

Chloroquine Phosphate is not proved to be an effective treatment for coronavirus

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Abstract

The aim of this meta-analysis is to investigate the effectiveness of chloroquine in treating coronavirus, in general not only novel coronavirus (COVID-19), by pooling the results of randomized controlled clinical trials (RCTs). Only 28 publications were identified; none of which was a RCT. Identified studies were published between 1987 and March 15, 2020. Of these 28 publications, 7 were published in 2020 and discussed the effectiveness of chloroquine against COVID-19. In conclusion, this meta-analysis could not prove that chloroquine is an effective treatment against coronavirus in general or COVID-19 in particular. Expanded access trials should be encouraged especially that chloroquine is available, cheap and relatively safe drug.

Keywords: *Chloroquine, coronavirus, COVID-19, Meta-analysis, Systematic Review.*

Commentary

On 31 December 2019, the Chinese health authorities declared an outbreak of a novel coronavirus (COVID19), which rapidly extended to many countries. Last 11th of March 2020, the World Health organization (WHO), after reported outbreaks in more than 110 countries, declared COVID-19 as a pandemic [1].

Currently, vaccines and antivirals for COVID-19 are being investigated around the world [2]. Several reports claimed the chloroquine phosphate (chloroquine) could be an effective treatment for patients with COVID-19, by inhibiting viral entry into the host cells [3].

The aim of this meta-analysis is to investigate the effectiveness of chloroquine in treating coronavirus, in general not only COVID-19, by pooling the results of randomized controlled clinical trials (RCTs).

A comprehensive PubMed search (from July 1966 until 15 March 2020) was conducted using a variety of Medical Subjects Headings and free text words: *coronavirus* AND *chloroquine* AND/OR *clinical trials*. Additional searches were conducted in Cochrane Central Register of Controlled Trials, Trip Database, Science Direct, and previously published reviews. No attempts were made to locate any unpublished studies. On the basis of the inclusion criteria, 28 publications were identified. A copy of each paper identified was obtained, and relevant data were abstracted.

The identified 28 publications none of which was a RCT. Identified studies were published between 1987 and 2020.

Of these 28 publications, 7 were published from January 1, 2020 till March 15, 2020 and discussed the effectiveness of chloroquine against COVID-19 [4-10]:

1. Multicenter clinical trials currently conducted in China with only promising results that chloroquine could be effective for treating COVID-19 (2 publications).
2. Expert consensus on usage of chloroquine for treating COVID-19 associated pneumonia (1 publication).
3. Reviews and recommendations in light to old experiments (2 publications).

4. In vitro experiments, with one comparing chloroquine with hydroxychloroquine (2 publications).

Table 1 summarizes the types of studies and the results of each.

Till March 15, 2020, the final results of the clinical trials currently conducted in China were not available; only the preliminary results reported promising effectiveness of chloroquine against COVID-19 [11].

The other 21 publications not related to COVID-19 were distributed as follow; in vitro experiments (11 publications), in vivo experiments (5 publications), both in vitro and in vitro experiments (1 publication), and reviews (4 publications). Only 2 in vitro experiments were about Middle East Respiratory Syndrome coronavirus (MERS-CoV) and 5 publications (2 in vitro experiments, 2 reviews, and 1 in vivo experiment) were about Severe Acute Respiratory Syndrome coronavirus (SARS-CoV).

In conclusion, this meta-analysis could not prove that chloroquine is an effective treatment against coronavirus in general or COVID-19 in particular. Expanded access trials should be encouraged especially that chloroquine is available, cheap and relatively safe drug.

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