



Review article

Critical management of COVID-19 pandemic in Turkey

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Abstract

In Early December 2019, a novel coronavirus (CoV), severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has emerged in Wuhan city, Hubei province in China. SARS-CoV-2 was identified to be in betacoronavirus group as the Middle East respiratory syndrome coronavirus (MERS-CoV) and severe acute respiratory syndrome coronavirus (SARS-CoV-1). The disease caused by this virus termed coronavirus disease 2019 (COVID-19) by World Health Organization (WHO), has a wide clinical spectrum from asymptomatic to pneumonia, respiratory failure and even death. COVID-19 is highly contagious and human to human transmission was confirmed. As of December 28th 2020, there are globally 79 515 525 people infected with SARS-CoV-2. So far SARS-CoV-2 has spread to 220 countries including Turkey. Numerous measures implemented such as face mask usage, temperature measuring, social distancing, closure of workplaces and schools for the physical protection. Although almost a year has passed since the pandemic first emerged, the number of cases in the country has reached its peak. Therefore, new measures and restrictions have begun to be taken. Many vaccines have been released on the world market and a 91% effective Chinese coronavirus vaccine is expected to arrive in Turkey within the next few days.

Keywords: *measures; SARS-CoV-2; social distancing; Umrah; vaccine*

1. Epidemiology and clinical characteristics

In Early December 2019, the world met SARS-CoV-2 that emerged in Wuhan city, Hubei province in China. On January 7, 2020, SARS-CoV-2 was identified to be in betacoronavirus group as MERS-CoV and SARS-CoV-1 by metagenomic RNA sequencing and isolation of the virus from pneumonia patients (Hu et al., 2020). The first known cases were found to be related to the Huanan South China Seafood Market (Chen et al., 2020). Although there was a decreasing trend in the number of cases in China, the number of cases increased rapidly around the world towards the end of February due to international travel. The disease caused by this virus termed COVID-19 by World Health Organization (WHO) and declared the outbreak a pandemic on March 11, 2020 (Cucinotta and Vaneli, 2020). COVID-19 has a wide clinical spectrum including asymptomatic infection, mild

upper respiratory tract illness, severe viral pneumonia and death (Garcia, 2020). Research data suggest that the virus could be transmitted through droplets scattered around while talking or coughing (Jayaweera et al., 2020). Prolonged exposure to symptomatic individuals also increases the risk of transmission. In addition, COVID-19 appears to be severe in people with underlying diseases such as diabetes, cardiovascular or lung diseases (Wu et al., 2020). Symptoms can be seen in infected people from 5 to 11.5 days (Wiersinga et al., 2020). The most common symptoms are fever, cough, fatigue and sputum production, dyspnea, headache, hemoptysis and diarrhea (Jiang et al., 2020). It is known that 89% of patients have at least one of these symptoms or signs. SARS-CoV-2 can be diagnosed by using reverse transcription polymerase chain reaction (RT-PCR) or Chest Computer Tomography (CT), as a routine imaging tool for pneumonia diagnosis is preferable. CT demonstrates typically in almost

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all COVID-19 patients, ground-glass opacities, multifocal patchy consolidation and interstitial changes with a peripheral distribution (Del Rio and Malani, 2020; Kilic et al. 2020 Wu and McGoogan, 2020). So far, drugs such as chloroquine and hydroxychloroquine which have been used in malaria treatment for many years, remdesivir, lopinavir/ritonavir and azithromycin have been used for COVID-19 treatment (Ali et al., 2020; Lu et al., 2020). Although the symptoms disappear within the recovery, it is not known what deficiencies and effects will be seen in the patient in the following years, which is a matter of concern.

So far SARS-CoV-2 has spread to 220 countries worldwide. According to WHO, as of December 28th, there are 79 515 525 confirmed cases and 1 757 947 deaths globally, and the USA has become the epicenter of the epidemic with 14 191 298 total cases followed by India, Brazil and Russia (WHO, 2020).

2. The first meeting of Turkey with SARS-CoV-2

In Turkey, all the developments since the first case reported in China were followed carefully. As a first step, the Coronavirus Scientific Advisory Board in Ankara consisting of academicians was set up by the Ministry of Health, General Directorate of Public Health (GDPH) in order to make the necessary decisions by evaluating the status of the pandemic (Yaman, 2020; Zahariadis et al., 2020). The board included 21 university professors, 4 medical experts and a legal advisor (COVID19TURKEY, 2020). Assessments were made on the basis of the national pandemic plan, which was published for the influenza pandemic in 2006 and subsequently revised with the experience gained in the influenza A pandemic in 2009. Board members made frequent statements and informed the public about SARS-CoV-2 and COVID-19, and explained the measures to be taken such as frequent hand washing, social isolation, wearing face masks and gloves if it is necessary and staying home as much as possible. The meetings continued for 24/7. As of mid-February, flights were stopped primarily to China and Iran, followed by Italy, South Korea and Iraq in order to control the spread of the virus (Khan and Karatas, 2020). The first case in Turkey was detected on March 10th 2020, who was a 44 years old businessman travelled back to Turkey from Europe (Demirbilek et al., 2020; Kilic et al., 2020).

3. Quarantine implementation for those returning from Umrah

Every year more than 2 million pilgrims candidates for Hajj worship at the same time; for the worship of Umrah, more than 8 million people travel to Saudi Arabia at different times of the year. Visitors from all over the world come together in the cities of Mecca and Medina. This poses an important risk in Muslim countries as the risk of infectious diseases is high in crowded environments. In the previous years, the GDPH provided information about MERS-CoV, which appeared in the Arabian Peninsula in 2012, by warning the citizens going to Umrah and Hajj. On March 15, 2200 people returned from Umrah were brought to Konya and Kayseri and settled in dormitories. Everyone was taken to separate rooms, except for couples, who had undergone health checks at the airport and in the dormitory. During the 14-day quarantine period, approximately 500 police took security measures in the dormitory and guarded the floors and the environment inside the building (Dursun et al., 2020; Hurriyet, 2020). In this process, those who were found to be positive were treated and the quarantine duration of their contacts

was extended (Republic of Turkey Ministry of Health, 2020a). Meanwhile, with the detection of more than 100 positive cases in the group of approximately 3 thousand people who were placed in private student dormitories in Ankara on the return of Umrah, the quarantine periods were extended to 3 weeks. A sufficient number of doctors and nurses were assigned to each block where these people stayed, and especially those with chronic diseases were followed carefully. However, it is estimated that the virus has spread due to those who visit the rooms during their stay in the dormitory (BBC News, 2020a). However, the exact number of people returning from Umrah has not been officially announced. Moreover, by April, the kingdom of Saudi Arabia has banned Hajj and Umrah visits and they are expected to be resumed as of November after 7 months through serious measurements (Aljazeera, 2020a). In our country, it is expected that various quarantine applications will be applied to people returning from Hajj or Umrah visits.

4. Measures taken against COVID-19 pandemic

Just a day after the first confirmed case, schools were closed to stop the spread between children. Over the next few days, public gatherings, social events and sport games were cancelled (Erturan-Ogut and Demirhan, 2020). In the meantime, measures at airports and borders have been increased, health checks were performed and early warning systems are activated in all borders of the country since Istanbul's airports serve over 104 million passengers in a year. Destinations such as Istanbul, Dubai, Frankfurt and Atlanta are frequently used by transit passengers from all over the world (Demirbilek et al., 2020; Kilic et al., 2020; Petersen and Gokengin, 2020). Efforts were made to prepare the health system and health workers ready for a possible pandemic. A guideline was published containing the information about the transmission and the clinical characteristics of COVID-19. Guideline also provided information about how to approach patients. According to guideline; Criteria in possible case definition; people with unknown severe acute respiratory tract infections; traveling to China in the last 14 days before the onset of symptoms and healthcare personnel working in an environment with SARS-CoV-2 positive patients, close contact with the confirmed case of SARS-CoV-2 infection. People who have recently traveled abroad and have symptoms of the disease and their contacts have been identified and taken to the hospital when necessary or 14-day quarantine was applied. According to Health Ministry data, a total of 38 098 intensive care beds found in Turkey, and there were 46.5 beds per 100 000 people. In the beginning of April, it was declared that as soon as the outbreak started, the treatments of patients who could be treated later were delayed. Moreover, in this period, the bed occupancy rates were reduced from 70% to 30%. The rates of the intensive care bed occupancy had also reduced which were around 80% to 60%. It was also declared by GDPH, that Turkey was among the countries with the lowest death rate by 2.3% (Republic of Turkey Ministry of Health, 2020a). On the other hand, as of April 25, there were a total of 107 773 patients, 2706 deaths and 25 582 recovered patients (Republic of Turkey Ministry of Health, 2020b). Therefore, weekend curfews were imposed in 31 provinces including the 3 most populous cities; Istanbul, Ankara and Izmir. In order to keep people over age 65 and under 20 at home, a curfew was imposed (Simsek et al., 2020). It seems that the measures did work well since according to the Ministry of Health, as of May 1st, daily number of the recovered patients was more than double the number of the new cases. Thanks to

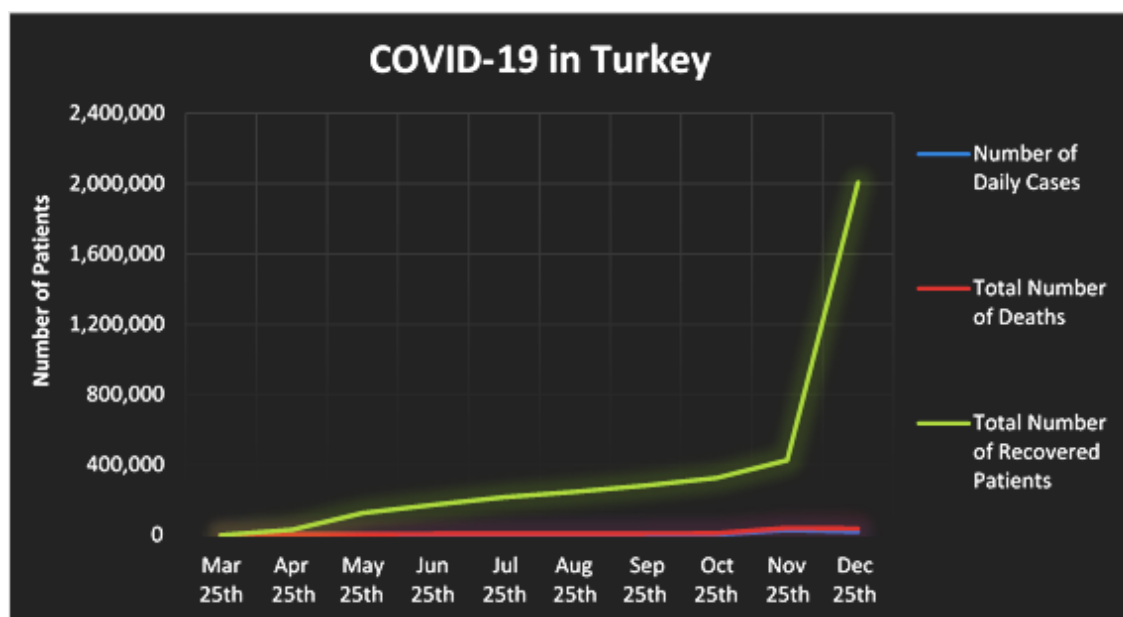


Fig. Total numbers of recovered patients, deaths and the number of daily cases from March 25th to December 25th in Turkey.

the strict measures and intensive studies, it was seen that the number of people recovering as of May 14th was approximately 3 times the number of new cases per day. By May 25th, the number of patients was 157 814 as 4369 people died and 120 015 patients recovered (Republic of Turkey Ministry of Health, 2020b). Considering the number of the city population, the number of people who had lost their lives due to COVID-19 was less compared to many European countries. On May 12th, a plan on the normalization process was issued by the Turkish Government. Applications such as curfews covering the weekends and the restriction of domestic travel would continue until June 1st. Hairdressers, shopping malls, shops and restaurants could be opened on condition that the hygiene rules were followed (Petersen and Gokengin, 2020; Republic of Turkey Ministry of Health, 2020a).

In May, with the 'Life Fits into Home' application created by the Ministry of Health, it became mandatory to obtain and use a code on this application for all trips. Thus, the health status and activities of individuals in social life and domestic transportation can be followed instantly (Koca, 2020). People who must quarantine at home since they have been in close contact with someone who has COVID-19, are followed up through this application and monitored by filiation teams (Hayat Eve Sigar, 2020). Meanwhile, an increase in the number of cases was also observed. By June 25th, the total number of cases reached 193 115 and 5046 people died as 165 706 patients recovered. A month after that, as of July 25, there were 225 173 patients, 5596 deaths and 208 477 recovered patients (Republic of Turkey Ministry of Health, 2020b). In addition, weekly status reports started to be published by the Ministry of Health as of August, and updated information about the number of new as well as total cases and deaths started to be shared weekly and daily. According to the situation report published by the Ministry of Health, as of August 25, more than 7 million tests were performed across the country and there were 261 194 laboratory confirmed patients, 6163 deaths and 238 795 recovered patients since March 11th (Republic of Turkey Ministry of Health, 2020b). The city with the highest number of cases was Istanbul, followed by the South Eastern Anatolia and Western Anatolia regions. 51% of the de-

tected cases were male patients, 49.4% of the total cases belonging to the age group from 25 to 49 and 18.7% were patients belonging to the age group from 50 to 64. Additionally, the number of children under the age of 15- infected with virus is 6.9% of the total number of cases (Republic of Turkey Ministry of Health, 2020c). As expected, in summer when normalization steps were taken, increased social activities brought along an increase in the number of cases. Thus, weddings and similar gatherings were banned as of August 30. However, the increase in the number of patients continued in September as the total number of patients reached 311 455, 7858 people died and 273 282 patients recovered (Republic of Turkey Ministry of Health, 2020b).

The increase in the number of cases in October-November has reached a higher level than when the pandemic first appeared. As of October 25, the number of tests performed across the country has almost doubled and exceeded 13 million as the total number of patients reached 361 801 and the number of recovered patients rose up to 314 390 (Republic of Turkey Ministry of Health, 2020b). The highest increase in the number of cases was detected in Istanbul, Eastern Marmara and Western Anatolia Regions. While the incidence of cases in men and women remained the same, the number of cases in the Western Anatolia region increased and surpassed Southeastern Anatolia (Republic of Turkey Ministry of Health, 2020d). Therefore, it was not surprising that new measures and restrictions were taken especially in major cities such as residents who are 65 and older would be allowed to go out at only certain hours, a weekend curfew had been declared from 8 pm to 10 am, restaurants and cafes were closed and only take-away services were allowed (Daily News, 2020). It was also announced that schools and universities would also be closed until the first semester. The Turkish government, which introduced online education during the pandemic period, provides tablet and free internet access services to thousands of students across the country (Ozer, 2020). Thus, the students had the opportunity to conduct lessons in accordance with the previously planned course schedules. It carries out very successful educational activities in digital environment, especially in medical faculties (Sensu et al., 2020).

According to the last published daily COVID-19 report, the number of new cases detected only on November 16 was 3316. The increase in the number of cases is the highest in the city of Istanbul, followed by the Eastern Marmara and Aegean Regions. However, there was a significant increase (33%) in the number of new hospitalizations in the Northeastern Anatolia region. Moreover, in the age group of 50-79 and 80+, more cases were detected in women compared to men (Republic of Turkey Ministry of Health, 2020e).

Interestingly, when the number of cases was expressed in hundreds at the beginning of the pandemic, the strict measures were taken with great sensitivity and then they were replaced by normalization steps in the summer as the tourism season started. Even though the number of cases had risen nearly tenfold, the restrictions applied were a lot less stringent than the beginning of the pandemic. From the statement made on November 25th, the number of daily cases was announced for the first time since July 29 as only the number of patients showing symptoms was announced in previous months which was criticized by many authorities. According to this statement, the number of daily confirmed cases in Turkey was found to be up to 28 351 and the total numbers of deaths and recovered patients reached 12 840 and 385 480 respectively (Figure 1). Thus, Turkey moved up to first place among European countries in the number of daily cases (BBC, 2020b). In the following days, new restrictions were imposed with the increasing public pressure. As of November 30, social distancing rules were tightened and lockdowns were announced to be on weekends and between 9 pm and 5 am on weekdays. Moreover, people older than 65 and younger than 20 would not be allowed to use public transport without the

Hayat Eve Siğar (HES) code. Many more restrictions are expected to be announced in the following days (Aljazeera, 2020b).

5. What is next?

Measures such as continuous informing of healthcare professionals and the public about the disease and measures to be taken, canceling travel and collective organizations, closing the workplaces and switching to the home office working were implemented in a short time. The absence of shortage in medical equipment and especially the number of beds indicates that the health system is well prepared for this process. Many workshops and vocational high schools in the country produce masks thus there was no mask shortage. However, due to the low number of tests performed at the beginning of the pandemic, some patients may be late for diagnosis. In addition, the fact that more than 7000 health personnel are infected with SARS-CoV-2 especially at the beginning of the pandemic indicates that the working environment of the health personnel is not safe enough. The measures taken by countries such as South Korea, Italy and China, which have seriously fought against the pandemic, the right and wrong steps they take should be evaluated and the same mistakes should not be made. Countries such as Germany, the USA, England and Russia have revealed that the phase 3 trials were done successfully and some of the vaccines have already been released on markets. Among these vaccines, the first batch of 3 million doses of the Chinese vaccine which found to be 91% effective, has been expected to arrive in Turkey in the next coming days.

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