

Disease-drug and drug-drug interaction in COVID-19: risk and assessment

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Abstract

COVID-19 is announced as a global pandemic in 2020. The emergent outbreak of COVID-19 prompted by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) keeps spreading globally. Its mortality and morbidity rate are rapidly increasing, and medication options are still limited. A patient's immune response plays a pivotal role in the pathogenesis of COVID-19. Hyperinflammatory state may sparks significant imbalances in transporters and drug metabolizing enzymes, and subsequent alteration of drug pharmacokinetics that may result in unexpected therapeutic response. The present scenario has accounted the requirement for therapeutic opportunities to relive and overcome this pandemic. Despite the fact, the diminishing developments of COVID-19, there is no drug still approved to have significant effects with no side effect. Based on the evidence, many antiviral and anti-inflammatory drugs have been authorized by the Food and Drug Administration (FDA) to treat the COVID-19 patients even though not knowing the possible drug-drug interactions. Hydroxychloroquine is the first medicine chosen for the treatment of disease. Remdesivir, favipiravir, and molnupiravir are deemed the most hopeful antiviral agent; by improving health of infected patients. The dexamethasone saved the lives of seriously ill patients. Many randomized and controlled clinical trials are taking place to further corroborate these agent's safety and efficacy in handling COVID-19. The current review summarizes the involvement of drug transporters and drug metabolizing enzymes for the existing drugs and gives the opinion on the potential drug-drug interactions in an inflammatory state. This may permit the individualization of these drugs thereby enhancing the safety and efficacy.

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