease.

Stool samples

From each scabietic patient a stool sample was taken which was kept in a clean labeled and closed container to be examined later for parasite investigation.

Microscopic examinations of skin scrapings

The definitive diagnosis of scabies is based on the identification of mites, eggs and eggshell fragments, from skin scrapings (e.g., from scabietic papules or from under the fingernails) or by the detection of the mite at the end of its burrow. One or two drops of mineral oil were applied to the lesion, which was then scraped or shaved, and the specimens were examined after clearing in 10% KOH with a light microscope under low power(Chosidow, 2006).

Microscopic examination of stool samples

The collected stool samples were examined in the laboratory by direct wet mount as follows: About 2 mg of stool was emulsified in a drop of warm (37°C) saline and one drop of Lugals iodine on a clean slide using a wooden stick on an area of about 2 cm in diameter, then covered with cover slip and examined under the microscope. Using low power objective lens (10X), suspected objects are examined using the high objective lens (40X) to detect parasites. At least 2 to 3 smear were examined for each sample.

Results and Discussion

The results were based on the analysis of 522 patients from both sexes of different ages from one year to over 66 years with confirmed diagnosis of the presence of *Sarcoptes scabies* mites or eggs by microscopic examination of the skin scrubs taken from the infested body parts of patients enrolled in this study. Furthermore, all stool samples taken from these patients were free from any parasitic infection as demonstrated by microscopic examination. The incidence of scabies was 5.5% (table.1) indicating a high frequency of scabies among patients presented to the dermatology clinic. Other studies in Iraq reported rates of 52%, 1.9%, 3.3%, 1.2% and 2.7% of scabies among patients from the lower socioeconomic classes, respectively (Samarai, 1995; Al- Al-Rubaiy, 2001; Murtada, 2001; Alaa, 2002, and Mahmood, 2011).

It is obvious from table(1) that the age groups 1-10 and 11-20 years showed the highest rates of infestation which were 20.11% and 20.5%, in male and females respectively. The rate of the infestation decreased with the increase in age up to the age of 60 years, over this age the rate become 3.44%. However, this is in accordance with that reported by Sharma *et al.* (1984); El-Okbi *et al.* (1993) and Al-Shawa (2007), they indicated that scabies is more common in ages less than 10 years up to 19 years and this prevalence may be due to overcrowding, poor living conditions and the prolonged contact among patients and their family members. This result contradicts with Walton *et al*. (2004) as they stated that the prevalence of scabies is not affected by the age. In the current study, females showed higher rate of scabies infestation than males (53.06 versus 46.94%). Similar observations have been reported in other studies such as Kenawi *et al*. (1993); Golchai *et al*. (2003); Ciftci *et al*. (2006), and Lassa *et al*. (2011), and attributed it to the study design, the possibility of more exposure to infestation as results of the type of work performed by females in addition to poor hygienic measures and the house hold activities. On the other hand, the present results disagree with Sharma *et al*.(1984); Mustafa *et al*.(1997; Arjomandzadeh *et al*.(2001; Al-Shawa, (2007; Al-samarai,(2009); Najem *et al*.(2009); Muhammad Zayyid *et al*.(2010); Fakoorziba *et al*.(2011) and Ibrahim *et al*.(2012).

Table (2) demonstrates that the highest rate of infestation (60.53%) was among illiterates

patients. The rate decreased with the increase of the level of education except the slightly higher rate (17.81%) for patients who completed primary school probably due to sample size. The high rate of illiterate may be due to the low income, sleeping outside home, low standard of living and poor hygienic condition or low education and this is indication of poverty and lack of health education which support the study of Ciftci *et al.* (2006) who reported a significant relationship between the rate of infestation and education. In this aspect, the present results disagree with those reported by Al-Chalabi (2009) in which she stated that only 13.1% were illiterates, 35.8% completed the primary level and 16.9% were university graduates.

Table 1: Distribution of scabies according to age and gender

Age group (Years)	Total No. infested	% infested	Male number	% infested	Female number	% infested
1- 10	105	20.11	67	12.83	38	7.27
11-20	107	20.5	59	11.3	48	9.2
21-30	89	17.05	42	8.05	47	9
31-40	91	17.43	33	6.32	58	11.11
41-50	73	14	25	4.8	48	9.2
51-60	39	7.47	10	1.92	29	5.56
More than 60	18	3.44	9	1.72	9	1.72
Total	522	100	245	46.94	277	53.06

Table 2: The distribution of scabies according to educational status.

Socio-demographic characteristic	Total No of infested	Total % of infestation	No of infested males	% of infested	No of infested females	% of infested
Education						
Illiterate	316	60.53	98	18.77	218	41.76
Can read and write	70	13.41	43	8.23	27	5.17
Completed primary school	93	17.81	51	9.77	42	8.04
Completed secondary school	39	7.48	19	3.63	20	3.84
Higher education	4	0.77	3	0.59	1	0.2
Total	522	100	214	40.99	308	59.01

As shown in Table 3, urban and rural residents have somewhat, higher rates of infestation as compared to suburban residents, which were 37.16%, 34.86% and 27.98%, respectively. Other studies showed that scabies is highly endemic in rural areas, for example, in Bangladesh (Hayee *et al*., 1998), Egypt (Hegazy *et al*., 1999) and in the UK (Downs *et al*., 1999). In general, most of the people were residents of overcrowded areas characterized by low income in addition to low levels of education and sanitation. Table (4) displays the clinical findings among the studied patients. About half of the cases had a household contact (50.98%) as a possible source of scabies infestation, 34.67% of the cases acquired the infestation from outside their homes, 13.78% from unknown sources and only 0.57% from prisoners. The high percent of household contact might be due to the overcrowding and general socio- economic level. On the other hand, 34.6% of the cases acquired the infestation from outside their homes. The patients claimed that they got the

Table 3: Distribution of scabies according to residency.

Residency	Total No infested	Total % of infestation	No of infested males	% of infested	No of infested females	% of infested
Urban	194	37.16	96	18.39	98	18.77
Rural	182	34.86	82	15.7	100	19.16
Sub- urban	146	27.98	75	14.38	71	13.6
Total	522	100	253	48.47	269	51.53

Infestation while they were admitted to hospital for other illness, or after visiting parents or relatives, all these factors will assist in the spread of the disease. Only 0.6% of the patients acquired scabies by contact with prisoners, and this indicates that the prisons of Duhok province are clean. This study disagrees with that reported by Roodsari *et al*. (2007) in which they reported that the prevalence of scabies in Ghezel Hesar prison was 2.2% (31 cases) from 1404 prisoners.

Table (4): Distribution of scabies according to source of contact.

Clinical finding (Source of contact)	Total No of infested	Total % of infestation	No of infested males	% infested	No of infested females	% of infested females
House hold	266	50.98	128	24.52	138	26.46
Outside home	181	34.67	78	14.94	103	19.73
unknown	72	13.78	36	6.89	36	6.89
with prisoner	3	0.57	3	0.57	0	0
Total	522	100	245	46.92	277	53.08

As shown in Table (5), 91.57% of the infested patients suffered from itching which leads to a secondary bacterial infection other studies which carried out worldwide also showed the same findings (Lawrence *et al*., 2005). Both sexes nearly have the same rate of itching which is intensified during night due to increased mite burrowing activity, their secretions and defecation (Arlian, 1989). Similar result regarding itching have been reported by Walker and Johntone (2000); Wendal and Rompalo (2002) and Anne *et al*.(2007). The disease was described as generalized in almost half of the cases (53.06%), while a localized form (hands, fingers and legs) of the disease was documented in 29.12% of the cases. In the remaining 17.82 of the cases, the diseases affected their abdomen, back and under arm. This disagree with what have been reported by Kenawi *et al*. (1993) and Al-Chalabi (2009) as they found the most affected sites were the abdomen and back (100%) and Palms, wrists and interdigital webs were involved in 72% of the cases.

Table 5: Distribution of scabies according to clinical symptom and site of infection

Clinical symptom	Total No of infested	% of infestation	No of infested males	% of infested	No of infested females	% of infested
Itching	478	91.57	227	43.47	251	48.09
Pain or discomfort	44	8.43	18	3.46	26	4.98
Total	522	100	245	46.93	277	53.07
Site of infestation						
Generalized infestation	277	53.06	130	24.9	147	28.16
Hand, finger and leg	152	29.12	82	15.8	70	13.4
Abdomen, under arm and back	93	17.82	33	6.34	60	11.49
Total	522	100	245	46.95	277	53.05

As shown in Table (6), 31.42% of the infested patients with scabies seek medical attention during the first week of having the symptoms, 24.90% during the second week, 17.63% of cases during the 4th week and 26.05% delayed their medical consultation for more than a month after the start of the symptoms. There is no any study in this direction in order to compare the results. A positive past attack of scabies was reported in 113 (21.65%) of the cases, however, most of them reported that they could not afford the medications for the whole family members since the drugs are not available in public pharmacies and they cannot afford to buy it (personal communication). On further enquiry, many of them showed inappropriate application of the drugs. The infection rate here is much higher than rates reported by Al-Chalabi, (2009) who reported infestation rates only 13% of the cases were reinfested with scabies for the second time. As shown in Table (7), overcrowding in the residence place was an important attribute for the patients with scabies. Only a small proportion (21.83%) of them lived in a house with less than five persons. This condition offers better socioeconomic circumstances and higher standard of living, 78.17% of the studied cases lived in a very crowded residence with a household size of 6 to 18 individual. The results of this study indicate that scabies was more prevalent among patients from families with 5-10 persons living in a house with

Table (6): Distribution of scabies cases according to disease duration.

Duration of scabies (weeks)	Total No of infested	Total % of infestation	No. of infested Males	% of infested Males	No of infested females	% of infested females
1	164	31.42	91	17.43	73	13.98
2	130	24.90	65	12.45	65	12.45
4	92	17.63	43	8.24	49	9.38
up to month	136	26.05	57	10.92	79	15.15
Total	522	100	256	49.04	266	50.96

few rooms. Similar results were reported from other developing countries (Hegazy *et al*., 1999,Larrosa *et al*., 2003, and Al-Chalabi, 2009) where scabies was more prevalent among large families with a high crowding index at night due to close contact and sharing of beds that increase the transmission of the scabies mite. The present study revealed that families of scabies cases were often of large size and a high crowding index. This could implicate close contact and the sharing of beds in the transmission of the scabies mite.

Table (7): Distribution of scabies patients according to the number of family members

Number of family Members	Total No of infested	% of infestation	No of infested males	% infested	No of infested females	% infested
1-5	114	21.83	50	9.57	64	12.26
6-10	237	45.40	122	23.37	115	22.03
> 10	171	32.77	73	13.98	98	18.79
Total	522	100	245	46.94	277	53.06

The present study concluded that the incidence of scabies was high among the outpatients visited the dermatology clinic in Azadi Teaching Hospital, particularly in female in the age group from 1--20 years, in illiterate patients then decreased with the increase in the level of education, also in patients who lived in a very crowded residence high rates of scabies were recorded namely the resident of urban and rural areas and more than 50% acquired the infestation from household contact. Itching was the prominent clinical symptoms with secondary bacterial infection in some of them.

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پوختە:

ئەڤ خوێندنە ل پارێزگەها دهوکێ هاتە ئەنجامدان ژبۆ دیارکرنا ئاستێ بلاڤبونا نەخوشیا (گوریاتیێ)و ئاستێ پەیوەندیا وێ دگەل هوکارێن کومەلایەتی و ئابوری بۆ هەردوو رەگەزا (نێر و مێ) و ل هەمی قوناغێن ژێی، بۆ وان نەخوشێن سەرەدانا کلینیکا شیرەتکاریا نەخوشییێن پێستی کرین ل نەخوشخانا ئازادی یا فیرکرنێ ل پارێزگەها دهوکێ ل ماوێ نیۆان مەها ئەیلولا ۲۰۱۲ هەتا مەها نیسانا ۲۰۱۳ .

ئەو هوکارێن کارتێکرن هەین لسەر نەخوشیێ و هاتینە خوێندن (ژیێ نەخوشی ، رەگەز ، جورێ خانیێ وی ، ئاستێ خوێندنا نەخوشی ، ژمارا ئەندامێن خێزانێ ، سەرچاوێ کونتاکێ ، نیشانێن نەخوشیێ ، جورێ چارەسەرکرنێ ، ل گەل هندەك شروڤەکرنێن خوێنێ ییێن تایبەت) .

۵۲۲ کەس هاتنە دەست نیشانکرن ب نەخوشیا گوریاتیێ ژ ۹٤۵۰ نەخوشێن سەرەدانا کلینیکێ کری واتە بریژا ۵.۵ ٪ ژ هەردوو رەگەزا و ل ژییێن نیۆان سالەك هەتا پتر ژ ٦۰ سالی ل دوێف ڤێ خوێندنێ دیاربو کو بلندترین ئاستێ توشبونا ڤێ نەخوشیێ ل ژیێ نیۆان سالەك هەتا ۱۰ سالە ب ریژا۲۰.۱۱٪ و ل دیڤدا ل ژیێ ۱۱-۲۰ سالە بریژا۲۰.۵٪ . و ریژا توشبونێ بڤێ نەخوشیێ کێمتر دبیت دگەل بلندبونا ژیێ مروڤی، ول دیڤ رەگەزی ریژا توشبونا رەگەزێ مێ . ۵۳.۰٦٪ یە و٤٦.۹٤ ٪ ژ رەگەزێ نێر بوو ، وهەروەسا بلنترین ریژا توشبونا ڤێ نەخوشیێ ژ نەخوێندەواران بون ٦۰.۵۳٪ و ئەڤ ریژەیە کێم دبیت ب بلندبونا ئاستێ خوێندەواریێ .ژ لایەکێ دویڤە۳۷.۱٦ ٪ژ توشبوًا ئاکنجییێن باژێری بون و ۳٤.۸٦ ٪ ئاکنجییێن قەزا بون و۲۷.۹۸٪ژ ئاکنجییێن گوندابون . ژ لایێ کونتاکێڤە ب نێزیکی نیڤا نەخوشێن توشبو بریکا کونتاکا دناڤ مالێ بوون۵۰.۹۸٪ ، و ۳٤.٦۷٪ بریکا کونتاکا دەرڤەیی مال بوون ، ۱۳.۷۸٪ ژ سەرچاوێن نەدیار و بتنێ ۰.۵۷٪ ژ زندانیابوون . ژ لایێ نیشانێن نەخوشیێ ۹۱.۵۷٪ ژ نەخوشا خوریان لێ پەیدابو و بوًیە ئەگەرا هەوگرتنا بەکتیری ، ۳۱.٤۲٪ ژ نەخوشا ل هەڤتیا ئیکێ سەرەدانا نوژداریً تایبەتمەندیً بیًستی کر، ۲٤.۹۰٪ ل هەڤتیا دوویً سەرەدانا نوژداری کر ، ۱۷.٦۳٪ ل هەڤتیا چاریً سەرەدانا نوژداری کر پشتی نیشانێن نەخوشیێ ئاشکرابوین ،۲٦.٤٪ پشتی پێتر ژهەیڤەکی سەرەدانا نوژداری کر . ژ لایێ خێزانیێ ڤە ۲۱.۸۳٪ ژ نەخوشا خێزانێن وان ژ پێنج ئەندامان کێمترن و ل ئاستێ موچەیێ باشبوون ، ۷۸.۱۷ ٪خێزانێن وان ژ ٦ هەتا ۱۸ ئەندام بوون

الخلاصة:

اجريت هذه الدراسة في محافظة دهوك لتقيم مدى انتشار داءالجرب ومدى علاقته بالعوامل الاجتماعيه والاقتصاديه بين المرضى المراجعيين للعيادة الخارجية من كلا الجنسين ومن فئات عمريه مختلفة من سنه الى فوق عمر٦٠ سنه خلال الفترة من شهر أيلول ٢٠١٢ ولغاية نيسان ٢٠١٣. العوامل التي تمت دراسة تأثيرها كانت العمر والجنس ونوعية السكن و المستوى التعليمي للمرضى و عدد افراد العائلة ومصدر التلامس و العلامات السريرية.شخصت ٥٢٢حاله من داء الجرب بنسبة ٥.٥٪ من بين ٩٤٥٠ مريضا زاروا العيادة الخارجية.

وجدت اعلى نسبة اصابه في الفئات العمريه من سنه الى ١٠ سنوات و١١-٢٠ سنه والتي بلغت ٢٠,١١-٢٠,٥٪ على التوالي. ثم قلت معدلات الاصابة بالمرض مع زيادة العمر. بالنسبه للجنس نسبة المرض كانت الاكثر(٥٣,٠٦٪) بين الاناث مقارنة بالذكور(٤٦,٩٤٪).

كانت نسبة الاصابة بالجرب الاكثر بين المرضى الاميين(٦٠,٥٣٪) وقلت هذه النسبة بزيادة المستوى التعليمي. كذلك كانت نسبة الاصابة الاكثر في المرضى قاطني المدن (٣٧,١٦٪)تلاها قاطني الاقضية٣٤,٨٦ ٪) وثم القرى(٢٧,٩٨٪).

فيما يتعلق بمصدر التلامس حدثت حوالي نصف حالات المرض حدثت من التلامس داخل البيت ٥٠,٩٨٪ و٣٤,٦٧٪ من خارج البيت و١٣,٧٨٪ من مصادر مجهولة وفقط ٠,٥٧ ٪ من السجناء.

تميزت العلامات السريرية للمرض كانت الحكه في ٩١,٥٧٪ من المرضى والتي ادت الى حدوث اصابات ثانوية للبكتريا.شملت الاصابه عموم الجسم في ٥٣,٠٦٪ من الحالات وكانت موضعيه في ٢٩,١٢٪ (تركزت في الذراعين والاصابع والساقين) وفي ١٧,٨٢٪ من الحالات تركزت في البطن والظهر وتحت الابط. وبالنسبه للفترة التي بدأ المرضى فيها مراجعة الاطباء،٣١,٤١٪ منهم استشاروا الاخصائين الجلديين خلال الاسبوع الاول من ظهور الاعراض و٢٤,٩٪ زاروا خلال الاسبوع الثاني و١٧,٦ ٪ خلال الاسبوع الرابع من ظهور الاعراض و ٢٦,٠٥ ٪ اجلوا الاستشارة لاكثر من شهر.

فيما يخص عدد افراد اسر المرضى كان ٢١,٨٣ ٪ منهم يعيشون في عائلة متكونه من اقل من خمسة اشخاص ذات مستوى معيشي في حين ٧٨,١٧ ٪ منهم يعيشون في سكن مزدحم بالافراد تراوح عددهم من ٦ الى ١٨ فردا.