ORİJİNAL ARAŞTIRMA ORIGINAL RESEARCH

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Epidemiological Features of Scabies Cases in Adana Region of Turkey: Cross-Sectional Study

Türkiye'nin Adana Bölgesinde Görülen Uyuz Olgularının Epidemiyolojik Özellikleri: Kesitsel Çalışma

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ÖZET Amaç: Uyuz, her yaştan ve sosyoekonomik durumdan bireyleri etkileyen yaygın bir enfestasyondur. Bu çalışmada, ülkemizde son zamanlarda görülme sıklığı belirgin olarak artan uyuz değerlendirilmekte ve ülkemizdeki epidemiyolojik verilere katkı sağlanması amaçlanmaktadır. **Gereç ve Yöntemler:** 01 Ocak 2017 ile 31 Aralık 2019 tarihleri arasında dermatoloji polikliniğine başvuran ve uyuz tanısı konulan 8.283 hastanın yaşı ve cinsiyeti geriye dönük olarak değerlendirildi. Uyuz olan olguların yıllara, aylara ve mevsimlere göre dağılımı değerlendirildi. Sonuçlar istatistiksel olarak analiz edildi. **Bulgular:** Yıllara göre hastalık insidans oranları karşılaştırıldığında, 2019 oranları 2018 ve 2017 yıllarına göre istatistiksel olarak anlamlı düzeyde yüksek bulundu ($p<0,05$). Polikliniğe başvuran hastalar arasında uyuz olan olguların oranları 2017'de %1, 2018'de %1,7 ve 2019'da %3,1 idi. 2017 ve 2018 yıllarında uyuz oranları istatistiksel olarak birbirinden farklı değildi ($p>0,05$). **Sonuç:** Çalışmamızdan elde ettiğimiz sonuçlar, halk sağlığını tehdit eden bir hastalık olan uyuz insidansında kademeli ve belirgin bir artış olduğunu ortaya koymaktadır. Kalabalık ailelerde ve toplu alanlarda daha sık görülen bu hastalığın son yıllarda çok sayıda göçmen alan ülkemizde salgınlara neden olabileceği unutulmamalıdır.

Anahtar Kelimeler: Uyuz; insidans; epidemiyoloji

ABSTRACT Objective: Scabies is a common infestation that affects individuals of all ages and socioeconomic status. We aimed to contribute to epidemiological data in our country by evaluating scabies of which incidence has recently increased in our country. **Material and Methods:** The age and gender of 8,283 patients who applied to the dermatology outpatient clinic between January 01, 2017 and December 31, 2019 were evaluated retrospectively. Distribution of cases over years, months and seasons were evaluated. The results were analyzed statistically. **Results:** The incidence of scabies in 2019 were found to be higher than those in 2018 and 2017 ($p<0.05$). Among the patients who applied to the outpatient clinic, the rates of patients with scabies were 1% in 2017, 1.7% in 2018 and 3.1% in 2019. In 2017 and 2018, the rates of scabies were not statistically different from each other ($p>0.05$). **Conclusion:** According to the results of our study, there has been a gradual increase in the incidence of scabies, a disease that threatens public health. It should not be forgotten that this disease, which is more common in crowded families and in public areas, may cause epidemics in our country, which has received large numbers of immigrants in recent years.

Keywords: Scabies; incidence; epidemiology

Scabies is an infestation of the skin caused by *Sarcoptes scabiei*. The most common way of transmission is direct skin to skin contact, but the indirect transmission of the disease by sharing clothing is also possible. Sarcoptes that are microscopic mites burrow into the epidermis, deposit its eggs, and the host develops an immune response which causes intense itching.[1,2]

Due to the night activities of mites, itching gets worse at night. It causes insomnia and distress that negatively affect the daily activities of patients.[3] Scabies is estimated to affect more than 200 million people, especially children, annually. Despite the high rate of the infestation, the scarcity of epidemiological data remain a major obstacle to global control of the disease.[4,5] A recent study in the Solomon Islands re-

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vealed that the prevalence of scabies is 54% in school-age children. A high rate of scabies incidence was reported in children living in Fiji (55.7%), rural communities in Nigeria (65%) and asylum seekers in the Netherlands (33.5%).[4] Aktaş and Cebecik, have determined that the cases of scabies increased in our country in a recent study.[5] In this study, we aimed to contribute to epidemiological data in our country by examining patients diagnosed with scabies in recent years.

MATERIAL AND METHODS

This study was conducted in accordance with the principles of the Declaration of Helsinki. Before conducting this research, the approval of Adana City Hospital Ethics Committee (dated 08.01.2020 and numbered 668) was obtained. The files of patients who applied to the dermatology outpatient clinic between January 01, 2017 and December 31, 2019 were evaluated, and 8,283 patients who were clinically diagnosed with scabies have been included in the study. The age, sex and distribution of the disease according to years, months and seasons have been evaluated retrospectively.

Typical signs and symptoms including severe itching (especially) at night, widespread erythematosus papular rash, typical distribution of lesions, appearance of vesicle, sillion, and those with similar complaints in the community have been taken into consideration when diagnosing scabies.[6,7]

STATISTICAL ANALYSIS

SPSS 21.0 for windows (SPSS Inc. Chicago, IL, USA) software is used for statistical analyses. Continuous variables with normal distribution have been shown as mean±standard deviation and categorical variables have been shown as frequency and percentage. Chi-square test has been used to compare the incidence of the disease by years. In the study, the p-value has been accepted as significant at the level of <0.05.

RESULTS

In total, 8,283 cases applied to the dermatology outpatient clinic between January 01, 2017 and December 31, 2019 were diagnosed with scabies (Table 1).

TABLE 1: Distribution of Turkish patients diagnosed with scabies by months.

	2019	2018	2017
January	358	227	158
February	329	212	130
March	357	211	97
April	340	124	77
May	265	109	89
June	155	114	64
July	224	129	43
August	281	105	60
September	397	177	107
October	479	261	178
November	696	293	166
December	757	337	179
Total	4,638	2,297	1,348

When the number of cases were examined by years, it was found out that the lowest number of cases was in 2017 and the highest number of cases was in 2019. We observed that the number of patients is gradually increasing. The number of patients increased significantly, especially in the autumn and winter months (Figure 1). When the gender distribution of patients were analysed, 656 male and 692 female patients in 2017, 1,055 male and 1,242 female patients in 2018, 2,246 male and 2,392 female patients in 2019 were identified. The highest number of cases were seen in November and December (Figure 2).

As shown in Table 2, when the incidence of the disease compared by years, it was determined that the rates of 2019 were higher than those of 2017 and 2018 ($p<0.05$). Among patients admitted to the outpatient clinic, the rates of scabies patients were 1% in 2017, 1.7% in 2018 and 3.1% in 2019. The rates of scabies cases were not statistically different from each other in 2017 and 2018 ($p>0.05$).

Considering the age distribution of patients by year, the average age of patients in 2017 was 31 in men, 34 in women and 34 in general. The average age of the patients in 2018 was 31 for males and 38 for females and the overall average was 32. In 2019, the average age of the patients was 26 for males and 32 for females, and the overall average age was 29. For both sexes, the age of the patients gradually decreased over the years. Figure 3 shows the graph by years.

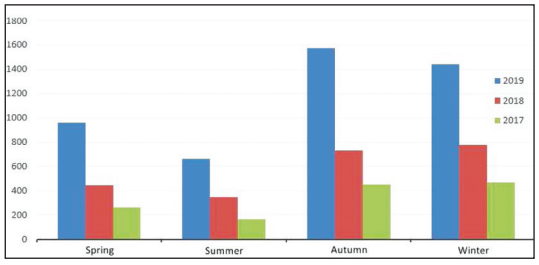

FIGURE 1: Seasonal distribution of the cases.

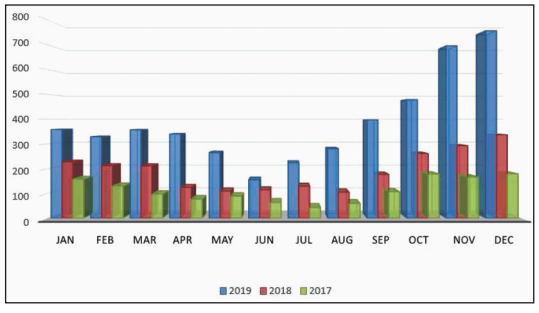

FIGURE 2: Monthly and annual cases.

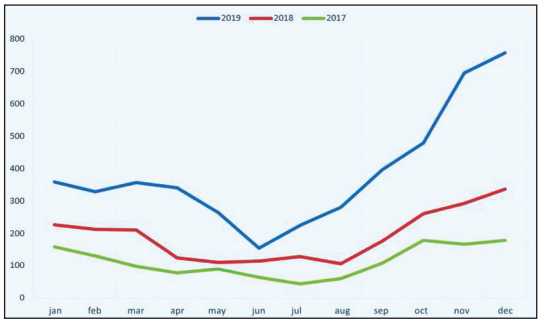

FIGURE 3: Scabies cases between 2017 and 2019.

DISCUSSION

This study identified that among the patients admitted to the outpatient clinic, the rates of scabies patients were 1% in 2017, 1.7% in 2018 and 3.1% in 2018 and the incidence rate of the disease is gradually increasing.

S. scabiei which is estimated to infect more than 100 mammalian species worldwide has a high morbidity. *S. scabiei* is among the most burdensome parasites with the widest host range.[7]

The disease is transmitted sexually, as well as by physical contact from the skin to the skin.[8] It takes 2 to 6 weeks before symptoms appear in obligate human parasite *S. scabiei var. hominis* infection. If the individual previously had scabies, symptoms usually appear within 1 to 4 days.[9]

There are two important clinical variants of scabies and these are typical scabies and crusted scabies. Typical scabies is the most common type of the disease and this type is associated with 10 to 15 mites that are considered relatively low in the body. Crusted scabies, on the other hand, is often seen in older or immunosuppressed individuals and is associated with a higher mite number (millions of mites in the body).[10] It is especially common in poor countries, countries with high population density and tropical regions.[11] Global Burden of Disease 2015 reported that the burden of the scabies is higher in children, adolescents and elderly people living in tropical regions.[12]

A data analysis from 2001 to 2012 revealed that India, the South Pacific and Northern Australia are the regions with the highest prevalence of scabies.[13]

A study conducted in Pakistan confirmed that among dermatological patients in Pakistan scabies was endemic, while a similar study has shown that its prevalence ranged between 18.1-70.2% among dermatological diseases. As a result of research in Pakistan's neighboring country, Bangladesh, cases of scabies were reported in 98% of schools.[3]

In a national study conducted in Fiji, the prevalence of scabies was observed to be around 20%. The prevalence has been found to be much higher in young children (almost 50%).[1] While some studies have shown that gender has no effect on prevalence, some studies have shown that women are more likely to get scabies. A study conducted in Pakistan found that the prevalence of scabies in men was much higher than in women.[3] According to the studies conducted in our country by Karaman et al. and Aktaş and Cebecik, the number of female patients were higher.[1,5,14] In an epidemiological study conducted in Kayseri province in our country, it was found that cases of scabies were more common in women.[15] Our study found out that the number of female scabies patients is higher.

In an epidemiological study, it was observed that the incidence in winter and autumn is much higher than the incidence in spring and summer.[16] Since scabies is not a reported disease, data may not fully represent its prevalence, as data are often based on variable recording methods and come from countries with a wide variety of social and physical environments.[17] According to a study conducted in Poland, 44.4% of all cases were reported in autumn and winter. This can be partly explained by the tendency to share small spaces, which increases personal contact during the colder months.[18] In our study, we observed that the number of scabies cases increased in the autumn and winter months.

In a newly published multicenter study conducted by Özden et al. in our country, 17,803 patients (14,574 adults and 3,229 children) diagnosed with scabies were evaluated. It has been reported that there is a scabies epidemic in all regions of our country. In addition, it has been reported that the number of patients requiring systemic treatment due to resistance to topical agents has increased in the last two years.[19] Our study evaluated 8,283 scabies patients from a single center hospital.

Since our study is retrospective, it has some limitations such as the inability to reach the socioeconomic levels of the patients, rural or urban life situations, and the failure to perform the mite imaging techniques used to confirm the diagnosis. Tests such as skin scraping, dermoscopy, adhesive tape test can be used during the diagnosis. The positivity of these tests makes the diagnosis certain but the negativity of them does not rule out the diagnosis.

CONCLUSION

In conclusion, as seen in our study, scabies cases seem to have increased significantly in recent years. It should not be forgotten that this disease, which is more common in crowded families and in public areas, may cause epidemics in our country, which has received large numbers of immigrants in recent years.

Therefore, we think that it is important to provide education about scabies for disease

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: *Yuhanize Taş Demircan, Kenan Yıldız;* ***Design:*** *Yuhanize Taş Demircan, Murat Öztürk;* ***Control/Supervision:*** *Yuhanize Taş Demircan, Murat Öztürk, Sema Elibüyük Aksaç;* ***Data Collection and/or Processing:*** *Yuhanize Taş Demircan, Kenan Yıldız;* ***Analysis and/or Interpretation:*** *Yuhanize Taş Demircan, Kenan Yıldız, Sema Elibüyük Aksaç;* ***Literature Review:*** *Yuhanize Taş Demircan, Murat Öztürk, Kenan Yıldız;* ***Writing the Article:*** *Yuhanize Taş Demircan;* ***Critical Review:*** *Yuhanize Taş Demircan, Murat Öztürk, Sema Elibüyük Aksaç;* ***References and Fundings:*** *Yuhanize Taş Demircan, Murat Öztürk, Kenan Yıldız;* ***Materials:*** *Yuhanize Taş Demircan, Murat Öztürk, Sema Elibüyük Aksaç.*

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