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## **Haematological Parameters Associated with Severe Covid-19 Disease: A Review**

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COVID-19 is a pandemic disease caused by the novel coronavirus named SARS-CoV-2. COVID-19 infection causes multisystemic involvement, including the haematopoietic system. A majority of patients most frequently manifested with lower respiratory symptoms. However, a minority of critically ill patients due to disease progresses rapidly to acute respiratory distress syndrome, coagulopathy, and septic shock. Presently, growing evidence suggested the clinical utility of laboratory parameters as an early indicator in predicting disease severity in COVID-19 patients including haematological parameters. This review summarizes the reported abnormal haematological parameters associated with severe COVID-19 disease. We searched for published literature on haematological parameters in COVID-19 patients up to December 2020 through Google Scholar, Pubmed and SCOPUS. Common haematological abnormalities in COVID-19 disease includes leukocytosis, neutrophilia, lymphopenia, thrombocytopenia, altered coagulation profile and elevated D-dimer levels (1,2,3,4). These alterations are significantly observed in patients with severe disease and thus potentially served as possible biomarkers for those requiring hospitalization and intensive treatment. The severity of COVID-19 disease is closely associated with cytokine storm and venous thromboembolism. Cytokine storm is a state of hyperactive immune response that is injurious to the patient while the hypercoagulable state predisposes the patient to venous thromboembolism. Both of the events can be manifested via haematological parameters. An abnormal coagulation marker reflecting a state of heightened inflammation, activated coagulation and endothelial dysfunction which may predispose to a hypercoagulable state and poor outcome (5,6). The trend of the alterations in routine haematological tests and the disease severity, especially coagulation markers need further attention so that these readily available parameters could help to refine treatment decisions, anticoagulation strategies and overall prognostication for COVID-19 patients.

**Keywords:** COVID-19, severe, haematological parameters

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