

COVID-19 Pandemic: Egyptian Health Care Providers Burn Out

Esmael Ali Hamed*

Vascular and Endovascular Surgery Consultant, Mansoura New General Hospital (International) and Head of Vascular Surgery Department at Mansoura Health Insurance Hospital, Mansoura, Egypt

***Corresponding Author:** Esmael Ali Hamed, Vascular and Endovascular Surgery Consultant, Mansoura New General Hospital (International) and Head of Vascular Surgery Department at Mansoura Health Insurance Hospital, Mansoura, Egypt.

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Abstract

Coronavirus disease 2019 (COVID-19) is an infectious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The disease was first identified in December 2019 in Wuhan, the capital of China's Hubei province, and has since spread globally, resulting in the ongoing 2019–20 coronavirus pandemic [1].

Keywords: COVID-19; Chest Infection; ARDS; Public Health; Atypical Pneumonia; Viral Infection; Pandemic

Figure 1: Egyptian team (doctor, nurse, health care providers).

Common symptoms include fever, cough, and shortness of breath. Other symptoms may include muscle pain, sputum production, diarrhea, sore throat, loss of smell, and abdominal pain. While the majority of cases result in mild symptoms, some progress to viral pneumonia and multi-organ failure. As of 4 April 2020, more than 1.15 million cases of have been reported in more than two hundred countries and territories, resulting in over 62,300 deaths. More than 237,000 people have recovered [2].

The virus is mainly spread during close contact, and by small droplets produced when people cough, sneeze, or talk. These small droplets may be produced during breathing but the virus is not generally airborne. People may also catch COVID-19 by touching a contaminated surface and then their face. The virus can survive on surfaces up to 72 hours. It is most contagious during the first 3 days after symptom onset, although spread may be possible before symptoms appear and in later stages of the disease. Time from exposure to onset of symptoms is generally between two and fourteen days, with an average of five days [3]. The standard method of diagnosis is by reverse transcription polymerase chain reaction (rRT-PCR) from a nasopharyngeal swab. The infection can also be diagnosed from a combination of symptoms, risk factors and a chest CT scan showing features of pneumonia [4].

Recommended measures to prevent infection include frequent hand washing, social distancing (maintaining physical distance from others, especially from those with symptoms), covering coughs and sneezes with a tissue or inner elbow, and keeping unwashed hands away from the face. The use of masks is

recommended for those who suspect they have the virus and their caregivers. Recommendations for mask use by the general public vary, with some authorities recommending against their use, some recommending their use, and others requiring their use. Currently, there is no vaccine or specific antiviral treatment for COVID-19. Management involves treatment of symptoms, supportive care, isolation, and experimental measures [5].

The World Health Organization (WHO) declared the 2019–20 coronavirus outbreak a Public Health Emergency of International Concern (PHEIC) on 30 January 2020, and a pandemic on 11 March 2020. Local transmission of the disease has been recorded in many countries across all six WHO regions.

Those infected with the virus may be asymptomatic or develop flu-like symptoms, including fever, cough, fatigue, and shortness of breath. Emergency symptoms include difficulty breathing, persistent chest pain or pressure, confusion, difficulty waking, and bluish face or lips; immediate medical attention is advised if these symptoms are present. Less commonly, upper respiratory symptoms, such as sneezing, runny nose, or sore throat may be seen [6-8].

Symptoms such as nausea, vomiting, and diarrhea have been observed in varying percentages. Some cases in China initially presented only with chest tightness and palpitations. In March 2020 there were reports indicating that loss of the sense of smell (anosmia) may be a common symptom among those who have mild disease, although not as common as initially reported. In some, the disease may progress to pneumonia, multi-organ failure, and death. In those who develop severe symptoms, time from symptom onset to needing mechanical ventilation is typically eight days [9,10].

Transmission

Some details about how the disease is spread are still being determined. WHO and CDC state that it is primarily spread during close contact and by small droplets produced when people cough, sneeze, or talk; with close contact being within 1–3 m (3 ft 3 in–9 ft 10 in). A study in Singapore found that an uncovered coughing can lead to droplets travelling up to 4.5 meters (15 feet).

Respiratory droplets may also be produced during breathing out, including when talking. Though the virus is not generally airborne, The National Academy of Science has suggested that bio-aerosol transmission may be possible and air collectors positioned in the hallway outside of people's rooms yielded samples positive for viral RNA. The droplets can land in the mouths or noses of people who are nearby or possibly be inhaled into the lungs. Some medical procedures such as intubation and cardiopulmonary resuscitation (CPR) may cause respiratory secretions to be aerosolised and thus result in airborne spread [11].

The WHO has published several testing protocols for the disease. The standard method of testing is real-time reverse transcription polymerase chain reaction (rRT-PCR). The test is typically done on respiratory samples obtained by a nasopharyngeal swab, however a nasal swab or sputum sample may also be used. Results are generally available within a few hours to two days. Blood tests can be used, but these require two blood samples taken two weeks apart and the results have little immediate value. Chinese scientists were able to isolate a strain of the coronavirus and publish the genetic sequence so laboratories across the world could independently develop polymerase chain reaction (PCR) tests to detect infection by the virus [12].

As of 19 March 2020, there were no antibody tests though efforts to develop them are ongoing. The FDA approved the first point-of-care test on 21 March 2020 for use at the end of that month. Diagnostic guidelines released by Zhongnan Hospital of Wuhan University suggested methods for detecting infections based upon clinical features and epidemiological risk. These involved identifying people who had at least two of the following symptoms in addition to a history of travel to Wuhan or contact with other infected people: fever, imaging features of pneumonia, normal or reduced white blood cell count, or reduced lymphocyte count [13,14].

A March 2020 review concluded that chest X-rays are of little value in early stages, whereas CT scans of the chest are useful even before symptoms occur. Typical features on CT include bilateral multilobar ground-glass opacities with a peripheral,

asymmetric and posterior distribution. Sub pleural dominance, crazy paving (lobular septal thickening with variable alveolar filling) and consolidation develop as the disease evolves. As of March 2020, the American College of Radiology recommends that «CT should not be used to screen for or as a first-line test to diagnose COVID-19».

Mechanical ventilation

Most cases of COVID-19 are not severe enough to require mechanical ventilation (artificial assistance to support breathing), but a percentage of cases do. Some Canadian doctors recommend the use of invasive mechanical ventilation because this technique limits the spread of aerosolized transmission vectors. Severe cases are most common in older adults (those older than 60 years and especially those older than 80 years). Many developed countries do not have enough hospital beds per capita, which limits a health system’s capacity to handle a sudden spike in the number of COVID-19 cases severe enough to require hospitalization. This limited capacity is a significant driver of the need to flatten the curve (to keep the speed at which new cases occur and thus the number of people sick at one point in time lower). One study in China found 5% were admitted to intensive care units, 2.3% needed mechanical support of ventilation, and 1.4% died. Around 20-30% of the people in hospital with pneumonia from COVID19 needed ICU care for respiratory support? A number of organizations are using 3D printing to produce various needed equipment [15].

Acute respiratory distress syndrome

Mechanical ventilation becomes more complex as ARDS develops in COVID-19 and oxygenation becomes increasingly difficult. Ventilators capable of pressure control modes and high PEEP are needed to maximize oxygen delivery while minimizing the risk of ventilator-associated lung injury and pneumothorax. High PEEP may not be available on older ventilators [16].

Post-infection treatments

According to two organizations tracking clinical trial progress on potential therapeutic drugs for COVID-19 infections, 29 Phase

II-IV efficacy trials were concluded in March 2020 or scheduled to provide results in April from hospitals in China – which experienced the first outbreak of COVID-19 in late 2019. Seven trials were evaluating repurposed drugs already approved to treat malaria, including four studies on hydroxychloroquine or chloroquine phosphate. Repurposed antiviral drugs make up most of the Chinese research, with nine Phase III trials on remdesivir across several countries due to report by the end of April.

Chloroquine, previously used to treat malaria, was studied in China in February 2020, with positive preliminary results. However, there are calls for peer review of the research. The Guangdong Provincial Department of Science and Technology and the Guangdong Provincial Health and Health Commission issued a report stating that chloroquine phosphate “improves the success rate of treatment and shortens the length of person’s hospital stay” and recommended it for people diagnosed with mild, moderate and severe cases of novel coronavirus pneumonia [17].

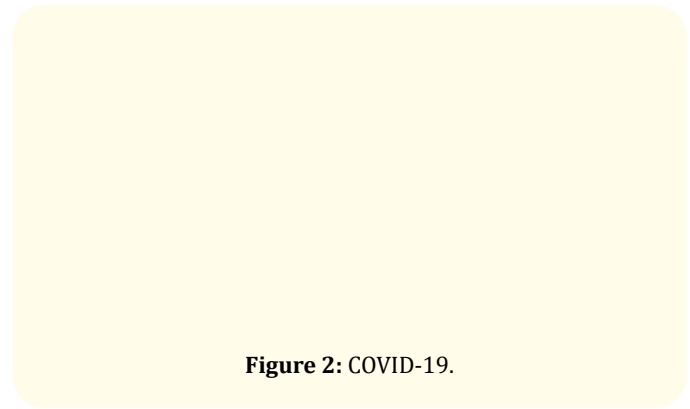


Figure 2: COVID-19.

Egyptian situation and experience

Ministry of Health revealed the mechanisms of receiving suspected cases of coronavirus at fever hospitals, examining them and dealing with them.

The patient is kept in an isolation room upon arrival at the hospital in order to prevent the spread of the virus. The hospitals are equipped with isolation rooms for patients, as well as doctors and nurses in contact with the patients. Patients are then monitored

around the clock, undergo chest x-rays and necessary tests, and their temperature is measured every 8 hours. They start wearing protective clothing once the infection is confirmed. A double sample is taken from the patients' mouths and noses to determine which type of virus they are carrying; they are not only tested for Covid-19. Medium Care departments have been recently established inside hospitals to receive patients infected with coronavirus, with isolation beds for old and young men and women to rapidly deal with the cases.

If the patients test negative for Covid-19 and have medium respiratory symptoms, they are transferred to isolation units and continue their treatment inside the hospital. If they test positive, they are immediately transferred to one of the isolation hospitals, whether to Negela Hospital in Marsa Matrouh or any other isolation hospital. The nursing staff is also equipped to deal with all cases, and receive coronavirus patients in separate clinics to prevent the spread of the virus to the rest of the patients at other clinics.

CAIRO - Egypt has taken tougher measures to curb the spread of the novel coronavirus after the number of confirmed cases has risen to 166 with four deaths in the country. Egyptian Prime Minister said on Monday his government will suspend all passenger flights to and from Egyptian airports. "The flights will be suspended starting from March 19 noon until March 31", he said in a televised press conference, adding that the suspension period would be also used to sterilize hotels and tourist attractions in the country.

He added that that the government will also reduce the presence of government employees in order to control the spread of the virus. He said that there is complete coordination with all state agencies to secure food stuff and goods, noting that Egypt has enough goods that are sufficient for several months to come. The prime minister also stressed that coordination was made between the Minister of Interior and Minister of Supply to tackle, with utmost severity and firmness, the practices that individuals might take to hide some goods or increase the prices of certain items.

He urged Egyptians to show responsibility and not to underestimate the danger of the virus, pointing out the measures against

the virus will cost the Egyptian economy heavy losses. Meanwhile, several governorates, including Egypt's two most populous governorates Cairo and Giza, banned on Monday smoking water pipes in coffee shops and public places in a move to control the spread of the coronavirus. The governorates also decided to ban weekly local markets to reduce gatherings in order to prevent the spread of the coronavirus.

The recent measures come as Egypt confirmed on Monday that two cases of COVID-19 died and 40 new cases were detected, bringing the confirmed cases of the novel coronavirus in the country to 166. In a statement, spokesman for Egyptian Health Ministry said a 72-year-old German man and 50-year-old Egyptian died, raising the COVID-19 death toll in Egypt to four. As of the evening of April 4, there were 1070 confirmed cases of Covid-19 and 71 deaths in Egypt. Egypt is implementing 14-day quarantine periods and other preventative measures in all cases.



Figure 3: Egyptian statistics of COVID-19.

Conclusion

Coronavirus disease 2019 (COVID-19) is an infectious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Considered now a pandemic. Every effort should be taken to save lives. Prevention, diagnosis and social distances are crucial. Many countries did some strategies to fight COVID-19, Health care providers (doctors, nurse staff, public health community, etc...) are the super heroes in this critical situation.

Conflict of Interest

There no financial or personal relationship with other people or organizations that could influence or bias the content of article.

Acknowledgment

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