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# Our Experience in the Use of Ivermectin in the Fight against COVID-19

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## Abstract

With the World Health Organization (WHO) declaring COVID-19 a pandemic, several trials have been proposed to stop or reduce this unprecedented threat to the health of populations worldwide. From here, we began to consider available drugs that have been shown to be safe with the possibility of having an antiviral effect in order to control the infection. Among these drugs was ivermectin, which is widely used to treat many parasitic diseases. The first clinical trial in this regard originated from Zagazig University in Egypt and was registered in May 2020. Great success has been recorded in preventing infection in family members who are in close contact with patients. Subsequently, many studies around the world began to use it in prevention as well as in the treatment of confirmed cases. Despite the advice of the WHO that ivermectin should only be used in clinical trials, the results of most previous studies were very encouraging. In this article, we present our experience regarding the role of ivermectin in prophylaxis and treatment of early cases of COVID-19.

**Keywords:** SARS-CoV-2; Treatment; Prophylaxis; Egypt

## Introduction

With the emergence of Corona infection and the announcement by the WHO of the spread of the COVID-19 pandemic, many attempts appeared to control it, including physical distancing measures, wearing a face mask, and vaccinations [1]. New mutations of the coronavirus are still emerging and are mostly resistant to vaccines. Despite the emergence of many effective vaccines, it is still too early to know the best way to control the COVID-19 with any of them [2]. In this regard, several clinical trials using available drugs to treat COVID-19 patients have been investigated. Among these drugs, ivermectin that has been previously used as a safe drug to treat several parasitic and skin diseases has been suggested to be effective as a prophylaxis and treatment for the early stages [3]. This use is built on previous reports indicating broad-spectrum antiviral properties of ivermectin [4]. Despite the apparent effectiveness of ivermectin as an antiviral drug in previous studies, the WHO has not yet approved its use except in clinical trials [5].

## Our Previous Study and Clinical Observations

Our previous study was a prospective, community-based, randomized, controlled-intervention study registered with Clintrials.gov; NCT04422561 and approved by the IRB, Faculty of Medicine, Zagazig University, Code: 6150-31-5-2020 [6,7]. Asymptomatic home family members who were in close contact with COVID-19 cases diagnosed at Zagazig University Hospitals, and a triage and isolation hospital. It was planned to include contacts of 50 confirmed RT-PCR COVID-19 patients in each arm. But during recruitment, and since the trial was unblended, the detected high protective efficacy of ivermectin caused the researchers to stop the no-intervention arm prematurely. Inclusion criteria included asymptomatic close family contacts of a confirmed RT-PCR COVID-19 index case, with age equal to or greater than 16 years. Two arms (or two groups) were designed according to the use of ivermectin: The first group (the ivermectin group) received ivermectin on the day of their index case diagnosis. It was administered as a single dose on an empty stomach on the first day (the day of diagnosis), and repeated again

on the third day (two doses total). The dose has been adjusted to body weight (BW) as follows: 15 mg/day for people aged 40-60 kg body weight; 18 mg / day 60-80 kg; and 24 mg/day for those over 80 kg body weight. The second group (no-intervention group), none of which received ivermectin. Both groups were followed for two weeks, to detect the development of symptoms suggestive of COVID-19. In the ivermectin group, participants were followed-up for possibility of drug side effects. Our primary goal was prevention of COVID-19 and early detection of infection in any of contacts. Results showed that ivermectin group included 203 contacts (to 52 index cases) aged 39.75±14.94 years. Nonintervention group included 101 contacts. Fifteen contacts (7.4%) developed COVID-19 in the ivermectin group compared to 59 (58.4%) in the non-intervention arm (P <0.001). The protection rate for ivermectin was more prominent in contacts aged less than 60-year-old (6.2% infected compared to 58.7% if no treatment). Side effects of ivermectin were reported in 5.4% of cases; they were mild and did not require discontinuation of the drug. They included diarrhea, nausea, fatigue, slight abdominal pain, heartburn and burning sensation [8,9]. On the other hand, we observed a great success of ivermectin in treatment of early stages of COVID-19. Treatment included 4 tablets (each contains 6 mg) of ivermectin, as a single dose per day on an empty stomach for 4 consecutive days. This was concomitant with antihistamine, antipyretic and nasal decongestant tablet, one before bed for 10 days. At the end of treatment protocol, the cases were shown to be improved with relief of most symptoms and signs except mild headache that improved with time.

## Discussion

COVID-19 is a multi-organ disease that primarily affects the upper respiratory tract. At neglection of early management, it extends too many other organs [10,11]. In our cases, treatment was started as soon as the diagnosis was confirmed. This point is very important for case management. Positive response to treatment was well marked by mitigation of clinical disturbances. Ivermectin was the main ingredient as an antiviral used in the treatment of our patients. In this regard, in May 2020 it was the first clinical trial in the world to use ivermectin to combat the current epidemic registered by Zagazig University. It showed encouraging results in protecting family members who were in close contact with patients from transmission of the Corona virus infection [12]. We also suggest high efficacy of ivermectin in the early stages of the disease with early symptomatic recovery. Ivermectin is not only beneficial for its antiviral properties, but could also be due to its proposed anti-inflammatory role in treating allergic respiratory diseases [13]. In this regard, we also used nasal decongestants to reduce the manifestations of congestion to facilitate breathing. A common mistake noticed with ivermectin is to use it only after the infection has spread widely in the body and has caused several organs failure. In this regard, we emphasize that for its use to be effective, it must be administered as quickly as possible for infection or even suspected infection when a person has been in close contact with confirmed case. Furthermore, many people may consider it as a vaccine that may provide long-term protection. Here we confirm that it is not a vaccine. This means that it should be taken every time people are exposed to or suspected to have infection when dealing with confirmed cases.

## Conclusions

In conclusion, we suggest the use of ivermectin in the early treatment of COVID-19 infection in addition to chemoprophylaxis when exposed to patients. Furthermore, it is recommended to use an antipyretic and antihistamine in combination with nasal decongestant tablets for ease of breathing. In this regard, we emphasize in accordance with our previous observations that studies looking at ivermectin in prevention and early treatment are neither time consuming nor burdensome to health nor the economy. Therefore, it is easy to verify the efficacy of ivermectin against COVID-19 in future studies and at large scales. We also emphasize that ivermectin is not a substitute for vaccinations. Effective vaccinations are highly recommended for long-term protection against the coronavirus. However, the use of ivermectin in parallel with vaccines could help combat the current epidemic. It may be emergency protection upon exposure or contact with sick people, or medication for patients who have been infected in the early stages, even if they have been immunized.

## Conflict of Interest

None.

## Funding

None.

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