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Letter from Turkey: Impact of COVID-19 on respiratory diseases

The coronavirus disease 2019 (COVID-19) pandemic has imposed enormous burden of responsibility and work on the healthcare systems in Turkey, particularly on the facilities of respiratory medicine as in many other countries from Europe to Asia and America. As the most dominant clinical manifestation of COVID-19 has been severe life-threatening respiratory involvement, most of the presentations and admissions have been to respiratory hospitals or departments of respiratory medicine and intensive care units (ICU) in public or university hospitals.[1–3]

To give a close-to-accurate and real-life impression regarding the impact of COVID-19 on respiratory medicine in Turkey, the combined pools of the pertinent 12-month pre-pandemic and 15-month pandemic data of the three high-volume pandemic hospitals are used in this article (Table 1). These hospitals are Dr. Suat Seren Training and Research Hospital for Thoracic Medicine and Surgery, Yedikule Training and Research Hospital for Thoracic Medicine and Surgery and Ataturk Training and Research Hospital for Thoracic Medicine and Surgery. All are respiratory hospitals affiliated to the University of Health Sciences-Turkey and located in the most populous three cities: Izmir, Istanbul and Ankara, respectively. An official permission from the director of each hospital has been obtained for using the pertinent data of the corresponding hospital in this article.

There was a 23.9% decrease in the total hospital presentations during the first 15 months of the pandemic compared to those in the previous 12 months. Similarly, there were drops of 18.1% in the total, 29.8% in the pulmonary ward and 6.7% in the ICU admissions, but a 14.7% rise in admissions to the other departments that took care of only non-COVID patients. These observations from Turkey are consistent with those in Europe, United States and Korea. In a nationwide study from South Korea,[4] the admissions for pneumonia, influenza, chronic obstructive pulmonary disease (COPD) and asthma decreased substantially in the period of February–July 2020. In contrast, there were no significant changes in the admissions for other acute and chronic conditions (diabetic ketoacidosis or hyperosmolar hyperglycaemia, intracranial haemorrhage, myocardial infarction and cancer) compared to the predicted values or previous 4-year means. The admissions for COPD and asthma dropped to 58% and 48% of the preceding 4-year means, respectively. These findings suggested that the decreases in COPD and asthma admissions could not be attributable only to the alteration in healthcare seeking behaviour, but were more likely to be associated with the decrease in respiratory infections due to non-pharmaceutical interventions to mitigate the impact of COVID-19 pandemic. Considering the increasing mortality rates with pneumonia during the pandemic, the cause of the decreasing hospital presentations and admissions in Turkey might, more likely, be the alteration in healthcare seeking behaviour (choosing non-pandemic hospitals and/or avoiding hospitals, etc.) than decreasing respiratory infections (Table 1).

The COVID-19 patients comprised 7.2% of the overall hospital presentations, and 26.5% of the overall, 39.4% of the pulmonary ward and 26.1% of the ICU admissions. Considering the presentation rate, the 0.72% overall and 0.095% ICU admission rates for COVID-19 in a total of 1,481,627 presentations are relatively high in this representative patient population in Turkey compared to those reported in large population cohorts: 0.02% and <0.01%, respectively, with a 15.4% prevalence of respiratory diseases.[2] Although there were high rates of admissions in the first 3 months of the pandemic due to policies in effect,[3] the usual high number of presentations naturally to the three respiratory hospitals by patients with underlying respiratory diseases was, probably, the major cause of the increased overall and ICU admissions. Patients with underlying respiratory diseases increase overall hospital and ICU admissions for COVID-19 significantly to 25.5% and 17.8%, respectively.[1,2]

During the pandemic, the number of bronchoscopic and non-bronchoscopic procedures decreased by 48.0% and 21.9%, respectively. As an aerosol-generating procedure, bronchoscopy creates challenges for healthcare providers during the pandemic. A rational approach for reducing potential spread of COVID-19 is practicing a tier system for prioritizing the urgency of bronchoscopic procedures and postponing elective ones besides using aerosol-reducing and viral transmission-reducing protocols. Similar tier systems and protocols practiced in Turkey have contributed to the reduction in the conventional and interventional bronchoscopic procedures. The drop in non-bronchoscopic (pleural and transthoracic) procedures was less striking because a less strict tier system was practiced as they are not high-risk aerosol-generating procedures.

In hospitalized patients, the all-cause overall mortality considerably increased from the 5.13% pre-pandemic rate to 7.04% during the pandemic. For COVID-19 patients, the in-hospital all-cause mortality was 1.19% within all hospitalized patients, and 4.5% within all hospitalized COVID-19 patients while it was slightly increased from 5.13% to 5.55% for non-COVID patients. Regarding the disease-specific

TABLE 1 Hospital presentations, admissions, procedures and all-cause and disease-specific in-hospital mortality rates before and during COVID-19 pandemic (combined data of three hospitals)

	March 2019–March 2020	March 2020–June 2021		
	Total	Total	COVID-19 patients	Non-COVID-19 patients
Hospital presentations, *n* (%)	1,947,418	1,481,627 (23.9% ↓)[a]	106,304 (7.2%)	1,375,323
Admissions, *n* (%)				
All	49,435	40,491 (18.1% ↓)[a]	10,729 (26.5%)	29,762
In pulmonary wards	33,642	23,617 (29.8% ↓)[a]	9316 (39.4%)	14,301
In all ICUs	5796	5407 (6.7% ↓)[a]	1413 (26.1%)	3994
In other departments	9997	11,467 (14.7% ↑)[b]	—	11,467
Procedures, *n* (%)				
Bronchoscopic	21,786	11,329 (48.0% ↓)[a]	—	—
Non-bronchoscopic	10,078	7874 (21.9% ↓)[a]	—	—
In-hospital mortality (%)				
All-cause	5.13	7.04	1.19[c]	5.55
			4.5[d]	
Lung cancer	5.17	5.07	7.67	4.73
COPD	1.50	1.38	2.38	0.94
Interstitial lung disease	1.01	1.64	2.52	1.29
Pneumonia	1.94	2.69	2.86	2.32
Asthma	0.32	0.66	1.65	0.23
Tuberculosis	1.86	1.82	1.27	1.88

Abbreviations: COPD, chronic obstructive pulmonary disease; COVID-19, coronavirus disease 2019; ICU, intensive care unit.
[a]Percentage decrease.
[b]Percentage increase.
[c]Mortality within all hospitalized patients.
[d]Mortality within hospitalized COVID-19 patients.

overall mortality rates, there were notable increases for pneumonia and interstitial lung disease, a slight increase for asthma and no significant change for tuberculosis. The disease-specific mortality rates for COVID-19 patient population were remarkably increased with underlying lung cancer (from 5.17% to 7.67%) and interstitial lung disease (from 1.01% to 2.52%), while they were moderately increased with COPD, pneumonia and asthma but showed no significant change with tuberculosis. The disease-specific mortality rates for non-COVID patients did not show any significant changes. In our three-hospital cohort, the overall COVID-19 mortality within hospitalized COVID-19 patients (4.5%) is consistent with those in two nationwide cohorts from Turkey (4.5%) and the UK (4.1%). Furthermore, considerably increased COVID-19 mortality with underlying lung cancer and interstitial lung disease, and modestly increased mortality with COPD, pneumonia and asthma are also comparable to those in these cohorts.[2,3]

COVID-19 pandemic has considerably impacted patients with respiratory diseases, respiratory health facilities and respiratory medicine. Severe disease, long-haul disease and death, disruptions in respiratory health services related to staff, resources and finance, and disruptions in education, training and research in respiratory medicine are only the most prominent reflections of this impact. However, healthcare workers in respiratory health facilities have also learned and gained experience considerably from the bitter face of this pandemic. The accumulated knowledge and experience will be beneficial for preparedness and rational management of the current and future pandemics. Out of evil comes good!

KEYWORDS

clinical respiratory medicine, COVID-19, respiratory infections (non-tuberculous)

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CONFLICT OF INTEREST

None declared.

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