

Hydroxychloroquine reports to EudraVigilance database during COVID-19

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Introduction:

Hydroxychloroquine is an antimalarial drug that belongs to the 4-aminoquinolone group. [1] Besides this property, it presents several immunomodulatory and anti-inflammatory characteristics [1,2]. In 2020, with the emergence of the COVID-19 pandemic, researchers used existing drugs with potential for the treatment of COVID-19, including hydroxychloroquine, which ended up being used off-label [3,4]. Clinical trials show that hydroxychloroquine has many adverse effects that can increase risk for the SARS-COV-2 patients health. Common adverse effects are related to gastrointestinal and cardiovascular systems, neurotoxicity and retinopathy [2,5]. The objective of this research was to describe the adverse effects profile of hydroxychloroquine in COVID-19 patients and to characterize the risks associated with off-label use of hydroxychloroquine.

Methods:

An observational, retrospective and descriptive study was conducted. Information collected from the “Eudravigilance” database was analyzed using descriptive statistics with R Studio® software. Information about the source of reporting, patient sex, serious adverse reactions, deaths and off-label cases and their outcome, were evaluated and compared in the pre-pandemic and pandemic period, from January 2017 to December 2021. All cases in which hydroxychloroquine was a suspected drug were considered.

Results:

The number of reports of adverse reactions to hydroxychloroquine increased significantly during the pandemic period (increase of 310.3%), with health professionals reporting the most (92.0%). The off-label administration of hydroxychloroquine has increased as well as incidence and severity of adverse reactions during pandemic period. Serious outcomes, as deaths, presented an increased number during the pandemic. The total number of suspected adverse drug reactions reports increased from a mean of 7.7 reports per month, pre-pandemic, to 114.5 reports during the pandemic. Serious outcomes also increased during the pandemic: a total of 6.8% (n=361) reactions were considered serious before the pandemic, and 26.6% (n=2740) in pandemic period. Finally, deaths associated with the use of hydroxychloroquine were also evaluated, of which 67.0% are described in off-label use cases.

Discussion:

The profile of safety of hydroxychloroquine appears to have changed during the pandemic with the off-label use. Hydroxychloroquine presents different adverse reactions, which should be reported whenever possible. Its off-label use for COVID-19 has been shown to be a risk for patients, as it causes them more risks than usual use. In short, hydroxychloroquine appears to not bring benefits to COVID-19 and it ends up bringing several complications when it is administered.

References:

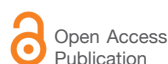
1. White NJ, Watson JA, Hoglund RM, Chan XHS, Cheah PY, Tarning J. COVID-19 prevention and treatment: A critical analysis of chloroquine and hydroxychloroquine clinical pharmacology. *PLoS Med* [Internet]. 2020;17(9):1–24. <http://dx.doi.org/10.1371/journal.pmed.1003252>
2. Pastick KA, Okafor EC, Wang F, Lofgren SM, Skipper CP, Nicol MR, et al. Review: Hydroxychloroquine and chloroquine for treatment of SARS-CoV-2 (COVID-19). *Open Forum Infect Dis*. 2020;7(4):1–9.
3. Garcia P, Revet A, Yrondi A, Rousseau V, Degboe Y, Montastruc F. Psychiatric Disorders and Hydroxychloroquine for Coronavirus Disease 2019 (COVID-19): A VigiBase Study. *Drug Saf* [Internet]. 2020;43(12):1315–22. <https://doi.org/10.1007/s40264-020-01013-3>
4. World Health Organization. Off-label use of medicines for COVID-19. *World Heal Organ* [Internet]. 2020;(March):3–5. Available from: <https://www.who.int/news-room/commentaries/detail/off-label-use-of-medicines-for-covid-19>
5. Yusuf IH, Sharma S, Luqmani R, Downes SM. Hydroxychloroquine retinopathy. *Eye*. 2017;31(6):828–45. <http://dx.doi.org/10.1038/eye.2016.298>

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Conflict of interest:
The authors declare no conflict of interest.

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