COVID-19: How do emergency departments fare after normalisation steps?

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Abstract

Objective: Restrictions imposed for the COVID-19 pandemic and the people’s fear of getting infected have caused a significant drop in the number of emergency service admissions. Herein, we aimed to investigate the reflections of our otherwise crowded emergency services’ quietness in the period of normalisation.

Methodology: Our study retrospectively investigated three groups of patients: the patients who were admitted to the emergency service in the ‘Period of Restrictions’ when the restrictions were imposed to limit the spread of the COVID-19 infection; the patients who were admitted to the emergency service in the ‘Period of Normalisation’ when normalisation attempts were made and the restrictions were lifted; and the patients who were admitted to the emergency service in the ‘Period of Pre-pandemic Normal’ exactly 1 year before the normalisation period, which would reflect the normal functioning of the emergency service at that time. The three groups were compared with respect to the demographic characteristics and patient outcomes (death/hospitalisation/discharge).

Results: A total of 69,474 patients were admitted to the emergency service in the ‘Period of Pre-pandemic Normal’ whereas 21,278 patients were admitted in the ‘Period of Restrictions’. The number of emergency service admissions in the ‘Period of Restrictions’ was significantly lower (P < .01). A total of 72,843 patients were admitted to the emergency service in the ‘Period of Normalisation’. There was no statistically significant difference between the ‘Period of Pre-pandemic Normal’ and the ‘Period of Normalisation’ in terms of the number of emergency service admissions (P = .127). A total of 9,421 (13.5%) patients were hospitalised in the ‘Period of Pre-pandemic Normal’ and the corresponding figure for the ‘Period of Normalisation’ was 19,876 (27.2%). A total of 24 (0.03%) patients died in the ‘Period of Pre-pandemic Normal’, whereas 172 (0.23%) patients died in the ‘Period of Normalisation’. The number of patients who were hospitalised and lost in the ‘Period of Normalisation’ was significantly higher than that of patients who were hospitalised and lost in the ‘Period of Pre-pandemic Normal’ (P < .01).

Conclusion: In the period of COVID-19 pandemic, fear of getting infected and the restrictions imposed to limit the spread of the disease have kept people out of hospitals. We believe that while the restrictions imposed on various activities have prevented the virus from spreading, they also caused the course of non-COVID-19 diseases to worsen and mortality rates to rise. Therefore, we are of the opinion that the public...
should be informed about the importance of uninterrupted treatment/follow-up and ‘Life-threatening Urgent Conditions’ that should necessarily prompt hospital visits in possible pandemics.

1 | INTRODUCTION

In December 2019, a series of pneumonia cases were diagnosed in Wuhan, a city in the Hubei Province of China, and a novel coronavirus was identified as the causative agent. The virus has rapidly spread, first in China, then the rest of the world, evolving into a global public health problem. In February 2020, World Health Organization (WHO) designated the disease as COVID-19, which means 2019 coronavirus disease, and declared it a pandemic on March 11, 2020. As of March, the first case in our country was diagnosed on March 10, 2020. After the announcement of the first case, COVID-19 pandemic, which was being followed both from the national and world press, caused a serious nationwide fear and panic. Serious measures have been taken in Turkey to prevent the spread of COVID-19, which is transmitted from person to person by droplets. These measures included imposing a curfew for people under the age of 18 and over the age of 65, the transition to a shift-based working system with flexible working hours in government institutions, closing schools and transition to online education, banning international travels and closing social areas including cinemas, theaters, wedding halls and shopping malls. In addition to these measures, calls from local and national media for ‘staying home’ and ‘social distancing’ have continued. As of March, patients started to be evaluated in a pre-triage system established outside emergency services, and patients with suspected COVID-19 were referred to pandemic outpatient clinics while others were sent to emergency services that were designated as clean areas. Elective surgical procedures were postponed. During that period, a serious drop has occurred in the number of admissions to the clean areas of the emergency services. People have avoided visiting emergency services and tried to solve their health problems by themselves. We addressed this point in a previous study and stressed that the quietness of emergency services may possibly be associated with increased mortality and poor prognosis in the future. As of June 1, normalisation steps have begun to be taken, travel bans and curfews have been lifted; and as of July, cinemas, theaters and wedding halls have been re-opened. In addition, no restrictions were imposed on the Feast of Sacrifice which was celebrated between 31 July and 3 August, when traditional collective family meetings were held. As of September, schools have begun face-to-face education in a gradual fashion. Emergency service admissions, which were reduced in number during the period of restrictions due to fear of the pandemic, started to increase again in the period of normalisation. We believe that patients with chronic disorders, whose elective surgical procedures were postponed, who were unable to apply to hospitals and whose follow-up was seriously interrupted, would present to emergency services with an even worse prognosis. Did patients’ prognoses worsen as much as we healthcare workers worried? To find an answer to this question, we aimed to investigate demographic characteristics and prognoses of patients presenting to emergency services during the period of normalisation, to predict post-pandemic complications in possible future pandemics, and to discuss possible measures to be taken.

2 | METHODOLOGY

As of March, Ağrı Training and Research Hospital has begun to evaluate patients using a pre-triage system established outside of the emergency service, where patients with suspected COVID-19 were referred to pandemic outpatient clinics established in the hospital and others to the emergency service established as the clean area. After being approved by the Ağrı Training and Research Hospital local ethics committee, our study retrospectively reviewed
the medical records of a total of three case groups admitted the emergency service. The first group consisted of patients who were admitted to emergency service during the ‘Period of Restrictions’ which lasted between March 1, 2020 and June 1, 2020, when the calls to ‘stay home’ were made; the second group of patients were those who were admitted to the emergency service in the ‘Period of Normalisation’ which lasted between June 1, 2020 and September 1, 2020; the third group consisted of patients who were admitted to the emergency service in the ‘Period of Pre-pandemic Normal’ which lasted between June 1, 2019 and September 1, 2019, which would reflect the normal functioning of the emergency service exactly 1 year earlier. The demographic characteristics, patient outcomes (death/hospitalisation/discharge) of the three groups were recorded. Patients whose information could not be accessed via the hospital automation system and those under 18 years were excluded.

2.1 | Statistical analysis

IBM SPSS Statistics for Windows, Version 22.0 (Armonk, NY: IBM Corp.) software package was used for data analysis. The normality of distribution of the study data was tested using Kolmogorov-Smirnov test. Descriptive statistics included mean ± standard deviation for normally distributed study data and median (min-max) for non-normally distributed study data. Mann Whitney-U test was used to compare data with non-normal distribution while independent samples t-test for data with normal distribution. Statistical significance was set at \( P < .05 \).

3 | RESULTS

A total of 69,474 patients presented to the emergency service in the ‘Period of Pre-pandemic Normal’ between June 1, 2019 and September 1, 2019, while the number of patients who were admitted to the emergency service in the ‘Period of Restrictions’ between March 1, 2020 and June 1, 2020 was 21,278. The number of emergency service admissions in the ‘Period of Restrictions’ was significantly lower (\( P < .01 \)). No statistically significant difference was observed between the two groups in terms of age (\( P = .547 \)) or sex (\( P = .342 \)). A total of 9421 (13.5%) patients were hospitalised in the ‘Period of Pre-pandemic Normal’ while the corresponding figure for the ‘Period of Restrictions’ was 1652 (7.7%). The number of hospitalisations was significantly lower in the period of restrictions (\( P < .01 \)). Twenty-four (0.03%) patients died among those who were admitted to the emergency service in the ‘Period of Pre-pandemic Normal’ while the corresponding figure was 97 (0.45%) in the ‘Period of Restrictions’. The mortality rate was significantly higher in the ‘Period of Restrictions’ (\( P < .01 \))(Table 1).

A total of 72,843 patients were admitted to the emergency service in the ‘Period of Normalisation’ between June 1, 2020 and September 1, 2019. There was no significant difference between the two groups (\( P = .127 \)). No significant difference was found between the two groups in terms of age (\( P = .642 \)) or sex (\( P = .328 \)). While a total of 9421 (13.5%) patients were hospitalised in the ‘Period of Pre-pandemic Normal’, the corresponding number totalled 19,876 (27.2%) in the ‘Period of Normalisation’, with the difference being significantly higher (\( P < .01 \)). A total of 24 (0.03%) patients died in the ‘Period of Pre-pandemic Normal’ and 172 (0.23%) patients in the ‘Period of Normalisation’. The number of patients who died in the ‘Period of Normalisation’ was significantly higher than that in the ‘Period of Pre-pandemic Normal’ (\( P < .01 \))(Table 2).

4 | DISCUSSION

In the present study, we found that the number of emergency service admissions in the period when restrictions were imposed in Turkey between March 1, 2020 and June 1, 2020 was lower than that of the emergency service admissions in the period of pre-pandemic normal. COVID-19 pandemic, which has rapidly spread since the report of the first case in Wuhan, China in December 2019, has caused

| TABLE 1 | The demographic characteristics and 28-day mortality of the Period of Pre-pandemic Normal and the Period of Restrictions |
|---------|-------------------------------------------------|
|          | Period of Pre-pandemic Normal | Period of Restrictions | \( P \) value |
| Number of patients (n) | 69,474 | 21,278 | <.01 |
| Age mean ± SD | 42.7 ± 23.6 | 39.8 ± 21.9 | .547 |
| Male n (%) | 40,241 (57.9%) | 11,498 (54%) | .342 |
| Number of hospitalised patients n (%) | 9421 (13.5%) | 1652 (7.7%) | <.01 |
| Number of deceased patients | 24 (0.03%) | 97 (0.45%) | <.01 |

| TABLE 2 | The demographic characteristics and 28-day mortality of the period of pre-pandemic normal and the period of normalisation |
|---------|-------------------------------------------------|
|          | Period of Pre-pandemic Normal | Period of Normalisation | \( P \) value |
| Number of patients (n) | 69,474 | 72,843 | .127 |
| Age mean ± SD | 42.7 ± 23.6 | 44.3 ± 25.1 | .642 |
| Male n (%) | 40,241 (57.9%) | 39,894 (54.7%) | .328 |
| Number of hospitalised patients n (%) | 9421 (13.5%) | 19,876 (27.2%) | <.01 |
| Number of deceased patients | 24 (0.03%) | 172 (0.23%) | <.01 |
great concern in Turkey as in the rest of the world. With the report of the first case in our country on 10 March 2020, worry has given way to fear and panic. People have been tried to be informed by social media as well as local and national press about COVID-19, and calls were made to ‘stay home’ and ‘keep social distance’. We may observe the secondary reflections of fear and concern, which have been created in the public by the digital world where social media is very active, in emergency services. Again, we see a decrease in the number of hospitalisations but a rise in the mortality rate in the period of restrictions compared to the period of pre-pandemic normal. COVID-19 has been associated with diseases with potentially poor prognosis and increased mortality such as disseminated intravascular coagulation, acute respiratory distress syndrome (ARDS), sepsis, acute coronary syndrome, and stroke.9-11 Patients may need to be hospitalised especially when comorbidities exist. We believe that, in the period of restrictions, patients and their relatives were not willing to apply to hospital due to concerns over infection, and so hospitalisations plummeted8; but when they suffered an unmanageable symptom, they visit emergency service, thereby increasing in-hospital death and mortality rate.

We observed similar admissions in the period of normalisation and the period of pre-pandemic normal. The announcements of ‘Transition to the Period of Normalisation’ in the national and local press caused people to relax and have less concern about contracting the disease, which encouraged them to return to their daily lives and social activities. Waning panic and fear of being infected have led people to present to hospitals once again. Nevertheless, there is a serious rise in the numbers of hospitalisations and mortality in the ‘Period of Normalisation’. We believe that many patients with chronic disorders have missed their follow-up visits and lost their chance of being diagnosed/treated early during the Period of Restrictions, when the calls to ‘stay home’ were made and curfew was imposed. We also believe that comprehensive calls should be made and information campaigns should be organised which aim to inform large masses about ‘Life-Threatening Urgent Conditions’ that absolutely prompt hospital admission via actively used social media, national and local press during the period of restrictions in order to reduce the number of these and similar preventable deaths in possible pandemic situations we may encounter in the future.

5 | CONCLUSION

Various restrictions have been imposed to limit the spread of COVID-19 worldwide since the appearance of the pandemic. Fear and restrictions have kept people away from hospitals in this process. We believe that restrictions limit virus spread on the one hand and they worsen non-COVID-19 diseases and increase mortality on the other. Ignoring other disorders while fighting infectious diseases will cause us to succumb to this war. Thus, we are of the opinion that the public should be informed about the importance of uninterrupted treatment/follow-up and ‘Life-threatening Urgent Conditions’ that necessarily prompt hospital visit in possible pandemics.

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