

Chloroquine and Hydroxychloroquine in Coronavirus Disease-19: The Real Savior or a False-Positive Testament

A novel coronavirus disease (COVID-19) has spread all around the world. The progression from initial signs to a diagnosis of acute respiratory failure is usually related to spontaneous cytokine production. There is a growing need to classify appropriate medicines for treatment care. The inhibitory effect of chloroquine (CQ) is potential. However, CQ can lead to serious side effects. Various studies recommend hydroxychloroquine (HCO) have similar antiviral effect as of CQ and maybe a better therapeutic solution. Therefore, we aim to explore the mechanism by which HCQ can inhibit replication of coronavirus. Materials and Methods: A retrospective study was carried out using online databases from 2003 to 2020, Results: The obtained results showed that HCQ can inhibit viral replication and entry inside the cell through raising lysosomal pH and hindering to specific receptors on cells, thereby, preventing viral entry. Conclusion: HCQ has a better safety profile than CQ and also modulates cytokine syndrome. However, further studies are needed to explore this mechanism.

K : Chloroquine; Coronavirus disease-19; Hydroxychloroquine; Severe acute respiratory syndrome

I

In late December 2019, an emerging coronavirus disease (COVID-19) outbreak: caused by a novel coronavirus (named severe acute respiratory syndrome coronavirus. [SARS-CoV-2]) Later started in Wuhan, China, and expanded rapidly in China and worldwide. On March 12, 2020, the World Health Organization announced the COVID-19 outbreak pandemic. According to recent studies, approximately more than 80% of the infected patients presented with moderate level infections [1-3] and the total case-fatality rate is more than 5% but exceeds 12% in patients aged 70-79 and 20% in those aged 80 years. Therefore, there is an immediate need for adequate care to treat symptomatic patients but also to decrease the length of the propagation of the virus to reduce population transmission. Among potential candidate drugs to treat COVID-19. Repositioning old drugs for use as antivirals are an interesting strategy because of information about the safety profile, side effects, and dosage and drug interactions a number of studies have been recently shown to evaluate an appropriate therapeutic protocol for COVID-19. A recent study about chloroquine

2020 June 2020) of COVID-19 pandemic. The main objectives were determined and analyzed.

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For data analysis, descriptive statistics were used and data were analyzed using statistical package for the social science version 24.0.

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This study had some main valuable points that were explored.

D

Several antiviral drugs were tested for effectiveness in inhibiting replication of COVID-19 (SARS-CoV-2) in cell culture, and CQ is a drug renowned due to its efficacy in the management of malaria and autoimmune disease. Many trials were carried out to assess the action of CQ and HCQ in overline COVID-19 patients. Therapeutic outcomes were more prevalent in fever suppression, changes in CT imaging, as well as disease retardation. In the sixth edition of the latest pneumonia diagnosis and treatment program published through China's National Health and Care Commission in February 2020, CQ has officially declared a therapeutic agent for mathematical COVID-19. The suggested regimen in adults is 500 mg/day that is the human body average safe dose.

C

It is recommended that HCQ for the treatment of SARS CoV-2 infection in COVID-19 patients could function as a better therapeutic option than CQ because HCQ dampens the extreme advancement of COVID-19 infection by suppressing storm of cytokine release through decreasing the expression of CD154 on T cells. Furthermore, HCQ can have comparable antiviral effect in both early and later infection stages than CQ and due to the fact that it has fewer side effects, is healthy individuals, especially in pregnant women, and is widely available than

CQ. Given the increasingly rising COVID-19-infected patients, with the immediate requirement of efficient and safe medicines, it is also more realistic to identify and develop precise, particular, and more suitable medications than the secondary supportive medication such as CQ and HCQ.

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1. Lai CC, Shih TP, Ko WC, Tang HJ, Hsueh PR, et al. (2020) Severe acute respiratory syndrome Coronavirus 2 (SARS CoV-2) and Coronavirus disease-2019 (COVID-19) The epidemic and the challenges. *Int J Antimicrob Agents*: 55:105920-4.
2. Wang LS, Wang YR, Ye DW, Liu QQ (2020) A review of the 2019 novel Coronavirus (COVID-19) based on current evidence. *Int J Antimicrob Agents* 55:105944-8.
3. El Kaoutari, Armougom F, Gordon J (2013) The abundance and variety of carbohydrate-active enzymes in the human gut microbiota. *Nat Rev Microbiol*: 497–504.
4. Baumler AJ, Sperandio V (2016) Interactions between the microbiota and pathogenic bacteria in the gut. *Nature* 535: 85–93.
5. Hsiao A (2014) Members of the human gut microbiota involved in recovery from *Vibrio cholera* infection. *Nature* 515: 423-6.
6. Chung H (2012) Gut immune maturation depends on colonization with a host-specific microbiota. *Cell* 149: 1578–1593.
7. (2020) World Health Organization, Director-General's Opening Remarks at the Media Briefing on COVID-19.
8. Wu Z, Mc Googan JM (2020) Characteristics of and important lessons from the Coronavirus disease 2019 (COVID) 19 outbreak in china: Summary of a report of 72: 314.