Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Current Research in Translational Medicine 68 (2020) 81–82

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Editorial

Hydroxychloroquine in Covid-19: Does the end justify the means?

Beyond their well-known antiparasitic activity, both chloroquine and hydroxychloroquine (HCQ) have antibacterial, antifungal and antiviral properties, the latter against hepatitis A, B and C, human immunodeficiency virus, influenza and certain herpes viruses [1]. As reported by Gautret et al., treatment of Covid-19 patients with HCQ may rapidly reduce viral loads [2]. This strategy could potentially prove harmful to Covid-19 patients, especially those with minimally symptomatic disease. HCQ could limit the duration of exposure of the immune system to the virus. In addition, it has an immunosuppressive effect, this being the rationale for its use in patients with autoimmune disease [3].

Azithromycin, another antibiotic which has been combined with HCQ in the treatment of Covid-19, has immunomodulatory and anti-inflammatory properties for which it has been used in several respiratory diseases [4]. However, a large prospective, placebo-controlled study which was evaluating its use in allogeneic hematopoietic cell transplant recipients was stopped early because of a higher rate of relapse of hematological malignancies in the azithromycin arm [5].

From the perspective of antiviral immunity, a robust immune response requires both a healthy immune system and adequate duration of exposure to the virus. Thus, immunization responses in immunosuppressed patients can be suboptimal [6,7].

In the absence of an effective anti-Covid-19 vaccine, collective immunity, so-called 'herd immunity', has been proposed as a population-level strategy to manage this pandemic. Most countries have imposed lockdowns in an attempt to flatten the pandemic curve, to give health systems time to build capacity, and, ultimately, to allow for a progressive development of herd immunity.

Apart from the cardiovascular side-effects, the widespread use of HCQ and azithromycin could be detrimental to patients with minimally symptomatic disease. The anti-Covid-19 immune response may be insufficient or even absent in patients receiving HCQ with or without azithromycin, especially when the combination is given at the beginning of the disease course. These patients would remain at risk of contracting the disease again and be responsible for failure of the lockdown strategy (Fig. 1).

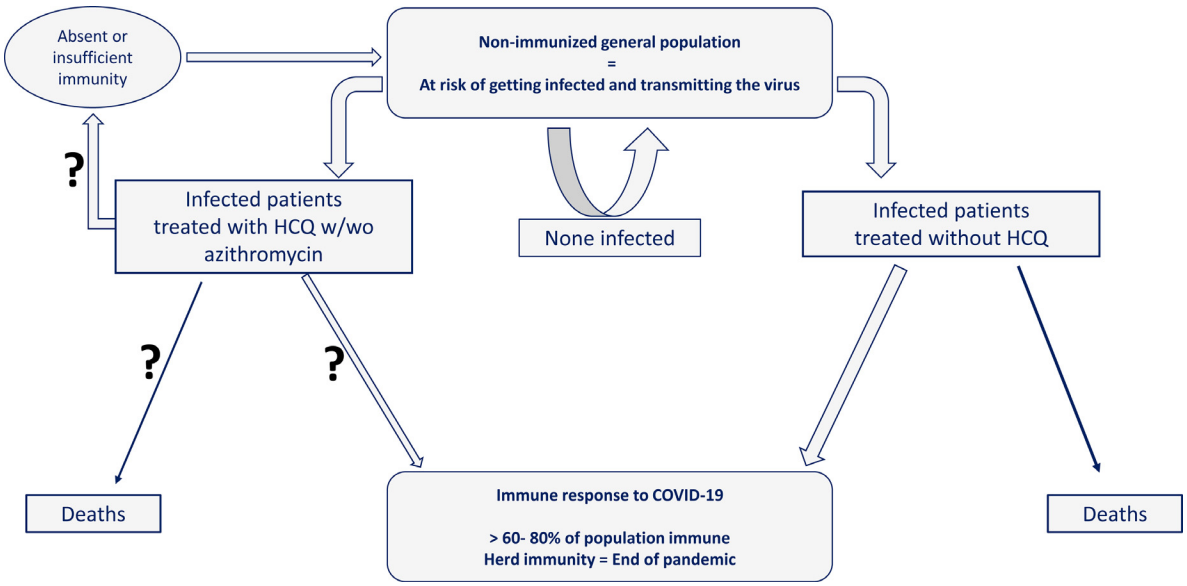

Fig. 1. Scenario on how hydroxychloroquine with/without azithromycin could be responsible for failure of the herd immunity, when used in minimally or asymptomatic individuals. HCQ: hydroxychloroquine.

http://dx.doi.org/10.1016/j.retram.2020.04.002

Following the first French report on the use of HCQ in Covid-19 patients [2], the use of antimalarials remains controversial. Despite this lack of proven efficacy, may countries, including developing nations, have proceeded to use these agents.

Given these concerns, priority should be given to the urgent assessment of anti-Covid-19 cellular and humoral immunity in patients who had already received antimalarial drugs before the healthcare community commits to their indiscriminate use in minimally or asymptomatic individuals.

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Received 14 April 2020

Available online 18 April 2020