Statins: Could an old friend help the fight against COVID-19?

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Abstract

COVID-19 pandemic caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has overwhelmed Healthcare Systems requiring the rapid development of treatments, at least, to reduce COVID-19 severity. Drug repurposing offers a fast track. Here, we discuss the potential beneficial effects of statins in COVID-19 patients based on evidence that they may target virus receptors, replication, degradation and downstream responses in infected cells, addressing both basic research and epidemiological information. Briefly, statins could act modulating virus entry, acting on the SARS-CoV-2 receptors, ACE2 and CD147, and/or lipid rafts engagement. Statins, by inducing autophagy activation, could regulate virus replication or degradation, exerting protective effects. The well-known anti-inflammatory properties of statins, by blocking several molecular mechanisms, including NF-xB and NLRP3 inflammasome, could limit the "cytokine storm" in severe COVID-19 patients which is linked to fatal outcome. Finally, statin moderation of coagulation response activation may also contribute to improve COVID-19 outcomes.

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SARS-CoV-2 Complete infectious virion