Host cell stress response as a predictor of COVID-19 infectivity and disease progression

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Abstract

The coronavirus disease (COVID-19) caused by a coronavirus identified in December 2019 has caused a global pandemic. COVID-19 was declared a pandemic in March 2020 and has led to more than 6.3 million deaths. The pandemic has disrupted world travel, economies, and lifestyles worldwide. Although vaccination has been an effective tool to reduce the severity and spread of the disease there is a need for more concerted approaches to fighting the disease. COVID-19 is characterised as a severe acute respiratory syndrome . The severity of the disease is associated with a battery of comorbidities such as cardiovascular diseases, cancer, chronic lung disease, and renal disease. These underlying diseases are associated with general cellular stress. Thus, COVID-19 exacerbates outcomes of the underlying conditions. Consequently, coronavirus infection and the various underlying conditions converge to present a combined strain on the cellular response. While the host response to the stress is primarily intended to be of benefit, the outcomes are occasionally unpredictable because the cellular stress response is a function of complex factors. This review discusses the role of the host stress response as a convergent point for COVID-19 and several non-communicable diseases. We further discuss the merits of targeting the host stress response to manage the clinical outcomes of COVID-19.