Original Article

Indian Journal of Communicable Diseases
Volume 7 Number 1, January – June 20
DOI: http://dx.doi.org/10.21088/ijcd.2395.6631.7121.2

Prophylactic use of Hydroxychloroquine in Prevention of Covid-19 A Survey

Akashkumar N Singh

How to cite this article:
Akashkumar N Singh, Prophylactic use of Hydroxychloroquine in Prevention of Covid-19 A Survey. Indian J Comm Dis.2021;7 (1):15–18.

Author's Affiliations: Consultant Physician, Spandan Multispecialty Hospital, Manjalpur, Vadodara, Gujarat 390011 India.

Corresponding Author: Akashkumar N Singh, Consultant Physician, Spandan Multispecialty Hospital, Manjalpur, Vadodara, Gujarat 390011 India.

E-mail: drakashkumarsinghmsc@gmail.com

Abstract

Objective: The primary outcome of this study was to assess how many HCWs were taking HCQ as a prophylaxis and to understand about its use including safety. ***Materials and Methods:*** This was a focused questionnaire based online survey of Health Care Workers (HCWs) exposed to COVID 19patients, at various tertiary care centres in India. ***Results:*** Among the 408 participants, 395 (96.5%) were HCWs and 13 (3.2%) were non-HCWs. Among the 395 HCWs (96.5%), 32 HCWs (8.1%) were involved as COVID-19 frontline staff only; 274 HCWs (69.3%) were involved as practicing doctors running OPDs/medical practice and 89 HCWs (22.5%) were actively involved as both COVID-19 frontline staff and practicing doctor running OPDs/medical practice. Among the 253 HCWs (64%) who have taken HCQ [227 HCWs (89.7%) as per ICMR recommended dose and 26 HCWs (10.3%) varying dosages of HCQ]; 1 HCW (0.4%) was diagnosed with COVID-19 during the prophylactic use of HCQ and 1 HCW (0.4%) had experienced increased risk factor – Right Bundle Branch Block (RBBB) in ECG. Adverse events such as pigment epithelium detachment of right eye, hypoglycemia; diarrhea, gastritis and skin pruritis; nausea and migraine and headache were experienced by 6 HCWs (2.4%).***Conclusions:*** This study demonstrated that majority of HCWs embrace the use of HCQ despite the fact that it is an off-label drug for COVID-19 and no significant evidence is available on its safety and efficacy. Furthermore, the use of HCQ among HCWs did not cause any serious adverse effects or increase in co-morbidities or risk factors.

Keywords: COVID-19; Hydroxychloroquine; Health Care Workers; Pre-Exposure Prophylaxis.

Introduction

The COVID-19 disease is caused by a novel strain of severe acute respiratory syndrome coronavirus 2 (SARS-CoV2), a positive sense RNA virus belonging to the family coronaviridae and has become a global concern. First case in India was reported on January 30, 2020. However, given the contagious nature and rapid spread of this virus with consequences on an international scale, COVID-19 was declared as a Public Health Emergency of International Concern (PHEIC) on January 30, 2020 and as a global pandemic by the World Health Organization on March 11, 2020 by the World Health Organization (WHO) as per the per the International Health Regulations (IHR, 2005).[1] In India, according to the Union Health Ministry about 56.5 million COVID-19 positive cases have been reported as of November 18, 2020. Among these, 15.8 million were active cases, 39.3 million were recovered cases and 1.35 million were death cases. These numbers are known to increase by the mid of 2021.[2]The COVID-19 virus which originally emerged from an animal is known to be rapidly spreading from person to person through sneezes, fluid droplets and contact with contaminated surfaces touched by an infected person. It is known to affect all the age groups. The incubation period of the virus is known to be 14 days from the exposure to the virus. The symptoms usually appear from 3-14 of exposure to the virus and vary from mild to severe. Most of the people have also been reported to be asymptomatic serving as an important source of contagion. Mild symptoms include cough, fever or chills, shortness of breath or difficulty in breathing, muscle or body aches, sore throat, loss of taste or smell,

diarrhea, headache, fatigue, nausea or vomiting, congestion or runny nose etc. Whereas, severe symptoms include respiratory problems, kidney failure or death. Elderly people and people with pre-existing medical conditions such as diabetes, high blood pressure, heart problems, kidney problems and asthma etc. are known to be at high risk of developing severe infection.[1]

There are several on-going clinical trials on various novel antiviral drugs in an attempt to find a potential vaccine or treatment option for COVID-19. On the other hand, both the medical and scientific communitiesare also putting tremendous efforts to identify the use of chemoprophylaxis in people at higher risk of infection by resorting to repurposing old drugs such as anti-malarial (chloroquine or hydroxychloroquine) and anti-retroviral (lopinavir, ritonavir, remdesivir) to expedite the process of prevention or treatment of COVID-19. Among these drugs, the two antimalarial drugs - Chloroquine (CQ) and Hydroxychloroquine (HCQ) which have been approved and commonly used for malaria and autoimmune rheumatic diseases for almost 80 years have experimentally shown to have antiviral capabilities and prophylactic potential against COVID-19 based on the initial findings reported by a French professor, Didier Raoult.[1,2]

On March 22nd, 2020, the Indian Council of Medical Research's National Task Force for COVID-19 issued a national recommendation to use HCQ for prophylaxis against COVID-19 infection (400 mg twice a day on day 1, followed by 400 mg once weekly for 7 weeks) especially in asymptomatic HCWs who are most likely at high risk of contracting the infection for treating suspected or confirmed COVID-19 cases, and asymptomatic household contacts of confirmed patients.[1] Moreover, a recent case-controlled study conducted by ICMR using a 20-item brief questionnaire to obtain data from randomly selected participants from the countrywide COVID-19 testing data portal maintained by the ICMR,has underlined the benefit of HCQ as prophylaxis, showing that the sustained use of the anti-malaria drug along with the use of personal protective equipment (PPE) was associated with a significant risk reduction of Covid-19 infection rate by up to 80% among the HCWs.[2]

Despite these promising findings and ICMR recommendation, several controversies regarding the use of HCQs as an off-label use for pre-exposure and post-exposure prophylaxis still remain globally. The aim of this questionnaire based online survey is to explore the usage of HCQ and its safety amongst HCWs who were working at various tertiary health care centers in India and actively involved in treating COVID-19patients.

Materials and Methods

This was a questionnaire based online survey of 408 HCWsin various hospitals across India, who were actively involved as COVID-19 frontline staffthat was circulated via web-based messenger services amongst HCWs who were encouraged to recirculate the sameamongst their colleagues. This online survey was performed from in the month of June 2020.

The inclusion criteria wereHCWs actively involved as COVID-19 frontline staffand/or a practicing doctor running out-patient departments (OPDs)/medical practice (for routine/limited hours) and having a history of intake of HCQin any dose as prophylaxis.

The exclusion criteria were refusal to provide consent or not willing to participate and not being a contact of COVID-19 positive case as per definition given by the National Centre of Disease Control, India (NCDC).[2]

The primary outcome of this study was to assess how many HCWs who responded are taking HCQ as a prophylaxis and tounderstand about its use including safety.

Data Collection and Statistical Analysis

The responses of the participants were recorded and analyzed. The data collected included demographic profile like age, sex, presence of comorbidities (defined as Hypertension, Diabetes, Coronary Artery Disease, Asthma, Hypothyroidism & Chronic Kidney Disease etc.), and use of HCQ prophylaxis as per ICMR recommendations. Data on possible adverse effects was also collected in the survey.Data collected was analyzed and summarized using frequency, proportions and percentages.

Results

Among the 408 participants, 395 (96.5%) were HCWsand 13 (3.2%) were non-HCWs. The study participants varied between age group 20 – 84 years and 340 (83.3%) were men while 68 (16.7%) were women. Among the 395 HCWs (96.5%),32 HCWs (8.1%) were involved as COVID-19 frontline staff only; 274HCWs (69.3%)wereinvolved only as a practicing doctor running out-patient departments (OPDs)/medical practice and 89 HCWs (22.5%) were actively involved as both COVID-19 frontline staff and practicing doctor running out-patient departments (OPDs)/medical practice(See Figure 1).

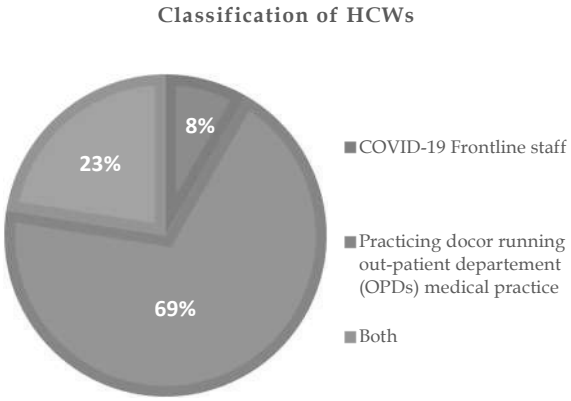

Fig. 1: Classification of HCWs.

The HCWs who were running OPDs/medical practice for routine hours were 107HCWs (26.2%) and those for limited hours were 223HCWs (54.7%). The HCWs who used HCQ as prophylaxis were 253 (64%). Among them, 227 HCWs (89.7%) HCWs have used the HCQ dose as per ICMR recommendations (Stat.800 mg HCQ followed by 400 mg weekly) while 26 HCWs (10.3%) used various dosage regimens of HCQ (See Table 1 for dosing information). The number of weekly doses taken varied from 1 to 119 doses.

Table 1: HCQ Dosing Information.

Dosage Used	No. of HCWs (N)
200 Mg Bd * 5 Days	1
200 Mg Once Weekly No Loading Dose	4
400 Mg Once Weekly No Loading Dose	13
Stat.400 Mg Followed By 200 Mg Weekly	4
Stat.400 Mg Followed By 400 Mg Weekly	3
800 Mg Once Only	1

Among the 253 HCWs (64%) who used HCQ, 61 HCWs (24.1%) have regularly monitored their ECG and 25 HCWs (9.9%) had pre-existing co-morbidities such as diabetes, hypertension, Coronary Artery Disease (CAD), asthma, hypothyroidism and Chronic Kidney Disease (CKD). Among these HCWs, only 1 HCW (0.4%) was diagnosed with COVID-19 during the prophylactic use of HCQ and 1 HCW (0.4%) has experienced increased risk factor–Right Bundle Branch Block (RBBB) in ECG. Adverse events such as pigment epithelium detachment of right eye, hypoglycemia; diarrhea, gastritis and skin pruritus; nausea; migraine and headache were experienced by 6 HCWs (2.4%).Overall, this survey did not reveal any serious adverse effects or significant increase in risk factors due to the use of HCQ.

Discussion

Over the last few months, an extensive clinical research is being done through several on-going clinical trials for evaluating the safety and efficacy of potential vaccine and prophylactic treatment options including HCQs for COVID-19 among HCWs.[i] Data is also available from multiple literature reports that show promising results demonstrating low incidence rate of infection and no significant increase in risk factors or any serious adverse events due to the pre-exposure prophylaxis with HCQ in HCWs. However, despite these promising findings and ICMR's recommendation to use HCQ for prophylaxis against COVID-19 especially in asymptomatic HCWs treating suspected or confirmed COVID-19 cases, and asymptomatic household contacts of confirmed patients; controversies regarding its safety and efficacy still remain globally.

Conclusion

In our study, it is observed that majority of the HCWs (253 of 395, 64.7%) have preferred to use HCQs either as per ICMR recommended dose (89.7%) or in varying doses and duration (10.3%) as pre-exposure prophylaxis for COVID-19 despite of it being an off-label drug for COVID-19 and lack of significant evidence on its safetyand efficacy. The HCWs did not report any significant increase in risk factors or any serious adverse events and only 1 (0.4%) HCW was diagnosed with COVID-19 during the pre-exposure prophylactic use of HCQ reporting a very low incidence rate.

Based on the results obtained, administration of the HCQ as pre-exposure prophylaxis among HCWs being exposed to COVID-19 is recommended to be safe. However, there is still a dire need to examine the pre-exposure prophylaxis use of HCQs in greater detail among a larger sample using Randomized Controlled Trials (RCT) to be certain about the safety and effectiveness of HCQ among this population.

Limitations

The study was based on the voluntary responses obtained from aquestionnairebasedonline survey that was conducted at only one-time point and no follow-up information was available. All confounding factors could not be measured, and adverse effect data was based solely on patient history.

References

1. Marco Cascella, Michael Rajnik, Arturo Cuomo, Scott C. Dulebohn,Raffaela Di Napoli. Features, Evaluation, and Treatment of Coronavirus (COVID-19).StatPearls Publishing; 2020.Available from: https://www.ncbi.nlm.nih.gov/books/NBK554776/. [Last Accessed on 20 December 2020].
2. Coronavirus Disease (COVID-19) Dashboard; 2020. Available from: https://covid19.who.int/. [Last Accessed on 20 December 2020].
3. Coronavirus (COVID-19) Question and Answers; 2020.Availablefrom:https://www.who.int/emergencies/diseases/novel-coronavirus-2019/question-and-answers-hub/q-a-detail/q-a-coronaviruses. [Last Accessed on 20 December 2020].
4. Journal Publisher Concerned over Hydroxychloroquine Study. The Scientist; 2020.Available from: https://www.the-scientist.com/news-opinion/journal-publisher-concerned-over-hydroxychloroquine-study-67405. [Last Accessed on 24 December 2020].
5. Wang M, Cao R, Zhang L, Yang X, Liu J, Xu M. Remdesivir and chloroquine effectively inhibit the recently emerged novel coronavirus (2019-nCoV) in vitro. Cell Res 2020;30:269–271.
6. Nina PB, Dash AP. Hydroxychloroquine as prophylaxis or treatment for COVID-19: What does the evidence say?. Indian J Public Health, 2020;64:Suppl S2:125-7.
7. Chatterjee P, Anand T, Singh KJ, Rasaily R, Singh R, Das S, et al. Healthcare workers & SARS-CoV-2 infection in India: A case-control investigation in

the time of COVID-19. Indian J Med Res 2020;151:459-67.

8. National Centre for Disease Control. SOP for Contact tracing COVID-19 Cases; 2020.Available from https://ncdc.gov.in/showfile.php?lid=538. [Last Accessed on 28 December 2020].
9. Anne-Lise Bienvenu, Aileen M. Marty, Malcolm K. Jones, Stephane Picot. Systematic review of registered trials of Hydroxychloroquine prophylaxis for COVID-19 health-care workers at the first third of 2020. One Health 2020;10:100141.