Pathophysiology and Treatment of Cytokine Storm in COVID-19

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Abstract

Prior to the current pandemic, the concept of cytokine storm was relatively unknown and relegated to few specialties such as oncology and rheumatology. Cytokine storm has been attributed to a dysregulation of the immune system and an overproduction of proinflammatory cytokines resulting in significant tissue damage (Tufan et al., 2020). This paper will discuss the pathophysiology of cytokine storm as it relates to patients with coronavirus disease 2019 (COVID-19). Cytokine storm affects a small subset of patients infected with COVID-19 and is thought to be associated with more severe forms of the disease. It is believed this exaggerated immune response leads to rapid disease progression including acute respiratory distress syndrome (ARDS), multiple-organ failure and sometimes death. Interleukin 6 (IL-6) is a pro-inflammatory cytokine that has been identified as an important factor involved in the development of cytokine storm. Tocilizumab is a selective cytokine blockade known as an IL-6 receptor antagonist that has been approved by the Food and Drug Administration for the treatment of cytokine release syndrome and is being considered for use in critical patients infected with COVID-19. This paper provides a general overview of Tocilizumab and accompanying nursing implications related to the care of patients with cytokine storm triggered by COVID-19. The purpose of this project is to develop a better understanding of COVID-19 and the unique pathology of cytokine storm.

Reference