

ABSTRACT

Coronavirus disease 2019 (COVID-19) was first described in the Chinese city of Wuhan in December 2019. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) was identified as the causative agent. It was quickly established that SARS-CoV-2 is transmitted through respiratory droplets when individuals are in close contact with asymptomatic or symptomatic carriers. The incubation period is around 5 days, and it is estimated in up to 97% of infected individuals symptoms will present within 14 days. To date, new presentations are being described. COVID-19 presentation spans from asymptomatic, mild disease to severe systemic disease. The most commonly described symptoms include pneumonia, dyspnea, dry cough, headache and fever. Various companies have developed quantitative polymerase chain reaction (qPCR) assays for the detection of SARS-CoV-2 from mainly nasopharyngeal or throat swab. Several serological tests have also now been approved for use. A lot has been learnt of the laboratory and clinical characteristics of this disease, questions still remain as to the actual pathophysiology leading to either asymptomatic, mild or severe disease. However, despite this, the disease carries the risk of sepsis and acute respiratory failure with increased number of death tolls, forced social distance and lockdowns in many countries. This review highlights key mechanisms that have been proposed to contribute to COVID-19 progression from viral entry to multisystem organ failure, as well as the central role of the immune response in successful viral clearance or progression to death. With the exception of when there is a pre-existing co-morbidity, most reports indicate severe disease occurring in the older population and mild disease or asymptomatic infection in children. Over 120 SARS-CoV-2 vaccines are at various stages of development. As the roll-out of approved vaccines is happening at different rates globally, the prescribed methods to reduce transmission remain facemasks, social distancing, and contact tracing.