



EDITORIAL

COVID-19, the pandemic that changed health and economy

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Pandemics like the one currently faced with the Coronavirus (SARS-CoV-2; COVID-19) are characterized as infectious diseases that spread over large geographic regions, practically at the same time, in several countries¹.

The pandemic emerged in the city of Wuhan in China and is believed to be related to the trade and ingestion of wild animals; however, there is uncertainty about various aspects of COVID-19's origin history, including which species have passed it on to a human being. SARS-CoV-2 is part of the beta-coronaviruses family that also includes SARS-CoV, both responsible for Severe Acute Respiratory Syndrome, and MERS-CoV, Middle East Respiratory Syndrome. Although there is a similarity, understanding the natural history of COVID-19 is essential to determine the possibilities of intervention, prognosis and course of the disease; however, data are extremely scarce, and the publications available are recent and still controversial².

The infectious process related to the replication of SARS-CoV-2 is similar to that of MERS-CoV and more potent than that of SARS-CoV, although lower than that of H1N1, and cells use receptors for the angiotensin-converting enzyme 2, ACE2, in hair cells, mucus-secreting cells, bronchial epithelium, type 1 pneumocytes and connective mucosa³. Viral replication directly implies the symptoms of COVID-19, since they arise around five days after infection, the viral incubation period, with multiple peripheral ground-glass opacities observed in the lung's subpleural regions, which probably induce a systemic and localized immune response, leading to increased inflammation⁴

These symptoms tend to regress completely on the thirteenth day, with resolution on the twentieth and

progressive increases in SARS-CoV-2 plasma immunoglobulin M (IgM) and immunoglobulin G (IgG) antibodies between the seventh and twentieth days. Concerning the immunological aspect, individuals will start to produce IgM, with a peak within seven days after exposure, characterizing active infection, and also the production of IgG, which occurs within 13 days, indicating previous virus contact. However, it is not known whether these antibodies allow permanent immunization⁵.

Thus, there will be a gap during the detection of IgM and IgG antibodies, although they are still crucial for mass testing. On the other hand, the RT-qPCR test is the reference standard for definitive diagnosis of COVID-19 infection, although there is a low rate of false negatives⁶.

The qPCR (quantitative real-time PCR) exam has high sensitivity and specificity, being widely employed in the laboratory diagnosis of several diseases, including for COVID-19, as described. However, its performance depends on specialized personnel, in addition to its high cost and platforms that are still difficult to access, resulting in a long time for results to be available to patients⁷.

There are difficulties in the diagnosis and management of patients with respiratory symptoms, which can develop the most severe form of the disease, requiring hospitalization in Intensive Care Units (ICU) for a better treatment response and consequently decrease mortality rate. However, the high demand of ICUs creates a burden on the health system and produces critical economic impacts, together with social isolation. All of these points produce a COVID-19's economic crisis that will have long and profound effects that can last for years, as the projected economic downturn is that Brazil's GDP will fall between 5 and 7% in 2020.

On the other hand, how to escape from the health crisis? Could we set up more field hospitals, or treat the population with mild symptoms, or invest in chloroquine prophylaxis? There is no reliable scientific basis for the effectiveness of this medication for the treatment of COVID-19's related symptoms. There is a need for research, and it is suggested that a controlled, double-blinded study with follow-up of chloroquine effects in the short and long term be carried out.

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What would be the final solution to combat COVID-19? There are no prophylactic measures and we do not have a vaccine. Would that be the time to end social isolation? Perhaps it is time to end the horizontal and install vertical isolation (only isolate risk groups) and

reopen the economy. Those questions are difficult to answer. The certainty we have is that this virus is and will be part of our life. Diagnosis and management will be improved, and drugs and vaccines will emerge, thanks to science.

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