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Methylene blue in covid-19

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Abstract

SARS-CoV-2 infection generally begins in the respiratory tract where it can cause bilateral pneumonia. The disease can evolve into acute respiratory distress syndrome and multi-organ failure, due to viral spread in the blood and an excessive inflammatory reaction including cytokine storm. Antiviral and anti-cytokine drugs have proven to be poorly or in-effective in stopping disease progression, and mortality or serious chronic damage is common in severely ill cases. The low efficacy of antiviral drugs is probably due to late administration, when the virus has triggered the inflammatory reaction and is no longer the main protagonist. The relatively poor efficacy of anti-cytokine drugs is explained by the fact that they act on one or a few of the dozens of cytokines involved, and because other mediators of inflammation - reactive oxygen and nitrogen species - are not targeted. When produced in excess, reactive species cause extensive cell and tissue damage. The only drug known to inhibit the excessive production of reactive species and cytokines is methylene blue, a low-cost dye with antiseptic properties used effectively to treat malaria, urinary tract infections, septic shock, and methaemoglobinaemia. We propose testing methylene blue to contrast Covid-related acute respiratory distress syndrome, but particularly suggest testing it early in Covid infections to prevent the hyper-inflammatory reaction responsible for the serious complications of the disease.

Keywords: COVID-19; Cytochine storm; Free radicals; Methylene blue.

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