



HYDROXYCHLOROQUINE PROPHYLAXIS IN HEALTHCARE WORKERS DURING THE COVID-19 PANDEMIC

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ABSTRACT

This is a non-interventional study of 124 health care workers at a tertiary care hospital, who completed a questionnaire-based survey, sent out as an electronic form to potential responders during the COVID-19 pandemic. All these respondents had taken HCQ as prophylaxis, as recommended by the National Task Force for COVID-19, constituted by the Indian Council of Medical Research, Delhi on March 22nd 2020. It has been observed that many healthcare workers besides doctors need to be made more aware of the possible side-effects of HCQ.

Key words:

COVID-19; hydroxychloroquine

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INTRODUCTION

Coronaviruses have, in the recent past, affected mankind with not one, but three broad strains, which have caused global outbreaks. In 2002, SARS-CoV caused severe acute respiratory syndrome (SARS); then in 2012, MERS-CoV caused Middle East respiratory syndrome (1). Presently, we are in the midst of the Covid-19 pandemic, caused by SARS-CoV-2 (2). We are yet to find a definitive treatment for the same. This is due to the virus's ability to swiftly mutate and evolve during replication (3). In India, on March 22nd 2020, the National Task Force for COVID-19, constituted by the Indian Council of Medical Research, Delhi, recommended the use of Hydroxychloroquine (HCQ) as prophylaxis in asymptomatic healthcare workers treating suspected or confirmed COVID-19 cases as well as for treating household contacts of confirmed cases (4). The dosage recommendation for healthcare workers was 400mg twice a day on day 1, followed by 400mg once a week for 7 weeks (5). 1

Hydroxychloroquine and chloroquine have long been used in the prophylaxis and treatment of malaria (6). With regard to antimicrobial effects, chloroquine has been shown to inhibit SARS CoV replication in vitro (7). Owing to chloroquine resistance and more toxicity, HCQ is now widely used for an array of conditions (8). Yet, HCQ also demonstrates various adverse effects such as psychosis, irreversible ototoxicity and retinopathy to name a few (9). This study aims to document experiences of healthcare workers with regard to HCQ consumption, its advantages and disadvantages.

Aims and Objective

1. To evaluate the effects of Hydroxychloroquine prophylaxis in healthcare workers during the COVID-19 Pandemic.
2. To document adverse effects of Hydroxychloroquine prophylaxis in healthcare workers during the COVID-19 Pandemic.

MATERIAL AND METHODS

This is an observational, non-interventional study conducted in a tertiary care hospital over a period of 2 weeks from the 16th June 2020 till 3rd July 2020, consisting of a questionnaire-based survey, sent as an electronic form to potential responders. The survey consists of questions based on degree of interaction and exposure of patients, body constitution of the respondent at the time, dosage of hydroxychloroquine consumed and adverse effects noticed, if any.

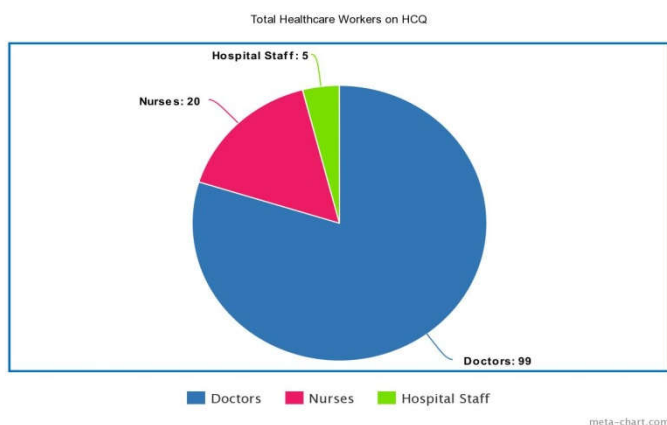
The inclusion criteria involves healthcare workers such as doctors, nurses and hospital staff who have taken the HCQ prophylaxis. The exclusion criteria were those who have not taken HCQ.

RESULTS

A total of 124 respondents took HCQ as a prophylactic drug. 54 were male and 70 were female. 99 respondents were doctors, 20 were nurses and 5 were other hospital staff.

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18% had already completed the 7-week course as recommended by the ICMR at the time of participating in this survey, 10% discontinued the HCQ due to drug intolerance and the remaining respondents still had a few week left to complete it.

Once a week at the least, 77% of these health care workers attended to confirmed cases of COVID-19, and 91% HCWs attended to suspected or non-confirmed cases of COVID-19. There were several adverse effects, most notably gastric discomfort, diarrhoea, light-headedness headaches and visual disturbances.

Symptom	Number of respondents	Percentage of respondents
Gastrointestinal discomfort	41	33%
Headache	18	14.5%
Light headedness	15	12%
Confusion	4	3%
Itching	3	2.4%
Chest discomfort	2	1.6%
Diarrhoea	2	1.6%
Visual disturbances	2	1.6%

As for body constitution,96 respondents of 124, had no co-morbidities while 9 had Hypertension,3 had bronchial asthma, 6 had Diabetes Mellitus -II,4 had an autoimmune disease,1 had ischemic heart disease and 1 had hypothyroidism.

When asked about frequency of contracting respiratory tract infections such as the common cold in the previous years,80 respondents reported having on an average 1-2 episodes of per year and 5 had more than 4 episodes per year. As for nutritional intake and physical activity,100 respondents followed a balanced diet and 56 exercised regularly.

Since December 2019,56 respondents had one episode of cold,cough and fever. 11 respondents tested positive for COVID-19.Of these, 2 suffered from chronic lung disease, while the remaining had no known co-morbidities.6 respondents had completed the 7-week recommended course at the time of submitting their responses.

DISCUSSION

Atabrine and chloroquine were the first known drugs used to treat soldiers with malaria during World WarII(10). Subsequently, a less toxic, hydroxychloroquine was developed in 1955(11). As of today, HCQ is now included in the management of various immunological disorders such as systemic lupus erythematosus, rheumatoid arthritis and cutaneous sarcoidosis, to name a few(12).

As an antiviral, Paton *et al* has demonstrated that in HIV-infected patients, HCQ, along with hydroxyurea and didanosine has been shown to control viral replication(13). In 2004,Keyaerts *et al* have described chloroquine inhibition of SARS-CoV in vitro (14).

As promising as HCQ is,its side effects are just as significant. Most notable adverse effects are hypoglycaemia, cardiomyopathy, retinopathy, abdominal cramping, diarrhoea, alopecia, hearing loss and haemolysis in glucose-6-phosphate deficient individuals(15). One may question if this has any relation to dosage. The maximum dose of HCQ is 6.5 mg /kg of ideal body weight per day(16). It becomes pertinent that every individual, besides doctors, should be made aware of the possible side effects before consuming this potent drug, while taking the appropriate dosage.

CONCLUSION

At this time of crisis, we are in need of a solution. History has taught us that aggressive viruses eventually evolve and adapt better to humans (17). While HCQ shows potential as prophylaxis, 9 percent of the respondents taking HCQ contracted COVID-19. At this point, we need to weigh the benefit and risk. Also, awareness of the possibility of multiple side effects should be elaborated before starting the prophylactic course.

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