Hypothesis for potential pathogenesis of SARS-CoV-2 infection—a review of immune changes in patients with viral pneumonia.

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Abstract

Coronavirus disease 2019 (COVID-19) is an infectious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) with droplets and contact as the main means of transmission. Since the first case appeared in Wuhan, China, in December 2019, the outbreak has gradually spread nationwide. Up to now, according to official data released by the Chinese health commission, the number of newly diagnosed patients has been declining, and the epidemic is gradually being controlled. Although most patients have mild symptoms and good prognosis after infection, some patients developed severe and die from multiple organ complications. The pathogenesis of SARS-CoV-2 infection in humans remains unclear. Immune function is a strong defense against invasive pathogens and there is currently no specific antiviral drug against the virus. This article reviews the immunological changes of coronaviruses like SARS, MERS and other viral pneumonia similar to SARS-CoV-2. Combined with the published literature, the potential pathogenesis of COVID-19 is inferred, and the treatment recommendations for giving high-doses intravenous immunoglobulin and low-molecular-weight heparin anticoagulant therapy to severe type patients are proposed.

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