

Original paper

Scabies increase during the COVID-19 pandemic: should we change our treatment strategy during the pandemic?

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ABSTRACT. Scabies is a highly contagious, parasitic infestation caused by *Sarcoptes scabiei* var. *hominis*. There are some reports which claim the incidence of scabies has increased during COVID-19 lockdown. In this study, we aimed to compare the prevalence of scabies between March to September 2020 – the first six months of the COVID-19 outbreak in Turkey – and March to September 2019 – the same period in the previous year. Case number percentages were compared month-over-month and by total numbers for each specified period. Pearson’s chi-squared test was the comparison tool used. We checked the records of 36,469 patients who were admitted to Bezmialem Vakif University, Faculty of Medicine, Dermatology Department, a tertiary healthcare center, between March and September 2019, and out of this number, 258 patients had been diagnosed with scabies. The overall scabies case percentage was 0.71% and the range of monthly prevalence was 0.57%–0.83%. During the corresponding period in 2020, 26,219 dermatology patients were admitted, and 465 of those patients were diagnosed with scabies. The overall scabies case percentage was 1.77% and the range of monthly prevalence was 1.37%–3.46%. Scabies prevalence percentages were statistically significantly higher in all months and in the overall total in 2020 ($P<0.001$). Our nine patients, who admitted in 2020, did not respond to permethrin treatment but responded well to an ivermectin and permethrin combination. Scabies incidence has increased during the COVID-19 pandemic according to our study. We believe there may be an underreported resistance to permethrin and that starting treatment with oral ivermectin in combination with topical permethrin in extraordinary times, such as a pandemic, may help to control outbreaks.

Keywords: COVID-19, scabies, epidemiology, ivermectin, permethrin

Introduction

Scabies is a highly contagious, parasitic infestation that is caused by *Sarcoptes scabiei* var. *hominis*. Managing scabies infestations requires specific measures in certain communities, including war victims, immigrants, and crowded households – especially in low-income countries [1]. The COVID-19 pandemic affected the whole world, and it is reported that the incidence of scabies increased during the pandemic [2,3]. The first case of COVID-19 was announced in Turkey on 11 March 2020 [4]. In this paper, we aimed to compare scabies incidences between March to September 2020 – the first six months after the COVID-19 pandemic started in Turkey – and March to September 2019 – the same period in the previous year.

Materials and Methods

We scanned the records of patients who admitted to Bezmialem Vakif University, Faculty of Medicine, Dermatology Department from hospital’s database system, referring to the International Statistical Classification of Diseases and Related Health Problems ICD-10 code B86, and compared data using Pearson’s chi-squared test.

Results

We checked the records of 36,469 patients who were admitted to our department between March and September 2019, and out of this number, 258 patients had been diagnosed with scabies. The overall scabies case percentage was 0.71%. and the

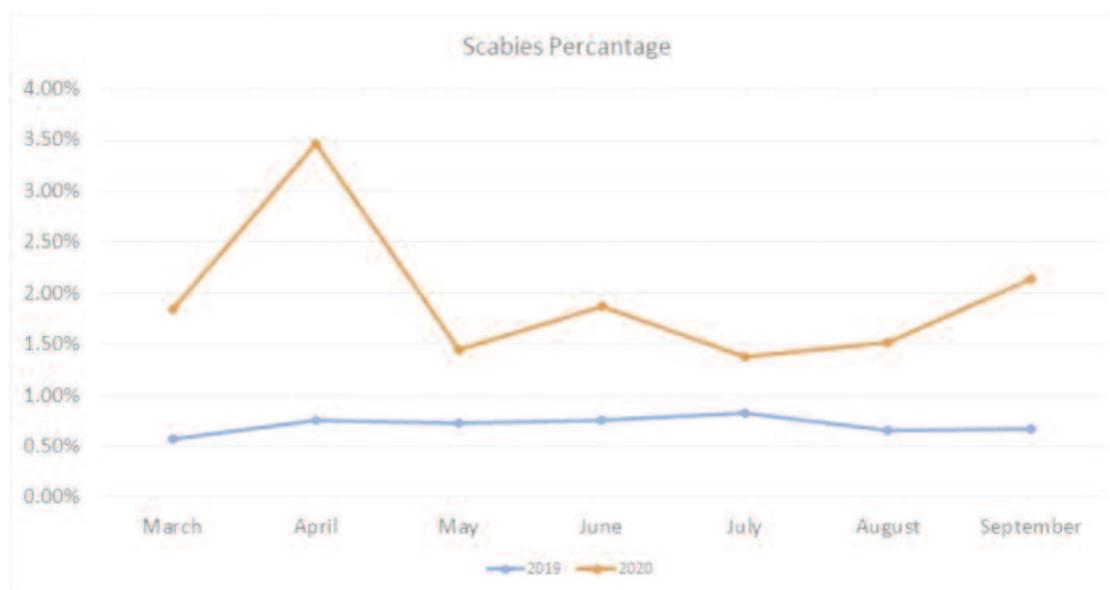


Figure 1. Scabies percentages graph by months in 2019 and 2020

Table 1. Numbers of dermatology visits, scabies cases, and percentages

Month	2019		
	Total dermatology visits	Scabies cases	Percentage
March	5,923	34	0.57%
April	5,444	41	0.75%
May	5,426	39	0.72%
June	3,583	27	0.75%
July	5,886	49	0.83%
August	4,370	29	0.66%
September	5,837	39	0.67%
Total	36,469	258	0.71%

Month	2020		
	Total dermatology visits	Scabies cases	Percentage
March	2,888	53	1.84%
April	492	17	3.46%
May	1,110	16	1.44%
June	5,468	102	1.87%
July	5,272	72	1.37%
August	4,865	74	1.52%
September	6,124	131	2.14%
Total	26,219	465	1.77%

range of monthly prevalence was 0.57%–0.83% (Tab. 1). The scabies cases percentages indicated stability in 2019, as seen in figure 1, and there were no statistically significant differences between months ($P=0.251$). When we looked at the corresponding period in 2020, 26,219 dermatology patients were admitted, and 465 patients were diagnosed with scabies. The overall scabies case percentage was 1.77% and the range of monthly prevalence was 1.37%–3.46% (Tab. 1). Scabies case percentages reflected undulation in 2020, as shown in figure 1. We used Pearson's chi-squared test to compare scabies percentages month-over-month and overall, between 2019 and 2020. Scabies percentages were statistically significant higher in all months and overall, in 2020 ($P<0.001$).

There is no information contained in the abstract about the number of failures in therapy. Are there differences between the analyzed periods? (We couldn't compare the treatment failures because of either some of patients might admit to other centres if there is a failure in therapy or they might choose not to come due to fear of pandemic).

Discussion

Martinez et al. [2] reported a statistically significant increase in scabies cases during the quarantine period. They made several proposals; they suggested that an increase in the incidence of scabies may be due to people spending more time in the home and, therefore, with relatives, which increases the risk of mite transmission, and that the

admission of index cases to health organizations takes longer than usual because of people's fears of COVID-19. Another factor that can lead to an increase is that some patients deny their diagnosis and say that they were at their home during the entire quarantine period and careful about personal hygiene, claiming it was, therefore, impossible to get scabies from someone else. These factors delay the start of treatment and contribute to the spread of the infestation.

The increase in the percentages indicated in our study was not simply due to the lower number of total visits; scabies cases numbers were higher in almost all months, apart from April and May, and in total.

The European guideline for the management of scabies [5] recommends one of the following first-line treatments: permethrin 5% cream repeated once after 7–14 days, ivermectin PO 200 µg/kg repeated after 7 days, or benzyl benzoate lotion 10–25% on days 1 and 2 and repeated after 7 days. Although permethrin is considered highly effective, there have been recent reports about a loss of efficacy [6,7]. Meyersburg et al. [6] reported cure rates of 29% in a group receiving the usual treatment – two applications one week apart – and 31% in an intense treatment group – applying the same protocol plus daily application to dermatoscopically verified areas for one week. Søreide et al. [7] reported five permethrin resistant scabies cases in a boarding school, where all students were checked by the school nurse to ensure the correct use of the cream. Permethrin alone was not effective in these students, and they were cured after a combined treatment of oral ivermectin and topical permethrin [7]. There may be a global resistance to permethrin, and resistant cases may be underreported. Further studies are required regarding this topic.

Despite the possible resistance, we could not prescribe ivermectin to our permethrin resistant patients because ivermectin for human use is not available in Turkey. However, we recommended that those who were resistant to permethrin obtain ivermectin if possible. Eleven of them managed to source ivermectin from their relatives abroad, and they all responded well to treatment. Mueller et al. [1] used an algorithm in 48 refugee patients, in which all patients took oral ivermectin once or twice according to their symptoms and physical examination findings. At the end of the study, all 48 patients were sign and symptom-free.

In conclusion, the incidence of scabies has

increased during the COVID-19 pandemic according to our study, and there are other reports which support our data [2,3]. It is crucial to inform patients about the risks of contracting scabies during quarantine periods and the importance of strictly complying with their prescribed treatment plan. We believe that the increase in the prevalence of scabies during COVID-19 quarantine is due to the increase in close contact with relatives and in the amount of time spent together – especially in crowded families; the delay in an inpatient admission, access to a physician, and receiving treatment; and increased resistance to permethrin, which we estimate is largely underreported.

Permethrin is being used as a first-line treatment for scabies in many countries. However, we recommend that to help control outbreaks, treatment for scabies should begin with oral ivermectin in combination with topical permethrin in specific circumstances, such as a pandemic, or group situations, such as nursing homes, boarding schools or refugee camps may be helpful to control outbreaks.

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