Editorial

COVID-19: Global Threat

Provash Chandra Saha[1] Kedar Phadke[2]

[1]Department of Orthopaedic Surgery, National Institute of Traumatology and Orthopaedic Rehabilitation, Dhaka, Bangladesh
[2]Department of Spine Surgery, Narayan Spine Center, Baroda, Gujarat, India

Int J Recent Surg Med Sci 2020;6:2–3

The world is facing the toughest global threat, the ongoing outbreak of the respiratory disease that was recently given the name novel coronavirus disease 2019 (COVID-19). More than 1.3 million infected cases have been detected till date, worldwide. COVID-19 was recognized in December 2019. It was shown to be caused by a novel coronavirus that is structurally related to the virus that causes severe acute respiratory syndrome (SARS).

Li et al. provided a detailed clinical and epidemiologic description of the first 425 cases reported in the epicenter of the outbreak: the city of Wuhan in Hubei province, China. The median age of the patients was 59 years, with higher morbidity and mortality among the elderly and among those with coexisting conditions (similar to the situation with influenza); 56% of the patients were male. Of note, there were no cases in children younger than 15 years of age. Either children are less likely to become infected, which would have important epidemiologic implications, or their symptoms were so mild that their infection escaped detection.

According to Andrew Pollard, Professor of Pediatric infection and Immunity at the University of Oxford, in almost all circumstances, children are safe from severe COVID-19 disease, probably children, with immature immune systems are less capable of mounting cytokine storms to fight off viral infections. According to current evidence, COVID-19 virus is primarily transmitted between people through respiratory droplets (particles that are >5–10 µm in diameter referred to as respiratory droplets; when they are <5 µm in diameter, they are referred to as droplet nuclei.) and contact routes. In an analysis of 75,465 COVID-19 cases in China, airborne transmission was not reported.

World Health of Organization (WHO) continues to recommend droplet and contact precautions for those people caring for COVID-19 patients. WHO also continues to recommend airborne precautions for circumstances and settings in which aerosol generating procedures and support treatment are performed, according to risk assessment.

It seems surprising that the same virus, which doesn't seem to have mutated significantly as it has spread, leads to such widely differing reported mortality rates. And even within one country, the rate appears to change over time. In Italy, an epicenter of the COVID-19 outbreak, the death rate at the end of March stood at a sobering 11%. Meanwhile in neighboring Germany, the same virus led to fatality rates of just 1%. In China, it was 4%, while Israel had the lowest rate worldwide, at 0.35%. Among several factors the most important come down to simply how we are counting, as well as testing, cases. There are, in fact, two kinds of fatality rate. The first is the proportion of people who die who have tested positive for the disease. This is called the "case fatality rate." The second kind which is the "infection fatality rate" is the proportion of people who die after having the infection overall; as many of these will never be picked up, this figure has to be an estimate.

A case fatality ratio of an infectious disease measures the proportion of all individuals diagnosed with a disease who will die from that disease. For an emerging infectious disease, this ratio is thus a very important indicator not only of disease severity but also of its significance as a public health problem. Estimating the case fatality ratio for COVID-19 in real time during its epidemic is very challenging. The Chinese Centers for Disease Control and Prevention (CDC) reported that the case fatality ratio increases with age (from 0.2% of people aged 11–19 years to 14.8% of people aged ≥80 years), and with the presence of comorbid conditions (10.5% for cardiovascular disease, 7.3% for diabetes, 6.0% for hypertension, 6.3% for chronic respiratory disease, and 5.6% for cancer). The WHO–China Joint Mission on COVID-19 provided similar data and reported a case fatality ratio of 3.8%, based on the 55,924 laboratory-confirmed cases in China.

Address for correspondence
Provash Chandra Saha, MS, Department of Orthopaedic Surgery, National Institute of Traumatology and Orthopaedic Rehabilitation, Dhaka 1207, Bangladesh (e-mail: provashsaha71@gmail.com).

DOI https://doi.org/10.1055/s-0040-1713060
ISSN 2455-7420.

The efficiency of transmission for any respiratory virus has important implications for containment and mitigation strategies. According to current study, the estimated basic reproduction number (R0) of this novel corona virus is 2.2, which means that, on average, each infected person spreads the infection to an additional two persons. Until this number falls below 1.0, it is likely that the outbreak.

Like SARS (2002 and 2003) and Middle East respiratory syndrome (MERS; 2012 to the present), the two preceding instances of emergence of corona virus disease in the past 18 years, the COVID-19 outbreak has posed critical challenges for the public health, research, and medical communities.

Perhaps it will continue to spread. Recent reports of high titers of virus in the oropharynx early in the course of disease arouse concern about increased infectivity during the period of minimal symptoms. There is no specific medicine to prevent or treat COVID-19. People may need supportive care to help them breathe. If you have mild symptoms, stay at home until you've recovered. You can relieve your symptoms if you rest and sleep, keep warm, drink plenty of liquids, use a room humidifier, or take a hot shower to help ease a sore throat and cough.

The world is now desperate to find ways to slow the spread of the novel coronavirus and to find effective treatments. The antiviral drug, called favipiravir or Avigan has been used in Japan to treat influenza, and last month, the drug was approved as an experimental treatment for COVID-19 infections.

Chloroquine and hydroxychloroquine have been approved by the U.S. Food and Drug Administration (FDA) for the treatment of malaria, lupus, and rheumatoid arthritis, but preliminary research in human and primate cells suggests that the drugs could effectively treat COVID-19.

The FDA has currently approved use of remdesivir (which had been tried for treating Ebola virus infection) for compassionate use, meaning only patients with severe COVID-19 disease can be approved for treatment.

To quiet the cytokine storms, severe acute respiratory condition researchers are now trying an immunosuppressant known as Actemra or tocilizumab. The drug is approved to treat rheumatoid arthritis and juvenile rheumatoid arthritis. It blocks a cell receptor that binds something called interleukin 6 (IL-6). IL-6 is a cytokine or a type of protein released by the immune system that can trigger dangerous inflammatory cascades.

Losartan is a generic blood-pressure medication that some scientists are hoping could help patients with COVID-19. The University of Minnesota has launched two clinical trials using the inexpensive generic drug. Losartan works by blocking a receptor or doorway into cells that the chemical called angiotensin II uses to enter the cells and raise blood pressure. Severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2) binds to the angiotensin-converting enzyme 2 (ACE2) receptor, and it is possible as losartan can block those receptors, it may prevent the virus from infecting cells.

Infection prevention and control (IPC) during health care when COVID-19 infection is suspected.

WHO also emphasized on the following measures for comprehensive management of COVID-19 patients.

- IPC for the safe management of a dead body in the context of COVID-19.
- IPC guidance for long-term care facilities in the context of COVID-19. Consideration for quarantine of individuals in the context of containment for coronavirus disease (COVID-19)
- Health workers exposure risk assessment and management in the context of COVID-19 virus.
- Rational use of personal protective equipment for COVID-19. Advice on the use of masks.
- Home care for patients with suspected COVID-19 infection presenting with mild symptoms and management of contacts.

The COVID-19 outbreak is a stark reminder of the ongoing challenge of emerging and reemerging infectious pathogens. It also indicates the paramount of importance for constant surveillance, prompt diagnosis, and robust research to understand the basic biology of new organisms and our susceptibilities to them, as well as to develop effective countermeasures.

Conflict of Interest

None declared.

Reference

1 Li Q, Guan XG, Wu Pet al. Early transmission dynamics in Wuhan, China, of novel coronavirus–infected pneumonia. N Engl J Med 2020;382:1199–1207