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.

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Letter to Editors

Mass intake of hydroxychloroquine or chloroquine in the present context of the Covid-19 outbreak: Possible consequences in endemic malaria settings

In December 2019, a new viral outbreak appeared in central China, in Wuhan province. This coronavirus disease (COVID-19) spread within few months over all continents, causing numerous deaths and seriously disrupting both social and economic life. The absence of a curative treatment and an effective vaccine makes this struggle difficult, justifying current numerous testing of therapeutic molecules against this novel coronavirus.

Among these molecules, chloroquine (CQ) was tested in China during this current COVID-19 outbreak and seemed to have given good results. In the same order of ideas, many other reports suggested effectivity of CQ or hydroxychloroquine (HCQ) against SARS-CoV-2 [1,2].

As the number of Covid19 cases continue to rise worldwide without an "official" treatment, these two molecules become considered by many people as "the" solution to this pandemic.

The use CQ or HCQ by many individuals to protect themselves or to treat COVID-19 in malaria endemic areas is likely to have an impact on the local malaria prevalence. It's most likely that most of the people who will take CQ or HCQ would be plasmodium asymptomatic carriers [3] thus resulting in parasitaemia decrease or even suppression, depending on the posology administered and mostly if CQ-sensitive strains supplants CQ-resistant strains. Nevertheless, a rebound of malaria prevalence is to be feared some weeks after stopping CQ/HCQ intake due to the lack of associated control measures.

In parallel as CQ-resistant strains are still circulating, use of CQ could lead to selection of resistant strains bearing mutations on some *Plasmodium* genes involved in drug resistance. It will mainly depend on the posology and the treatment duration. However, many reports underline possible association between some Plasmodium genes and altered activity of other antimalarials, among which some drugs currently in use as partner-drug in Artemisinin-based combination therapy [4]. The current malaria control strategy could be at risk if CQ or HCQ are largely used and over a long time period.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.mehy.2020.109912.

References

[1] Clinical Trials Registry. http://www.chictr.org.cn/, accessed on 20th March 2020.
[2] Colson P, Rolain JM, Raoult D. Chloroquine for the 2019 novel coronavirus SARS-CoV-2. Int J Antimicrob Agents 2020:105923.
[3] Mvumbi DM, Bobanga L, Melin P, De Mol P, Kayembe N, Situakibanza NT, et al. High prevalence of Plasmodium falciparum infection in asymptomatic individuals from the Democratic Republic of Congo. Malar Res Treat 2016, Article ID 5405802. pmid:26942036.
[4] Coppée R, Sabbagh A, Clain J. Structural and evolutionary analyses of the Plasmodium falciparum chloroquine resistance transporter. Sci Rep 2020;10:4842.

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