An Updated Review on the Role of Single Nucleotide Polymorphisms in COVID-19 Disease Severity: A Global Aspect

ABSTRAK

Coronavirus disease 2019 (COVID-19) is caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and recently has become a serious global pandemic. Age, gender, and comorbidities are known to be common risk factors for severe COVID-19 but are not enough to fully explain the magnitude of their effect on the risk of severity of the disease. Single nucleotide polymorphisms (SNPs) in several genes have been reported as a genetic factor contributing to COVID-19 severity. This comprehensive review focuses on the association between SNPs in four important genes and COVID-19 severity in a global aspect. We discuss a total of 39 SNPs in this review: five SNPs in the ABO gene, nine SNPs in the angiotensin-converting enzyme 2 (ACE2) gene, 19 SNPs in the transmembrane protease serine 2 (TMPRSS2) gene, and six SNPs in the toll-like receptor 7 (TLR7) gene. These SNPs data could assist in monitoring an individual's risk of severe COVID-19 disease, and therefore personalized management and pharmaceutical treatment could be planned in COVID-19 patients.