

Two years after COVID-19

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At present, the infection caused by SARS-CoV-2 is one of the most important conditions facing the world. The first cases of pneumonia appeared at the end of 2019 in Wuhan, Hubei province in China, which quickly became an epidemic and rapidly spread to the rest of the world¹.

On December 31, the Chinese authorities alerted the World Health Organization, due to the continuing relationship of emerging cases with the Hunan market, which was eventually closed on January 1 for sanitization. On January 6, China's Center for Disease Control and Prevention activated a Level 2 emergency; later on January 8, the appearance of a new coronavirus was announced as the cause of these cases, and on January 9, the first genomic sequence of the virus was analyzed, this was carried out by the Chinese CDC, the new virus was named 2019-nCoV, and later on February 11, the WHO changed the name to SARS-CoV2.

The first reported case outside of China was on January 13 in Thailand, and on January 20, the CDC confirmed the first case in Washington, United States, that was associated with a man who traveled from Wuhan. Given the emergence of new cases on January 23, the Chinese government ordered the complete closure of this city; on January 30, the WHO declared a global health emergency, and thus on March 11, a pandemic was declared.

Since the first reported case in Wuhan, China, the local and finally global expansion has rapidly reached alarming levels. As of May 20, 2020, more than 4 million positive cases and more than 317,000 deaths have been reported globally¹⁻³. On April 5, 2021, there were

more than 130 million patients worldwide and more than 2.8 million people died of COVID-19 (Fig. 1)⁴.

There are currently around 300 million cumulative cases of COVID-19 and 5 million deaths from January 22, 2020, to January 6, 2022; in Mexico, there are around 4.6 million and a total of 303 thousand deceased between the same dates.

All branches of medicine and various specialties have seen the need to rapidly investigate this disease, its nosology and its propaedeutic. In addition, since it is a new disease, the information behaves in a changing way with respect to the time it is published^{3,5}.

We have witnessed events in other countries such as China and some in Europe, whose action plan has been fundamental in enriching knowledge and decision-making for our country³.

Since the beginning of the pandemic, the General Hospital of Mexico Dr. Eduardo Liceaga has been a "COVID" concentration hospital, implementing a hospital reconversion plan that allowed it to have adequate areas for the care of patients with COVID-19 due to the urgency sanitary. On March 23, 2020, the hospital received the first case of SARS-CoV-2. Subsequently, the Cardiology, Angiology, and Pneumology Tower and the Infectious Disease Service were converted with 68 general beds and 24 intensive care beds.

Given the increase in the demand for medical care, the Surgical Tower was converted, with 220 beds: 157 general, 53 intensive care, and 10 emergencies. In this first stage, 1300 health professionals dedicated themselves exclusively to COVID-19 care.

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In addition, five respiratory triage modules have been installed, located in the Pneumology Tower, Obstetric Emergencies, Pediatric Service, Medical-Surgical Emergencies, and personnel entrance.

During the 1st year of the pandemic, the General Hospital of Mexico “Dr. Eduardo Liceaga” treated 13,194 confirmed or suspected COVID-19 patients, thanks to the extraordinary work of its staff from different specialties and categories.

The causative agent is a new beta-coronavirus from the Coronaviridae family, named for its spherical lipoprotein capsule surrounded by multiple spicules (S-glycoproteins) that give it the appearance of a crown. Its genetic material inside is a single strand of positive-sense ribonucleic acid (RNA). Its genetic proximity to two coronaviruses present in bats makes it likely that this is its origin, with the possible participation of one or more intermediate hosts. The virus usually enters through the respiratory route and is fixed by the spicules to its receptor, the membrane protein angiotensin-converting enzyme Type 2, of Type II epithelial and alveolar cells. Once internalized, the RNA is released for transcription and replication.

The disease cycle can be divided into two parts, the first in which viral replication takes place and the second in which inflammation predominates⁵.

Regarding laboratory studies, the elevation of inflammation markers was frequent, the presence of lymphocytopenia (80%) and thrombocytopenia (36%). Elevation of D-dimer presents in 46% of hospitalized patients and elevation of troponin turns out to be markers of poor prognosis. In addition to the above, elevations of lactic dehydrogenase, lactate, and aminotransferases have been described⁵.

As the disease developed, many patients with suspected COVID-19 and who did not require an emergent need for hospital management could be managed at home with close follow-up by telephone. It was observed that the greatest care was between days 11 and 16 from the onset of the disease, which is when patients begin to have signs of pulmonary inflammation, oxygen desaturation, tachycardia, rapidly evolving dyspnea on exertion, and general malaise⁵.

About 15% of the cases that had severe COVID-19 required hospitalization and of those only 3% required intensive care and orotracheal intubation with mechanical ventilation, control of associated infection, reduction of inflammation and management of pulmonary thrombosis, as well as cardiovascular and hemodynamic support measures and oxygen supply in its different modalities.

The systemic management of the patient in the two phases mentioned is important, although it becomes

difficult, since there is still no robust experience in the management of some antivirals. The late phases then require the use of steroidal anti-inflammatory drugs, anticoagulants, nutrition, and antibiotics, however, more research is required and to think that what is valid today probably will not be tomorrow⁵.

The future of the disease will depend on prevention measures such as the use of face masks, keeping the distance between people, maintaining places with adequate ventilation, not going to massive events, as well as avoiding crowds in poorly ventilated places and in patients already diagnosed, with suggestive symptoms or who have had contact with a COVID-19 patient must remain in isolation^{4,5}.

As for health personnel, who maintain a close relationship with infected patients, using personal protective equipment is necessary and essential, but it is equally important to know the correct use of this equipment. For this, it is necessary to start with an evaluation of the exposure risk related to the activities carried out by health personnel, to have the equipment and material available, and to maintain their correct use^{3,4}.

Vaccination changed the course of the disease, this measure began in November 2020, the experience of traditional vaccines with live-attenuated viruses and the development of two different mechanisms of action were used, based on the management of messenger RNA in humans, that allows the immune portion of the virus to induce the immune cell response to give the information related to the virus to the lymphocyte and for it to react more quickly the next time it is in contact with it; there are three types of biologics and each one has shown different levels of efficacy; as of November 2021, more than 5 million vaccines have been applied worldwide with different percentages of complete schemes, currently, there is a talk of the use of a third dose that reinforces the aforementioned schemes. In small countries with resources such as Qatar and Israel, the percentage of vaccination is 90% of their population.

Faced with the need for a drug, multiple lines of research are found recently, the drug molnupiravir is in Phase 3, it is a ribonucleoside analog that inhibits the replication of SARS-CoV-2.

The possibility of reinfection in recovered patients, the duration of immunity, the impact of SARS-CoV-2 mutations, as well as the decrease in protection that vaccines may have are still some problems that are still under debate.

The world is currently experiencing an unprecedented crisis, we are in the midst of a pandemic, but we will learn a lot from it. The pain of illness and loss will come, we will value commitment to medical care, new

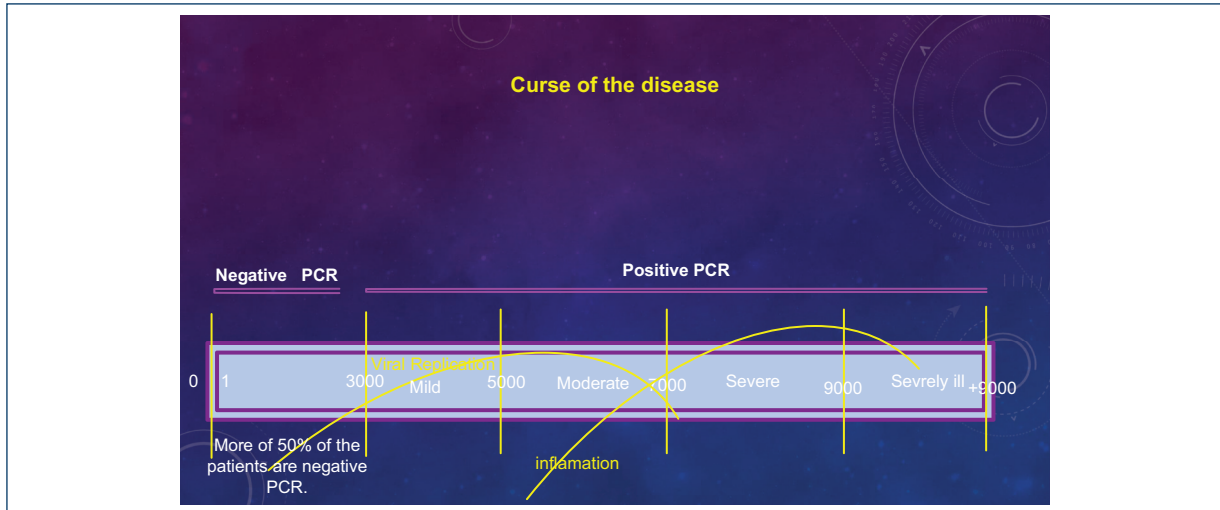


Figure 1. Timeline from the start of the pandemic to the present.

medicines and vaccines will appear. However, we will learn to take care of ourselves and take care of others.

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Conflicts of interest

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