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A Comprehensive Review of Pathogenesis, Clinical Manifestations, Complications, Diagnosis, and Investigational Therapeutics of COVID-19

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Abstract:

The novel coronavirus disease 2019 (COVID-19) outbreak started in early December 2019 in the capital city of Wuhan, Hubei province, People's Republic of China, and is declared a global pandemic by the World Health Organization (WHO). Coronaviruses were identified in the 1960s and have recently been identified as the cause of a Middle East respiratory syndrome (MERS-CoV) outbreak in 2012 and a severe acute respiratory syndrome (SARS) outbreak in 2003. The current SARS coronavirus 2 (SARS-CoV-2) is the most recently identified. We conducted a literature search in Pubmed, Scopus, and Google Scholar for the relevant articles that were further discussed. The most common sites of COVID-19 infection are the respiratory system and the lungs. Cardiovascular, liver, kidneys, gastrointestinal, and central nervous systems are also affected. Manifestations of COVID-19 include asymptomatic carriers and fulminant disease with a spectrum of clinical features from mild to severe life-threatening disease with major complications like severe pneumonia, acute respiratory distress syndrome, acute cardiac injury, gastrointestinal symptoms such as nausea, vomiting, abdominal pain, and diarrhoea; and septic shock. The diagnosis of COVID-19 should be based on imaging findings along with epidemiological history and nucleic acid detection. Currently, no therapeutics have been found to be effective. Management is primarily supportive, with newer antiviral drugs/vaccines under investigation. This review discusses current findings regarding the pathogenesis, clinical manifestations, complications, diagnosis, and investigational therapeutics of COVID-19.

Keywords: Coronavirus, SARS-CoV-2, COVID-19, pathogenesis, clinical manifestations, complications, diagnosis, and investigational therapeutics.