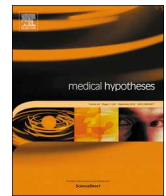




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Dapsone and doxycycline could be potential treatment modalities for COVID-19



To the editor,

The World Health Organization has announced COVID-19 as a pandemic in March 2020. COVID-19 is an infectious disease caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) [1]. It is presented by fever, sore throat and complicated by pneumonia and severe acute respiratory distress. It was shown that after the SARS-CoV-2 infection, CD4 + T lymphocytes are rapidly activated to become pathogenic T helper (Th) 1 cells and generate GM-CSF, interleukin “IL”-1 beta, IL-6, IL-8 and other cytokines. These cytokines environment stimulates inflammatory monocytes and accelerates the inflammation. These aberrant pathogenic Th1 cells and inflammatory monocytes may enter the pulmonary circulation in huge numbers and play a role in damaging the lung with functional disability and quick mortality [2].

Thus, we suggest that dapsone and doxycycline may be effective in blocking inflammatory storms and, therefore, be a promising treatment of severe COVID-19 patients. Dapsone, belongs to a class of drugs known as sulfones, suppresses production of specific cytokine signatures as IL1 α , IL8, IL1 β , IL6, and IL8 and tumor necrosis factor- α [3]. Doxycycline, a tetracycline antibiotic, is used for its antibiotic, anti-inflammatory properties and good safety profile. Doxycycline was demonstrated to have a bioavailability of over 80% [4] and impaired the neutrophil migration to the airspaces of the lung in mice exposed to intratracheal lipopolysaccharide [5]. Also, doxycycline showed efficacy in COPD by inhibiting the neutrophilic inflammation and proteolytic activity that can be present in late COVID-19 [6]. Given that cytokine storm and lung fibrosis sequelae are the devastating outcomes in COVID-19, we suggest that emerging clinical trials should assess the efficacy of dapsone, and/or doxycycline in improving pulmonary affection and the mortality outcome in COVID-19.

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Conflict of interest

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