and WHO. It is known that WHO has a two-billion-dollar program called Global Humanitarian Response Plan for the supply of laboratory test materials, protective materials for medical personnel and medical equipment to vulnerable countries as part of the pandemic response (2).

In this context, with the support of the World Health Organization, Syria's neighboring countries and international non-governmental organizations, studies have been carried out in the framework of humanitarian aid to promote the health of the Syrian population. In 2013, EWARN (Early Warning Alert and Response Network) was established, which is used to monitor communicable diseases in Northwest Syria. EWARN is located in opposition-controlled areas and is organized by the ACU (Assistance Coordination Unit), which is part of Syrian National Coalition. This is an early warning system for many infectious diseases such as COVID -19. EWARN was activated for rapid triage, investigation and verification of suspected cases of COVID -19 and enabled the operation of WHO 's COVID -19 PCR laboratories according to regional needs (3, 9).

Most of the published literature on COVID -19 comes from high-income countries, while less attention has been paid to countries with weaker health systems (7). With this in mind, we aimed to investigate the situation in the pandemic by examining the demographic and clinical characteristics of individuals who had COVID -19 in Northwest Syria, a country that is not under a central health system and where health services are provided with humanitarian aid.

Materials and Methods

This study retrospectively examined the demographic and clinical characteristics of individuals who applied to the World Health Organization- supported ACU laboratories in Northwest Syria Region and were diagnosed with COVID -19.

All patients, excluding healthcare workers, who applied to these laboratories between 01/05/2020 - 22/12/2020 and whose test results were positive were included in the study. The demographic and clinical data of the subjects were searched in the EWARN digital database. Permission to use the data was obtained from the ACU Monitoring Coordinator on 12/24/2020. Ethics Committee Approval for our study was obtained from the Non-Interventional Research Ethics Committee of Mustafa Kemal University of Hatay on 03/12/2020 (meeting number: 01, decision number: 22).

Statistical Analysis

Statistical analyzes of the study were performed using Statistical Package software for Social Sciences version 21.0 for Windows (IBM SPSS Statistics for Windows, version 21.0. Armonk, NY: IBM Corp., USA). Explanatory statistics of continuous variables were summarized as mean ± standard deviation, and explanatory statistics of categorical variables were summarized with numbers and percentages.

Results

The study included 17070 individuals who were not health care workers and were positive for COVID -19 PCR. The mean age of the patients was 37.7∓16.4 years, and 6368 (37.3%) were female and 10702 (62.7%) were male. When searching the occupational groups of the participants in the database, although the occupational group could not be specified for most (40.5%), 1273 (7.5%) were civil servants, 733 (4.3%) were teachers, and 689 (4.0%) were students.

Of those included in the study, 9186 (53.8%) were from Idlib Region and 7884 (46.2%) were from Aleppo Region (Table 1). 10.7% (n=1826) of those living in these regions lived in immigrant camps.

71.6% (n=12216) of the PCR samples were nasopharyngeal swabs and the remainder were bronchoalveolar lavage samples. Of these samples, 4622 (27.1%) were tested in Afrin, 8595 (50.4%) in Idlib and 3231 (18.9%) in Jarablus laboratories. It was reported that 1090 (6.4%) of these patients were hospitalized or isolated.

Regarding origin, 40 patients had history of visiting another region within 14 days, 11 had history of receiving visitors from another region within 14 days, 4928 (28.9%) had history of visiting an endemic area, and 2673 (%15.7) had history of contact with a COVID -19 positive patient.

When the symptoms of those included in the study were evaluated, 96.3% (n=16433) had symptoms. Of these, 15426 (90.4%) had mild symptoms, 910 (5.3%) had moderate symptoms and 97 (0.6%) had severe symptoms. The most common major symptoms among patients were fever (74.3%), dry cough (68.1%), fatigue (42.2%), shortness of breath (29.8%), sore throat (23.5%), and loss of taste and smell (23.2%), and in some cases productive cough was noted (1.3%). In addition to the main symptoms, patients were also noted to have headache (32.7%), nasal discharge (11.9%) and joint pain (9.8%).

Among those included in the study, hypertension was the most common concomitant disease in 435 cases (2.5%), diabetes in 426 cases (2.5%), and heart disease in 139 cases (0.8%) (Graph 1).

Assessing the prognosis of those included in the study, 56% (n=9584) of patients showed complete recovery, 41.8% (n=7141) recovered but their symptoms persisted,

while 106 females (crude female mortality rate: 1.6%), 239 males (crude male mortality rate: 2.23%) and a total of 345 (2%) patients died due to COVID -19.

Discussion

17070 individuals who were not healthcare workers and were tested and were positive for new coronavirus PCR tests at ACU laboratories between 01/05/2020 and 22/12/2020 were included in the study (Northwest Syria Region). Once the PCR laboratories were opened, staff at COVID -19 triage points throughout the region were informed. Suspected patients in the triage areas were referred to physicians who tested them for COVID -19. PCR testing was performed on patients the physicians deemed necessary and sent to ACU laboratories. Apart from this, swabs from patients treated in Turkey-supported hospitals were sent to Turkey and examined there; while swabs from patients taken from outpatients, scans and triage areas in Northwest Syria Region were all examined in ACU laboratories. Because PCR testing at Northwest Syria Region was not performed outside the ACU-operated laboratory, the data are believed to reflect almost all of the COVID -19 PCR-positive patients throughout the region.

World Health Organization data show that the number of cases, which rose gradually and peaked in August, September, October and November in Eastern Mediterranean, Turkey and Jordan, began to decline in mid-December. The study of Lebanon shows that the number of cases increased moderately in summer and autumn, peaked towards the end of the year and declined in the new year. On the other hand, looking at Iraq, Palestine and Syrian Arab Republic, the data from WHO shows that the number of cases peaked twice in September-October and December-January. In our study conducted in Northwest Syria Region, the number of cases that increased in September, October and November decreased in late November and early December. Our data

resemble the graph corresponding to the case profile of Eastern Mediterranean, Turkey and Jordan, but differ from that of Iraq, Palestine, Israel, Lebanon and Syrian Arab Republic (10). This can be explained by the similarity in the reception of asylum seekers in Northwest Syria, which hosts a large number of Syrian immigrants due to internal migration, as well as in Turkey (the highest) and Jordan (the second highest among neighboring countries). However, the fact that the only customs crossing to Northwest Syria is through the Turkish border can be cited as a reason why the case numbers show parallelism with Turkey. In addition, the fact that Turkey supports regional health services as part of humanitarian assistance at the level of health services in its own country and shares its experience in its own health system with local health workers through training and advice can be cited as a reason why the variations in case numbers are similar and reflect the effectiveness of the pandemic response. On the other hand, the fact that there is no transition to other countries in the Eastern Mediterranean from the Northwest Syria Region and the different success rates in the fight against COVID -19 can be shown as a reason for the difference with Northwest Syria.

Looking at the literature on COVID -19 infections in relation to gender, a study conducted in Peru found that the rate of infection was 50% higher in men than in women (11). In another study conducted in India, the number of infected males was 5% higher than females (12). In another study conducted in Chile, the infection rate was found to be significantly higher in males than females (13). In a meta-analysis that examined the whole of Europe from the perspective of developed countries, when the total cases in 40 countries were examined, it was found that the number of male patients (49.5%) was lower than that of females (50.5%) (14). In our study, the proportion of male patients (62.7%) was significantly higher than the proportion of female patients (37.3%). In assessing the world in general, Carson's letter to the editor on men's health mentions that

the rate of disease at COVID -19 is almost the same in both sexes (15). From all these assessments, it appears that the infection rates in underdeveloped and developing countries are higher in men than in women, while this rate is the same or even reversed in developed countries. The reason for this could be that women in underdeveloped countries are less social, participate less in the workforce, live more isolated lives and therefore have less contact.

Evaluation of COVID -19 by age group shows that there are clusters in the 20-29 and 50-59 age groups in developed countries (14). The age group of 20-49 years has been found to be intense and the age group of 30-39 years has been found to be most affected by the disease among these age groups (9, 13). In our study, infectious patients were found to be concentrated in the 20- to 49-year-old age group in parallel with developing countries, and the mean age was 37.8∓16.4 years. This can be explained by the fact that earlier age groups could not be detected in underdeveloped countries due to low level of health, literacy and knowledge and low rate of hospitalization and testing in underdeveloped and developing countries.

When searching for the occupational groups of participants in the ACU database, although the occupational group information of the majority could not be obtained, it was found that the most frequently identified occupational groups were civil servants, teachers and students. The reason for the high prevalence of COVID -19 among civil servants, teachers and students could be the fact that they are more aware of COVID -19 than other occupational groups and the number of individuals in these occupational groups is higher than in other occupational groups.

27.1% of PCR samples were tested in Afrin, 50.4% in Idlib and 18.9% in Jarablus laboratories. Idlib is home to approximately 3 million people and the region from Afrin

to Jarablus is estimated to have 2 million, with population density decreasing from west to east (16). However, the conduct of filiation studies with Turkish support in Afrin and Jarablus may have contributed to the lower number of cases and the less positive test results.

In some regional seroprevalence studies conducted in Spain and Italy, the rate of asymptomatic infection was 27-40% (17-19),but 90% of symptomatic patients were uncomplicated and did not require hospitalization because they had only moderate or few symptoms (20). In our study, 3.7% of all participants positive for COVID -19 PCR were asymptomatic and 96.3% were symptomatic. It was found that 90.4% of participants with symptoms had mild symptoms, 5.3% had moderate symptoms, 0.6% had severe symptoms, and the vast majority (93.7%) did not require hospitalization or isolation. While our study is consistent with data from the literature in terms of hospitalization and symptoms, the low rate of detection of asymptomatic infections can be explained by the fact that screening in the region is not as comprehensive as in developed countries.

In a study conducted in the United States of America (USA), the most common symptoms in patients admitted to the intensive care unit were fever, cough, and shortness of breath (21). Although our study was a social screening, the most common major symptoms in our study were fever (74%), dry cough (68.1%), fatigue (42.2%) and shortness of breath (29.8%). This may suggest that clinical prognosis does not depend on symptoms alone.

Data from the World Health Organization show that the mortality rate due to COVID -19 worldwide is 2.09%. Looking at these data in the countries with the highest case rates in the world, the mortality rate in the United States is 1.7%, while in India it is 2% and in United Kingdom it is 2.8%. Among the countries with high mortality rates,

this rate is 9% in Mexico. In the countries of Eastern Mediterranean, the average mortality rate is 2.0%, while it is 5.6% in Egypt, 1.3% in Lebanon, 7.0% in Syrian Arab Republic, and 0.8% in Turkey (10). In our study, the mortality rate was found to be 2%, which is consistent with the average of Eastern Mediterranean. The fact that the mortality rate in the region is lower than the world average and close to the average of Eastern Mediterranean can be considered as an effect of Turkey's humanitarian services and health standards in the region.

According to a study conducted in Chile, mortality due to COVID -19 was evaluated according to gender and the crude mortality rate was 3.97% for males and 3.09% (13). Considering the data from China, it can be seen that the mortality and hospitalization rates of the male gender are higher than those of the females (20). There are studies from the United States in which male mortality is 1.5 times higher than female mortality (21). In a meta-analysis evaluating 38 countries, it shows that male mortality is higher in 37 out of 38 countries. In our study, in accordance with the literature, crude mortality rate was found to be higher in males than females (22).

Study Limitaitions

COVID-19 diagnoses were evaluated based on the results of PCR test. One of the limitations of our study is that data from individuals with lung involvement detected by computed tomography were not included in the digital database.

Conclusion

Our study retrospectively examined the demographic and clinical characteristics of individuals tested and diagnosed with COVID -19 in World Health Organization-supported ACU laboratories in Northwest Syria Region. It is known that almost all PCR

samples in Northwest Syria were tested in ACU laboratories. In this context, we have presented a cross-sectional analysis of almost all individuals with COVID -19 in Northwest Syria for the last 6 months of 2020. Considering the destroyed infrastructure and inadequate settlement, Northwest Syria is considered a vulnerable region in terms of public health. However, the impact of Turkey's humanitarian services in the region and the standards of health care, the impact on hospital care and filiation studies can be statistically demonstrated.

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