Is COVID-19 Sparing Syrian Refugees? Outcomes of 983 Applications from a Pandemic Hospital in Türkiye

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ABSTRACT

Objective: Data on how Syrian refugees are affected by COVID-19 are not documented. In this study, it was aimed to examine the admissions to a COVID-19 pandemic hospital in a province where Syrian refugees live frequently in Türkiye.

Material and Methods: Data was collected retrospectively from hospital records. The variables were age, sex, nationality, test positivity, comorbidity and death due to COVID-19. Polymerase chain reaction (PCR) test was applied to patients admitted with suspicion of COVID-19, and patients with positive results were diagnosed with COVID-19.

Results: PCR results of 177 (18%) of 983 patients who applied with COVID-19 suspicion were positive. Out of 177 people whose results were positive for COVID-19, 173 were Turkish citizens and only four were Syrian refugees. Median age of the Turkish citizens [54 (min= 0, max= 96)] was significantly (p< 0.0001) higher than Syrian refugees [15 (min= 0, max= 94)]. Turkish citizens had approximately six fold higher test positivity rates than the Syrian refugees [OR= 5.969, 95% CI. (2.099-16.977)].

Conclusion: We found a lower rate of hospital admissions and test positivity rate for Syrian refugees. Although these results may be attributed to the lower median age of Syrian refugees, we also think that increased immunization, secondary to recent tight vaccination programs, may also play a role.

Keywords: COVID-19, Syrian refugees, pandemic hospital, Türkiye

ÖZ

COVID-19 Suriyeli Mültecileri Koruyor Mu? Türkiye'de bir Pandemi Hastanesinden 983 Başvurunun Sonuçları

Giriş: Suriyeli mültecilerin COVID-19'dan nasıl etkilendiğine dair veriler belgelenmemiştir. Bu çalışmada, Türkiye'de Suriyeli mültecilerin yoğun olarak yaşadığı bir ilde COVID-19 pandemi hastanesine başvuruların incelenmesi amaçlanmıştır.

Gereç ve Yöntemler: Veriler hastane kayıtlarından geriye dönük olarak toplandı. Değişkenler yaş, cinsiyet, uyruk, test pozitifliği, komorbidite ve COVID-19'a bağlı ölümdü. COVID-19 şüphesiyle başvuran hastalara polimeraz zincir reaksiyonu (PCR) testi uygulandı ve pozitif çıkan hastalara COVID-19 tanısı konuldu.

Bulgular: COVID-19 şüphesiyle başvuran 983 hastanın 177'sinin (%18) PCR sonucu pozitif çıktı. Sonuçları COVID-19 pozitif çıkan 177 kişiden; 173'ü Türk vatandaşı ve sadece dördü Suriyeli mülteciydi. Türk vatandaşlarının ortanca yaşı [54 (min= 0, max= 96)] Suriyeli mültecilerden [15 (min= 0, max= 94)] önemli ölçüde (p< 0.0001) daha yüksekti. Türk vatandaşları Suriyeli mültecilere göre yaklaşık altı kat daha yüksek test pozitifliği oranlarına sahipti [OR= 5.969, %95 GA (2.099-16.977)].

Sonuç: Suriyeli mülteciler için daha düşük bir hastaneye kabul oranı ve test pozitifliği oranı bulduk. Bu sonuçlar Suriyeli mültecilerin medyan yaşının daha düşük olmasına atfedilebilse de, son zamanlardaki sıkı aşılama programlarına ikincil olarak artan bağışıklamanın da rol oynayabileceğini düşünüyoruz.

Anahtar Kelimeler: COVID-19, Suriyeli mülteciler, pandemi hastanesi, Türkiye

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INTRODUCTION

Currently, the whole world is struggling with the COVID-19 pandemic caused by a new type of coronavirus (SARS-CoV-2). In December 2019, the first cases were reported in Wuhan, China as 44 cases of pneumonia, the etiology of which could not be explained (1). Since then, millions of people have caught COVID-19 and hundreds of thousands have died.

The course of the outbreak varies from country to country. Undoubtedly, the difference in health infrastructure, demographic characteristics, isolation measures, and access to healthcare services of each country are some major factors in this (2,3).

Risk groups are being determined by examining the course of the disease in patients with chronic conditions, by following how the disease progresses according to different age groups or by checking whether there is a difference between males and females (4,5).

In countries such as Syria, Libya and Yemen where armed conflict continues, there are no studies stating the current situation in the SARS-CoV-2 pandemic. Civil war led to high displacement of the population in addition to problems such as the collapse of the health system and food shortages (6).

The Syrian civil war has resulted in a vast majority of Syrians taking refuge in Türkiye. Refugees, both in camps and integrated into urban life, may face a higher risk of COVID-19 since they live under more congested and densely populated conditions. Nutritional disorders and lack of personal hygiene can also be added to these conditions. However, data on how refugees are affected by COVID-19 are not documented.

In this study, we aimed to examine the admissions to a COVID-19 pandemic hospital in a province where Syrian refugees live frequently in Türkiye.

MATERIALS and METHODS

Study Type and Region

The study is descriptive and conducted in Adana. Adana is located in south of Türkiye, and 11.08% of its population is consisted of Syrian refugees (7).

Data was collected retrospectively from hospital records. The variables were age, sex, nationality, test positivity, comorbidity and death due to COVID-19. Polymerase chain reaction (PCR) test was applied to patients admitted with suspicion of COVID-19, and patients with positive results were diagnosed with COVID-19. As of April 14, 2020, there were a total of 1031 patient admissions. Six of these records were duplicated and the results of 42 patients were unknown on the date the data were obtained. Therefore, in this study, a total of 983 patient admissions were evaluated.

Statistical Analysis

Descriptive data were presented as number, percentages and median (minimum-maximum). Spearman correlation test was used for test age and test positivity. Chi-square test was used to compare Turkish citizens and Syrian refugees in terms of sex, and test positivity and Mann-Whitney U test was used to compare them in terms of age. Logistic regression analysis was performed to assess factors affecting test positivity.

The study was approved by the local ethics board (Decision no: 53, Date: 10.04.2020), and permission from the Ministry of Health was obtained.

RESULTS

PCR results of 177 (18%) of 983 patients who applied with COVID-19 suspicion were positive. Ninety-three of the patients (52.5%) were males, and median age was 52 (min= 0, max= 96). The distribution of patients by age and sex groups is presented in Figure 1. Test positivity showed positive correlation with age (Rho= 0.114, p< 0.0001).

At least one comorbid disease was present in 55 (31.1%) of the confirmed cases. Multiple comorbidities (n= 23), hypertension (n= 9) and respiratory comorbidities (n= 5) were the most common. The distribution of additional diseases is presented in Figure 2.

As of April 14, 2020, 119 of the patients were discharged. Six patients died. Median age of the patients who died was 63 (min= 59, max= 81); four of them (66.7%) had underlying conditions (one with hypertension, one with chronic renal failure, one with diabetes mellitus and hypertension; and one with diabetes mellitus, hypertension, chronic heart and renal failure).

It is known that due to the current civil war in Syria, there are many Syrian refugees in Türkiye. When we examined the distribution of all participants according to nationality, 908 people (92.4%) were Turkish citizens, 74 people (7.5%) were Syrian refugees and one person (0.1%) was of Afghan origin. Out of 177 people whose results were positive for COVID-19, 173 (97.7%) were Turkish citizens and only four (2.3%) were Syrian refugees, which attracted our attention.

After the person of Afghan origin was removed, Turkish citizens and Syrian refugees were compared in terms of test positivity, and the difference was found significant (χ2= 8.625, p= 0.003). Median age of the Turkish citizens [54 (min= 0, max= 96)] was significantly (p< 0.0001) higher than that of the Syrian refugees [15 (min= 0, max= 94)]. Sex distribution of the Turkish citizens and Syrian refugees were similar (χ2= 1.374, p= 0.241).
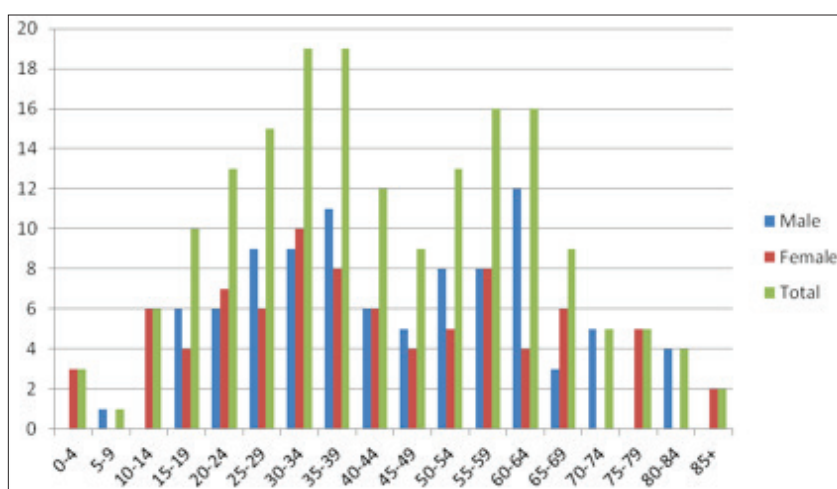
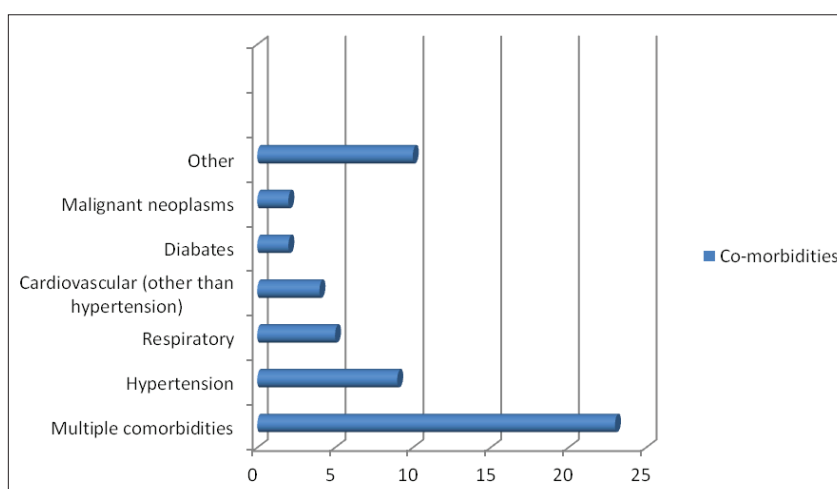**Figure 1.** Patient distribution by age and sex.

Figure 2. The distribution of additional diseases.

We conducted logistic regression analysis again after removing the person of Afghan origin to test how nationality affected test positivity. Age and sex were also added as covariates for adjustment. Turkish citizens had approximately a six-fold higher test positivity rate than the Syrian refugees [OR= 5.969, 95% CI. (2.099-16.977)] (Table 1).

DISCUSSION

COVID-19 has rapidly spread across Türkiye after the incidence of the first case on March 11, 2020. Turkish Ministry of Health announced that all 81 provinces of Türkiye were affected from the virus on April 4, 2020. Adana, where this study was carried out, was the eighth city with the most confirmed cases

Table 1. Factors affecting COVID-19 positivity				
Factor				**95% CI. For Exp B**
	B	**Sig.**	**Exp (B)**	**Lower**
Age	**0.014**	**0.0001**	**1.014**	**1.007**
Sex	0.192	0.256	1.212	0.870
Nationality	**1.787**	**0.001**	**5.969**	**2.099**
Constant	0.692	0.001	1.997	

(8). This rapid spread from the first case in Türkiye is an indication of the high transmission capacity of SARS CoV2 from person to person. In our study, 69.5% (n= 123) of the cases confirmed by PCR were between the ages of 30-79 years, which was 86.6% in China and 78.9% in Italy. In Türkiye, the proportion of patients aged under 30 years are higher compared to the data of China and Italy (9,10). This might be due to the fact that Türkiye has a younger population than China and Italy.

In our study, at least one comorbid disease was known in 31.1% of the confirmed cases. When the patients were evaluated according to the presence of comorbidity, multiple comorbidities were found most frequently. Guan et al. have detected at least one comorbidity in 25.1% of the patients. They have reported that the most common comorbid condition was hypertension followed by multiple comorbidities (11). Huang et al. have determined the frequency of comorbidity as 32% and found that the most common comorbidity was diabetes and hypertension (12). Although similar comorbidities are mentioned in the literature, there are differences in the proportional distribution of these diseases. This may be due to the differences in the populations in which the studies have been conducted.

Comorbid disease was present in four of the six patients who died in our study. The frequency of comorbidity was found to be higher in patients who needed treatment in the intensive care unit (13). Death rate was found as 3.3%, which appears to be higher than the death rate reported in Türkiye (8). Death rates may vary during the course of the outbreak. Different strains of SARS-CoV2 can be spread to the regions of Türkiye (14). For this reason, Adana data may be inconsistent with the country data.

Türkiye is a neighboring country to Syria, where there has been an ongoing civil war since 2011. Due to armed conflicts, 5.6 million Syrian refugees have left their countries (15). Türkiye is a signatory to the Geneva Convention Relating to the Status of Refugees (1951) and its Protocol (1967) and is providing temporary protection to 3.583.584 Syrian refugees (7). There are opinions that an outbreak in large refugee camps in Europe will result in humanitarian catastrophes (16). This view is based on overcrowding in the camps, lack of personal hygiene, difficulty in maintaining social distance and frequency of comorbid diseases.

Of the population in Adana,where the study was conducted, 11.08% (264 804) consisted of Syrian refugees (7). In our study, 7.5% of the COVID-19 suspected admissions and 2.3% of those confirmed as COVID-19 by PCR were Syrian refugees. Refugees are accepted as a risk group for infectious diseases all over the world due to low socioeconomic level and insufficient sanitation conditions (17). However, in our study, sur-

prisingly, we encountered an opposite situation. The hospital admissions of Syrian refugees due to COVID-19 and their test positivity rate were found to be lower than Turkish citizens.

The low number of Syrian refugees applying with COVID-19 suspicion cannot be explained by the difficulty in accessing health services. All health payments and costs of the Syrian refugees are covered in Türkiye by the Disaster and Emergency Management Presidency (AFAD). They also benefit from defined primary health care services (18). Therefore, there are no barriers to Syrian migrants' access to health. It is suggested that some childhood vaccines prevent SARS-CoV-2 or provide a milder disease (2). This may be caused by vaccines broadly and strongly stimulating the immune system against infectious diseases. After the incidence of 7405 measles cases in Türkiye in 2013, nine MMR vaccination campaigns were carried out for refugees in southern provinces where Syrian refugees live extensively including Adana. It is reported that vaccination coverage is over 95% in Syrian refugees (18). Syrian refugees living in Türkiye as compared to the local population, received MMR more recently. Therefore, one reason for the low positivity rate of COVID-19 in Syrian temporary refugees may be increased immunization secondary to recent vaccination campaigns.

This study has several limitations. Its descriptive design limits the study in terms of analytical aspects. Data were collected from hospital database without an active surveillance. Therefore, the results cannot be extrapolated to the general population. On the other hand, to the best of our knowledge, it is the first study to report a disadvantaged group such as refugees in terms of COVID-19.

Our results showed that COVID-19 test positivity increased with advancing age. COVID-19 is less common in younger age groups and has a milder course compared to older age groups (19). de Lusignan et al. have defined increasing age as a significant factor for test positivity (20). A comorbid disease is present in 66% of the population aged 70 and over (21). COVID-19 patients with one or more comorbidities have been found to have a higher age than those without comorbidity (21). Increasing frequency of comorbidity may explain the increase in the number of symptomatic patients and test positivity. The young population may have gotten over the disease subclinically and thus may not have applied to health institutions.

CONCLUSION

In our study, we found that Syrian refugees had lower median age than Turkish citizens. This may explain the low test positivity rates of Syrian refugees. In our study, we analyzed the data of one of Adana largest pandemic hospitals, where Syrian refugees live intensely. Contrary to the expectations,

we found a lower rate of hospital admissions and test positivity rate for Syrian refugees. Although these results may be attributed to the lower median age of Syrian refugees, we also think that increased immunization, secondary to recent tight vaccination programs, may have also played a role. Identifying groups that are less affected by outbreaks and revealing the reasons for this may shed light on uncovering data that could end the outbreak. Further studies investigating the rationale behind why Syrian refugees are less affected from the pandemic should be carried out. In addition, investigation of the efficacy of childhood vaccinations against SARS-CoV-2 is recommended.

Acknowledgements

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