

Review Article

Effects of COVID-19 Pandemic on Healthcare Facilities: Different Worlds, Same Problems

Ali Kemal Erenler, MD^{1*}, Seval Komut, MD², Ahmet Baydın, MD³¹Associate Professor in Emergency Medicine, Hitit University, School of Medicine, Department of Emergency Medicine, Çorum, Turkey²Assistant Professor in Emergency Medicine, Hitit University, School of Medicine, Department of Emergency Medicine, Çorum, Turkey³Professor in Emergency Medicine, Ondokuzmayıs University, School of Medicine, Department of Emergency Medicine, Samsun, Turkey**Article History**

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Abstract: COVID-19 pandemic has affected social and economic life all over the World. Healthcare systems have been affected, as well, since many countries have been caught unprepared to the pandemic. Already overcrowded Emergency departments faced a risk of great number of presentations. In this article, we investigated approaches of different countries to the risk of overcrowding and aimed to provide a guide for future outbreaks in the light of current experiences.

Keywords: COVID-19, overcrowding, healthcare policy.

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INTRODUCTION

A series of pneumonia of unknown origin were identified in China in December 2019. Lately, the etiological agent was declared as 2019 novel coronavirus (2019-nCoV). The World Health Organization (WHO) announced that the situation was a pandemic [1, 2]. Then, the virus has spread throughout the World and affected the socio-economic status of countries like never before. Not only in underdeveloped countries, but also in developed countries, healthcare systems faced the risk of collapsing. In the Emergency Medicine literature, overcrowding in Emergency Departments (ED) is described as a major public health problem due to degradation of the quality of care (prolonged waiting times, delays to diagnosis and treatment, delays in treating seriously ill patients), increased costs (leading to unnecessary diagnostic investigations), and patients' dissatisfaction [3]. Before the COVID-19 outbreak, the problem of overcrowding and overuse in ED was raised in several countries of the World. It was associated with increased mortality, delayed care, high rates of workplace violence and reduced physician job satisfaction [4-6]. Besides factors

contributing to increased patient volume within the ED such as limited physical space and availability of bed space in the intensive care unit, increasing proportions of geriatric individuals in the general population, personnel shortages, delayed consultation with specialists, and delays in imaging and laboratory services, non-urgent patients' use of EDs, rather than primary care settings makes EDs more problematic and chaotic [7]. In this narrative review, we aimed to reveal effects of COVID-19 pandemic on healthcare facilities by giving examples of experiences from all over the World.

MATERIALS AND METHODS

We entered the keywords "COVID-19", "emergency department" and "overcrowding" to the scientific database Pubmed®. A total of 54 results were obtained. Of these publications, those without full-text or explanatory abstract were excluded. Publications in other languages than English were also excluded. The publications were evaluated according to their relevance to the study subject. When a disagreement occurred among two reviewers, it was consulted with the 3rd

reviewer. Finally, a total of 31 publications (including original articles, reviews, case reports, case series, letters and correspondences, websites) were included into the study.

DISCUSSION

With emergence of the pandemic, number of cases increased rapidly worldwide. The World was caught off guard and even developed countries with strong healthcare infrastructures wobbled under the burden of the disease [8]. The resources in lower-middle income countries were already limited. Moreover, Even in developed countries like the United States, the supply of ventilators and protective equipment is inadequate [9]. Common challenges are known to be disruption of normal supply chain and insufficient quantity of consumables. For instance, healthcare facilities should constitute isolation wards, EDs and intensive care units (ICUs) with negative pressure [8]. However, most of the facilities could not meet the demands. Demand for oxygen support and hospital beds have been major problems in many countries [10].

Number of healthcare personnel was also a problem. People could have the chance to stay at home in order to reduce viral spread but the condition was opposite for the health care workers. Increased workload and working hours put them at higher risk of infection [11, 12]. Particularly in isolated COVID-19 wards, additional staff was required [13]. When a gap occurs in the number of staff, this gap was filled with emergency care providers and also to professionals working in nursing homes [14].

As the pandemic progressed, almost in all EDs around the World, a drop in ED presentations and decrease in hospital occupancy was determined [15]. While the number of patients with important diseases that can be treated has decreased, due to fear of getting infected, the number of children without serious diseases almost diminished in many EDs [4]. As the number of non-emergent patients decreased, the number of emergent patients with severe pathologies increased. The COVID-19 pandemic and the following lockdown unveiled the inappropriateness of the majority of ED presentations and consultations [16].

In Syria, even though some measures were taken, shortages in healthcare staff, protective equipment and a lack of effective infection prevention and control measures pressurized the remaining healthcare workers [17].

In Australia, ED crowding reduced by %30-40 and elective surgeries were canceled in order to increase hospital bed capacity [18, 19]. At the other hand, patients who meet test criteria for COVID-19 tended to increase. A need for a real-time tools and data to guide clinical decision making for ED physicians arises [20].

In the US, it was reported that ICU and medical floor capacity in city hospitals were severely overwhelmed with COVID-19 patients, while equally sick admissions overwhelmed the emergency departments. As an inevitable result, critical patients had to wait for days for admission to the hospitals [10].

In some countries like Brasil, health literacy may also be a problem in the warfare against the pandemic. As a developing country, several factors make these people more vulnerable to contamination. The type of employment relationship, the daily need to use public transport, poor access to healthcare, low rate of social isolation, and, as mentioned above, low health literacy may cause rapid virus spread. The weak infrastructure of healthcare facilities, overcrowding of hospitals, lack of equipment and staff may contribute to chaotic environment [21].

In Africa, people tend to live in high-density residential suburbs and informal settlements with insufficient service delivery. A risk for virus spread arises in such territories lacking major investments to get prepared for the pandemic outbreak [22].

In Korea, a remarkable increase in COVID-19 cases was determined. As the number of the cases increase, number of admissions to the ED also increases causing an overcrowd. In order to prevent overcrowding, Korean government constituted Drive-Through (DT) and Walk-Through (WT) tests to provide a rapid screening. The DT tests are generally conducted in large low-traffic areas, such as public parking or stadium parking lots. On the other hand, the WT tests can be performed in a clean testing booth that can be installed near the hospital [23]. So, people did not need to go to hospitals for COVID-19 testing. Additionally, by this method, energy of hospital staff and resuable equipment was saved.

Korea also designed novel treatment centers outside hospitals for patients needing isolation. These centers played an essential role in avoiding virus spread. In these centers, strict isolation and active surveillance of patients could be possible. Also risk for cross-infections could be reduced [24].

Italy also experienced a significant reduction in ED admissions. People did not attend to the hospitals in order to minimize contact with the virus [25]. In some places of Italy, 112 emergency service was also overwhelmed by an enormous number of calls [26]. A team that manages patient flow to hospitals was instituted. With this critical response contributed to decrease in overcrowding [4].

Greece was struggling with an economical crisis when the pandemic reached to its borders. As a result of refugee crisis with Turkey, thousands of refugees were trying to enter Greece. Greece designed

facilities outside the refugee camps. Thus, crowding of the hospitals was avoided and an access to healthcare was maintained [27].

In Spain number of infected healthcare providers was a problem. Spain had the highest number of infected workers with 10% of the healthcare population. Such a situation causes an increase in the burden of remaining professionals [28].

In Taiwan, pre and post pandemic ED visits were evaluated and a reduction of 33.4% was determined. This decline occurred due to effects of pandemic measures taken by the Ministry of Health [5].

Turkey also experienced a significant drop in emergency service admissions as a result of measures taken to prevent the spread of Covid-19 infection have caused. As in other countries, risk for deaths at home and worsening of health condition in patients with chronic diseases increases. So, patients may present to hospitals with irreversible complications. Public should be informed about how and when to apply to EDs in the COVID-19 era [29].

Even though it was reported in several studies that number of trauma patients decreased in EDs due to decreased driving in lockdown period, when minor trauma at homes is considered even an increase in trauma frequency was reported [30].

CONCLUSION

COVID-19 symptoms mimic upper respiratory system infections and difficult to distinguish in the ED. At admission to the ED, these patients may present a spectrum of symptoms varying between atypical presentations (characterized by a mild increase in respiratory rate, in face of severe hypoxia probably due to their normal or only partially impaired respiratory mechanics and acute respiratory distress syndrome (ARDS) [31]. This challenge puts staff on the front-line at risk of infection. There is need for a close and constant monitorization of staff to avoid spread of the virus to other personnel, patients and family members [11].

In many countries, even before the pandemic, people tended to use EDs for non-urgent diseases in an understanding that EDs are places to do several tests together, free of charge and without waiting lists [4].

In countries that COVID-19 wards were designed apart from EDs, number of ED presentations declined dramatically. Fear of people from being infected in crowded EDs has played an important role in this condition. Decrease in non-urgent ED visits during COVID-19 pandemic should be evaluated in terms of actual demand of EDs [5]. The decrease has shown us that EDs have been misused for a long time.

It is rationale to manage COVID-19 patients in separate places apart from EDs since number of real urgent patients does not decrease (but also increases). With this method, also transmission of the virus to non-COVID-19 patients (myocardial infarction, cerebrovascular disease, trauma, intoxication, asthma/chronic obstructive pulmonary disease, heart failure, abdominal emergencies) can be avoided. In these separate places (facility, ward, etc.), personnel should be constituted from other wards than EDs.

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