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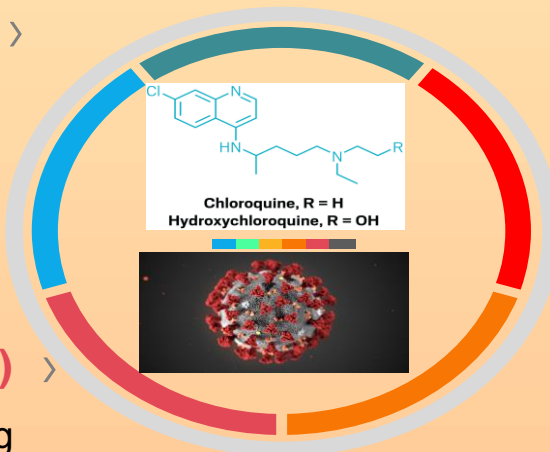
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INTRODUCTION

COVID-19

Infected more than 16,000,000 people with over 700,000 deaths.



Hydroxychloroquine (HCQ)

A less toxic antimalarial drug compared to its analog chloroquine (CQ) because the addition of a hydroxyl group decreasing its toxicity while conserving its efficacy.

Research

Researchers have been debating on the efficacy of HCQ in inhibiting the SARS-CoV-2.

Hypothesis

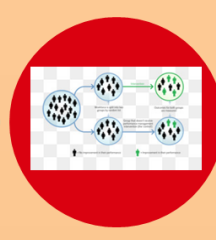
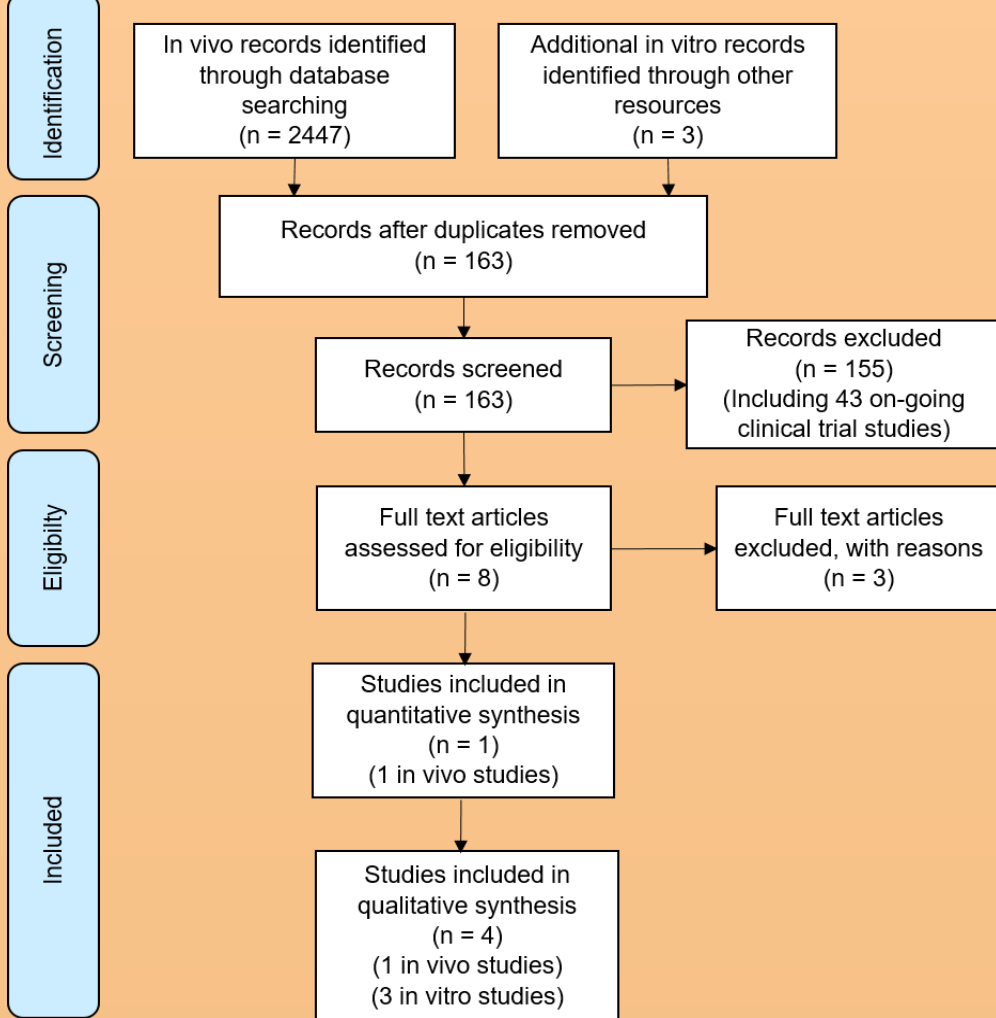
The possibility of HCQ as a potential pharmacological agent for the treatment of COVID-19 infection.

Clinical evidence

There is no clinical evidence to support the use of HCQ/CQ as a treatment or prophylaxis for SARS-CoV-2 infection.



RESULTS



Chen et al. (2020)

Study design: Randomized-controlled trial
Country: China
Sample size: 31



Gautret et al. (2020)

Study design: Non-randomized comparative trial
Country: France
Sample size: 42 (6 lost to follow up)



**Liu et al. (2020)
Yao et al. (2020)
Wang et al. (2020)**

Study design: In vitro

Figure 2: The summary of five included articles in this study.

Figure 1: The PRISMA flow chart for in vivo and in vitro study of hydroxychloroquine and chloroquine in COVID-19.

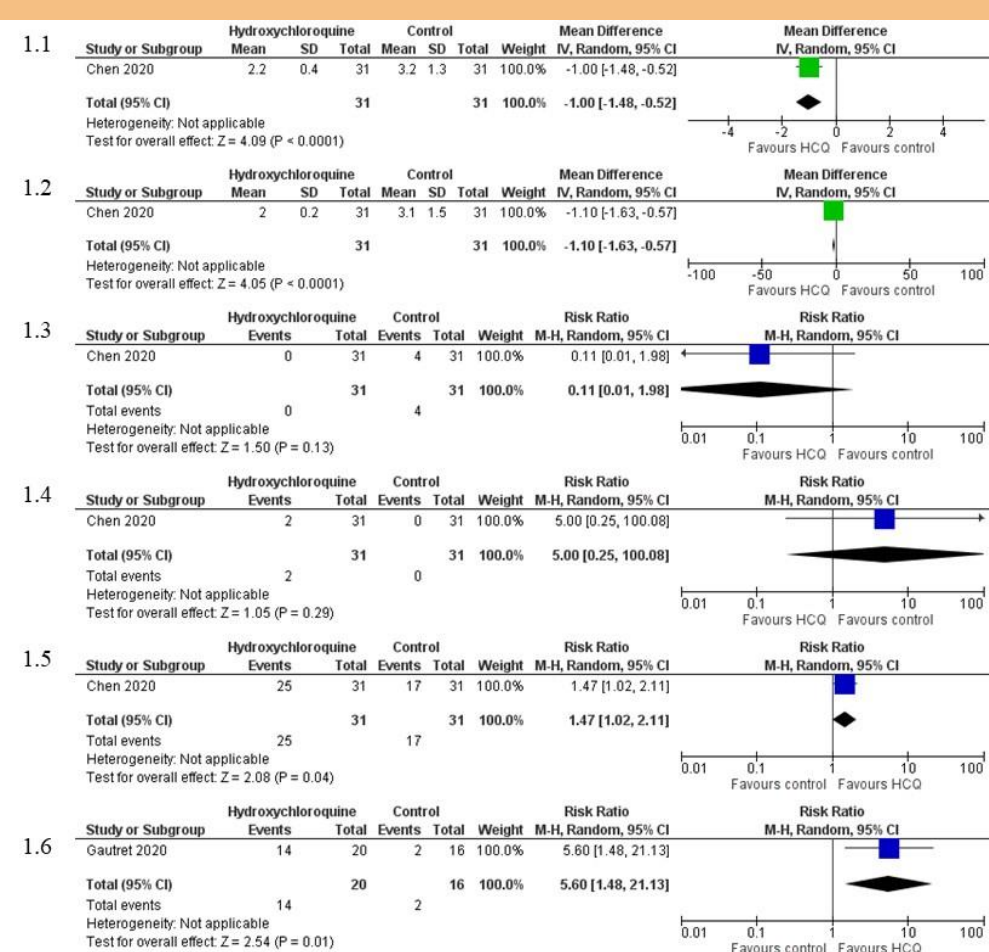


Figure 3: Forest plot of hydroxychloroquine vs. standard treatment. From the figure, 1.1 is hydroxychloroquine vs standard treatment, outcome: Duration of fever resolution; 1.2 is hydroxychloroquine vs standard treatment, outcome: Duration of cough resolution; 1.3 is hydroxychloroquine vs standard treatment, outcome: Number of patients who progressed to severe illness; 1.4 is hydroxychloroquine vs standard treatment, outcome: Number of patients with adverse effects; 1.5 is hydroxychloroquine vs standard treatment, outcome: Number of patients with improved chest CT appearance; 1.6 is hydroxychloroquine vs standard treatment, outcome: Number of patients with negative viral load on day 6.

Table 1: The description for measurement risk of bias for in vivo study by Chen et al. (2020).

Item	Risk	Remarks
Random sequence generation	Low	Methods, "Treatments were assigned after confirming the correctness of the admission criteria."
Allocation concealment	Unclear	Insufficient information provided on who performed the sequence generation and how allocation was implemented to enable an assessment of the relationship between sequence generation and allocation.
Blinding (participants and personnel)	Low	Methods, "Neither the research performers nor the patients were aware of the treatment assignments."
Blinding (outcome assessor)	Low	Methods, "Neither the research performers nor the patients were aware of the treatment assignments."
Incomplete outcome data	Low	Results, "62 patients were identified as having COVID-19 and enrolled in this study, none quit".
Selective outcome reporting	Low	Major clinical outcomes pre-specified in the methods, including adverse effects were reported insufficient detail in the results.
Other bias	Low	None identified.

CONCLUSION

- There is so far no clear evidence that HCQ affects other outcomes with no data on adverse effects and animal-model outcomes.
- The certainty of the estimates for all outcomes (or the quality of evidence) were very low-to-moderate.
- More well-conducted RCTs are needed which should adhere to rigorous standards with clear documentation, to provide improvement in the overall certainty of evidence.
- There is lack of high-quality evidence that supports the efficacy and safety of HCQ and CQ for treatment of COVID-19.

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