INTRODUCTION

Coronavirus Disease 2019 (COVID-19) is an infectious disease caused by a new coronavirus, which causes mild to severe respiratory problems. Chloroquine and hydroxychloroquine are recommended for the treatment of COVID-19. Based on in vitro tests, it shows that both antimalarial are effective as a COVID-19 therapy. Antiviral activity of chloroquine and hydroxychloroquine is due to their ability to increase organelle pH prevents the fusion and entry of virus into the cell. In addition, they can inhibit the terminal glycosylation of ACE2. This literature review is needed to determine the effectiveness and safety of chloroquine and hydroxychloroquine in order to find a conclusion that can be used as a basis for intervening drug administration.

METHODOLOGY

This study was a literature review with a narrative review type, which used articles collected from accredited databases (PubMed and Science Direct), then selects titles and abstracts, after which they are selected based on inclusion criteria, the remaining articles will be analyzed to get a certain conclusion. The inclusion criteria of this study were original research articles, primary source, published in 2019-2020, full text using English, and articles that included effectiveness and safety of chloroquine and hydroxychloroquine. The article was searched using keywords: "Chloroquine AND Coronavirus 2019 AND COVID-19", "Hydroxychloroquine AND Coronavirus 2019 AND COVID-19", "Chloroquine AND SARS-CoV-2 AND Novel Coronavirus", "Hydroxychloroquine AND SARS-CoV-2 AND Novel Coronavirus". Some of the data criteria that will be extracted from publications included: title, author, country, year, method, number of samples, severity level, age, control group, intervention group, and research results. These articles were analyzed using effectiveness and safety parameters, namely dosage regimenation, duration of treatment, side effects, cure and mortality rate.

RESULT

After doing abstract screening and title based on the inclusion criteria, 13 articles were left to be analyzed. Based on all reviewed articles, the majority of chloroquine and hydroxychloroquine could improve clinical improvement such as negative PCR results, symptom improvement, short repair time in mild/moderate COVID-19 patients. While several studies have shown worsening clinical outcomes such as the occurrence of side effects, patients are transferred to the intensive care unit, and mortality in severe COVID-19 patients.

Table 1. The Result of Extracted Data

<table>
<thead>
<tr>
<th>Study</th>
<th>Patient</th>
<th>Gender</th>
<th>Age</th>
<th>Comorbidities</th>
<th>Chloroquine/DHCQ</th>
<th>Outcome</th>
<th>Side Effects</th>
<th>Discussion</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>50</td>
<td>Female</td>
<td>34</td>
<td>No</td>
<td>500 mg/day</td>
<td>Negative</td>
<td>No</td>
<td>Effective</td>
</tr>
<tr>
<td>B</td>
<td>70</td>
<td>Male</td>
<td>65</td>
<td>Yes</td>
<td>400 mg/day</td>
<td>Positive</td>
<td>Yes</td>
<td>Ineffective</td>
</tr>
<tr>
<td>C</td>
<td>40</td>
<td>Female</td>
<td>58</td>
<td>No</td>
<td>300 mg/day</td>
<td>Negative</td>
<td>No</td>
<td>Effective</td>
</tr>
<tr>
<td>D</td>
<td>20</td>
<td>Male</td>
<td>31</td>
<td>Yes</td>
<td>250 mg/day</td>
<td>Positive</td>
<td>Yes</td>
<td>Ineffective</td>
</tr>
</tbody>
</table>

DISCUSSION

The male gender suffered a lot from COVID-19 in the 13 articles reviewed. Possibly caused by unhealthy lifestyle factors (such as smoking and consumption of alcoholic drinks), a history of chronic disease (such as a history of diabetes, hypertension and heart disease), and poor immune system [1]. The effective hydroxychloroquine dosage are 600 mg per day, 300 mg three times a day, and 200 mg three times a day. This is due to the large number of patients who recover, minimal side effects and no deaths. Hydroxychloroquine is more effective and synergistic used with a combination of azithromycin 500 mg on day 1, then followed by a dose of 250 mg per day for the next 4 days, in 8 articles studied using a combination of hydroxychloroquine and azithromycin. This synergistic combination is due to the focus on hydroxychloroquine to kill the SARS-CoV-2 virus, while azithromycin is intended for bacterial superinfection that occurs in patients caused by bacterial infection with streptococcus pneumonia [2]. In the COVID-19 guidelines in Indonesia, the dose of hydroxychloroquine is 400 mg once a day for 5 days [3]. The generally effective duration of treatment is 8-14 days for maximum viral killing and a negative PCR test result. The patient’s recovery was due to improved clinical symptoms, decreased viral load, and negative SARS-CoV-2 PCR test results. Healing is generally experienced by COVID-19 patients who have mild/moderate symptoms. It is possible that the patient who does not recover or is admitted to the ICU is a severe COVID-19 patient or the patient has comorbidities. Generally side effects that occur are diarrhea, nausea, vomiting, and the effect of prolonging the QT interval. Treatment was discontinued when the QT interval prolonged > 60 ms and ≥ 500 ms. Close monitoring and electrolyte balance must be maintained [4]. Patient deaths generally occur because the patient is suffering from severe COVID-19, has comorbidities, severe side effects, and the patient’s age is too old.

CONCLUSION

From this review, the concluded that chloroquine and hydroxychloroquine was effective and safe for patients with mild or moderate COVID-19.

REFERENCES